

HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 40: SEPTEMBER 30, 2018–OCTOBER 6, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 40

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.7%	Higher than the previous week. Higher than Hawaii's historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	1	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	6.7%	Higher than the previous week. This number means that many, if not all, of the 93.3% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	6.7%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	22.0%	Higher than Hawaii's historical baseline. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	2	

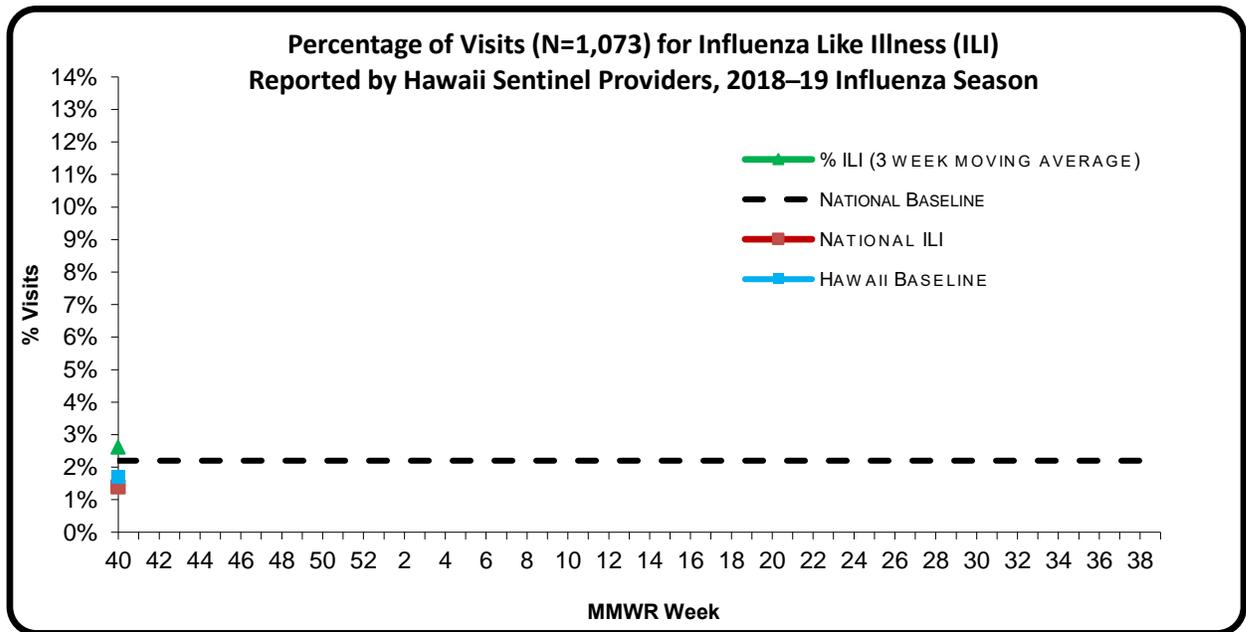
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 40** of the current influenza season:

- **2.7%** (season to date: **2.7%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (1.4%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 40. This cluster occurred at a school on Oahu. This cluster included cases of influenza A.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

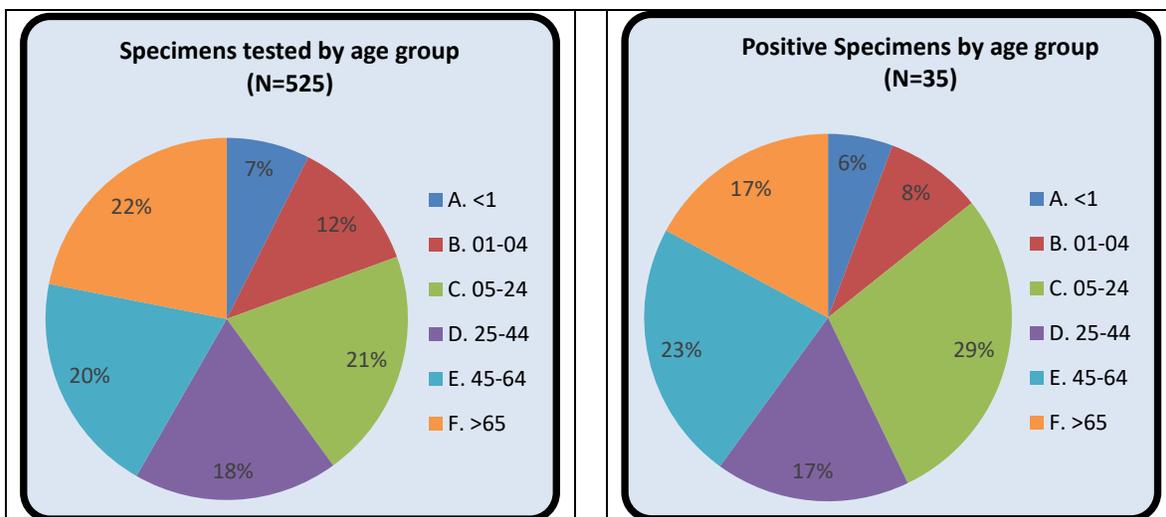
A. INFLUENZA:

- The following reflects laboratory findings for week 40 of the 2018–19 influenza season:
 - A total of 525 specimens have been tested statewide for influenza viruses (positive: 35 [6.7%]). (Season to date: 525 tested [6.7% positive])
 - 357 (68.0%) were screened only by rapid antigen tests with no confirmatory testing
 - 168 (32.0%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 490 (93.3%) were negative.

Influenza type	Current week 40 (%)	Season to date (%)
Influenza A (H1) ⁷	0 (0.0)	0 (0.0)
Influenza A (H3)	0 (0.0)	0 (0.0)
Influenza A no subtyping	27 (77.1)	27 (77.1)
Influenza B (Yamagata)	0 (0.0)	0 (0.0)
Influenza B (Victoria)	0 (0.0)	0 (0.0)
Influenza B no genotyping	8 (22.9)	8 (22.9)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

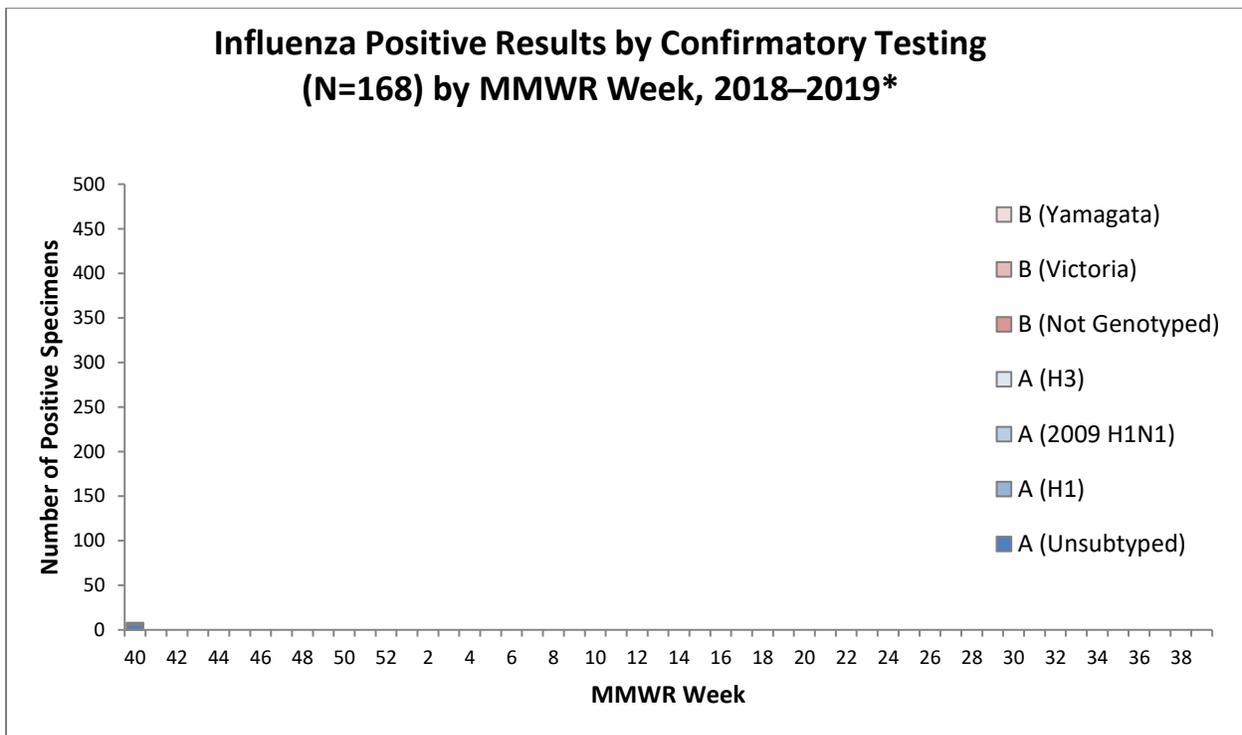
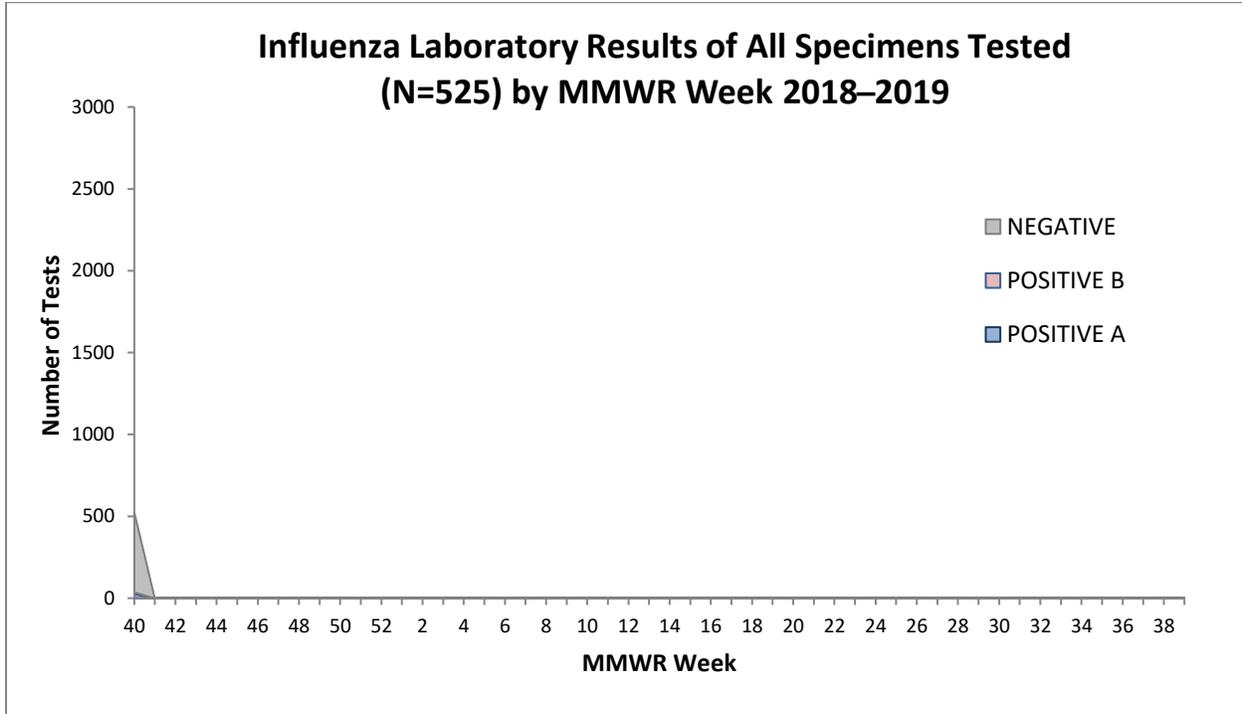


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



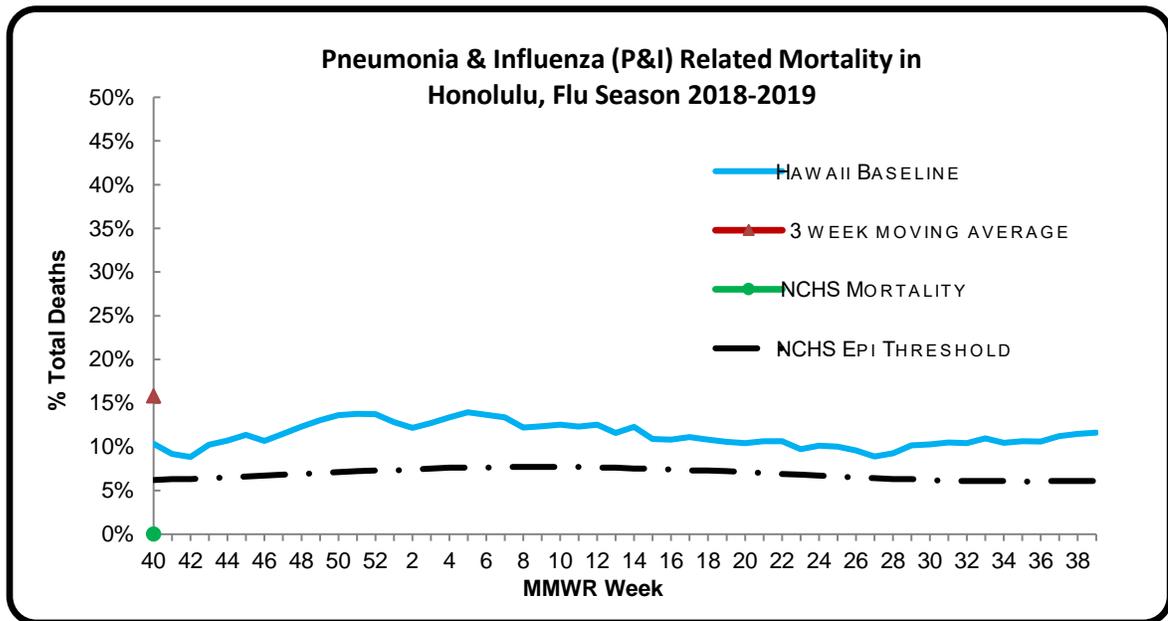
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 40 of the current influenza season:

- 22.0% of all deaths that occurred in Honolulu during week 40 were related to pneumonia or influenza. For the current season (season to date: 22.0%), there have been 82 deaths from any cause, 18 of which were due to P&I.
- The P&I rate was higher than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).
- National P&I data are backlogged by one week and current data for week 40 is unavailable at this time. Based on NCHS mortality surveillance data, 5.4% of deaths that occurred nationally during week 38 and 39⁹ (weeks ending September 22 and September 29, 2018, respectively) were due to P&I. This percentage is below the national epidemic threshold of 5.7% for both week 38 and week 39.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 40. Both deaths were associated with an influenza B virus. (2017-2018 season total: 183). No influenza-associated pediatric deaths for the 2018-2019 season have been reported to CDC.

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ There is a backlog of data requiring manual coding within NCHS mortality surveillance data. Efforts continue to reduce and monitor the number of records awaiting manual coding.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 40.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **September 21, 2018**. Since the last update, one new laboratory-confirmed human case of influenza A(H5N6) virus infection was reported to WHO from China. This case was hospitalized and treated for pneumonia. The patient had exposure to live poultry before illness onset. A total of 20 laboratory-confirmed cases of human infection with A(H5N6) virus have been reported to WHO from China since 2014. One new laboratory-confirmed human case of A(H9N2) virus infection was reported to WHO from China. The case had mild illness and was detected as part of routine influenza sentinel surveillance. The patient did not have any known contact with live poultry but during environmental investigation at a farm where she went for dinner, samples from the food preparation areas tested positive for H9N2.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

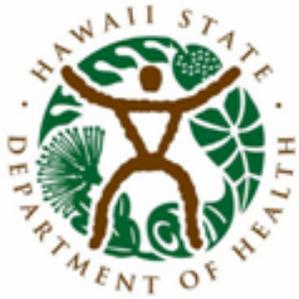
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 41: OCTOBER 7, 2018–OCTOBER 13, 2018

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REPORT SNAPSHOT FOR WEEK 41

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.8%	Lower than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	4.4%	Higher than the previous week. This number means that many, if not all, of the 95.6% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	5.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	9.6%	Comparable to Hawaii's historical baseline. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	1	

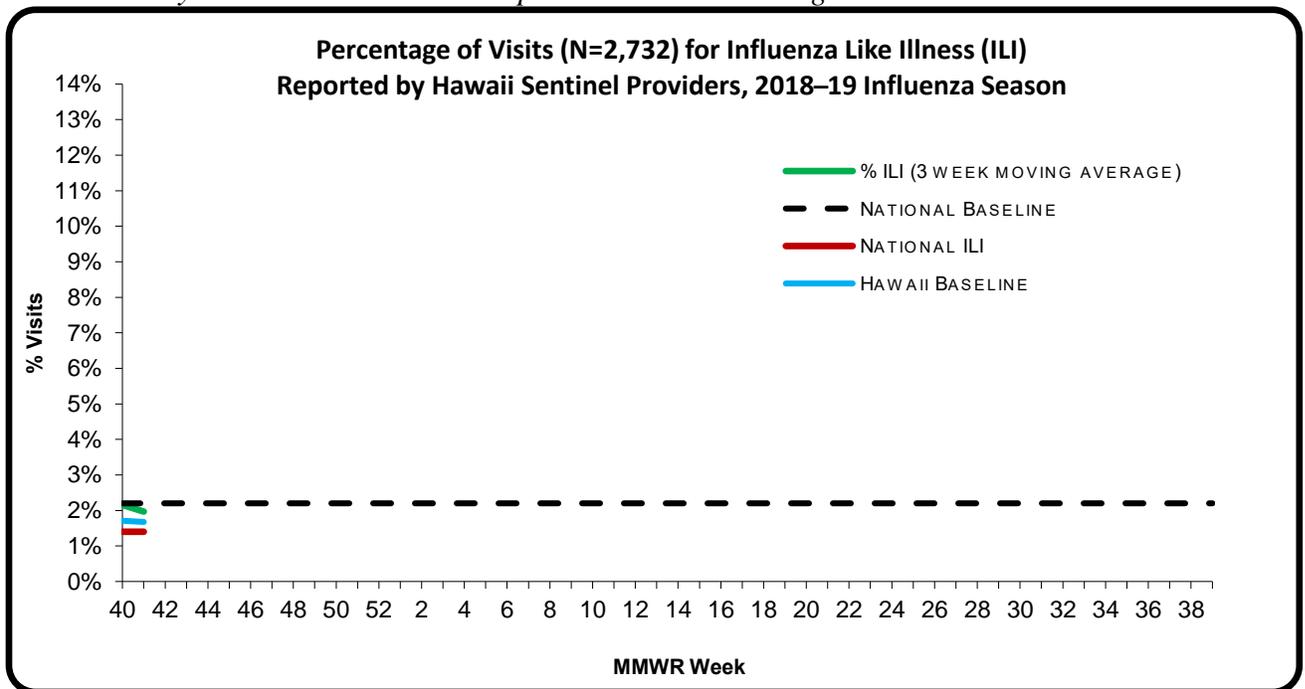
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For **week 41** of the current influenza season:

- **1.8%** (season to date: **2.0%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (1.4%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 41.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

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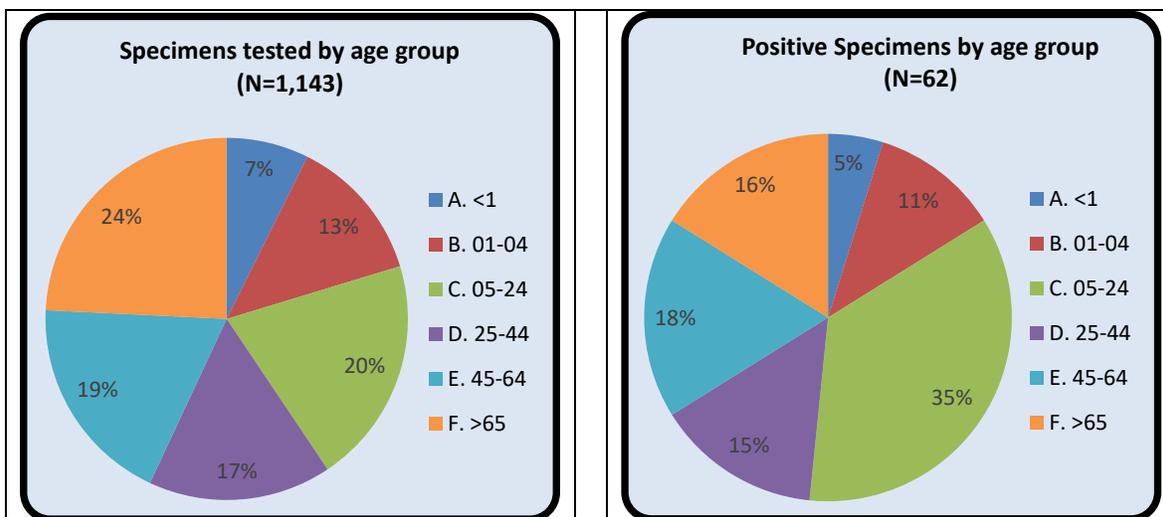
A. INFLUENZA:

- The following reflects laboratory findings for week 41 of the 2018–19 influenza season:
 - A total of **618** specimens have been tested statewide for influenza viruses (positive: **27 [4.4%]**). (Season to date: **1,143** tested [**5.4%** positive])
 - 402 (65.0%) were screened only by rapid antigen tests with no confirmatory testing
 - 216 (35.0%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 591 (95.6%) were negative.

<i>Influenza type</i>	<i>Current week 41 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	0 (0.0)	0 (0.0)
<i>Influenza A (H3)</i>	0 (0.0)	0 (0.0)
<i>Influenza A no subtyping</i>	21 (77.8)	48 (77.4)
<i>Influenza B (Yamagata)</i>	0 (0.0)	0 (0.0)
<i>Influenza B (Victoria)</i>	0 (0.0)	0 (0.0)
<i>Influenza B no genotyping</i>	6 (22.2)	14 (22.6)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

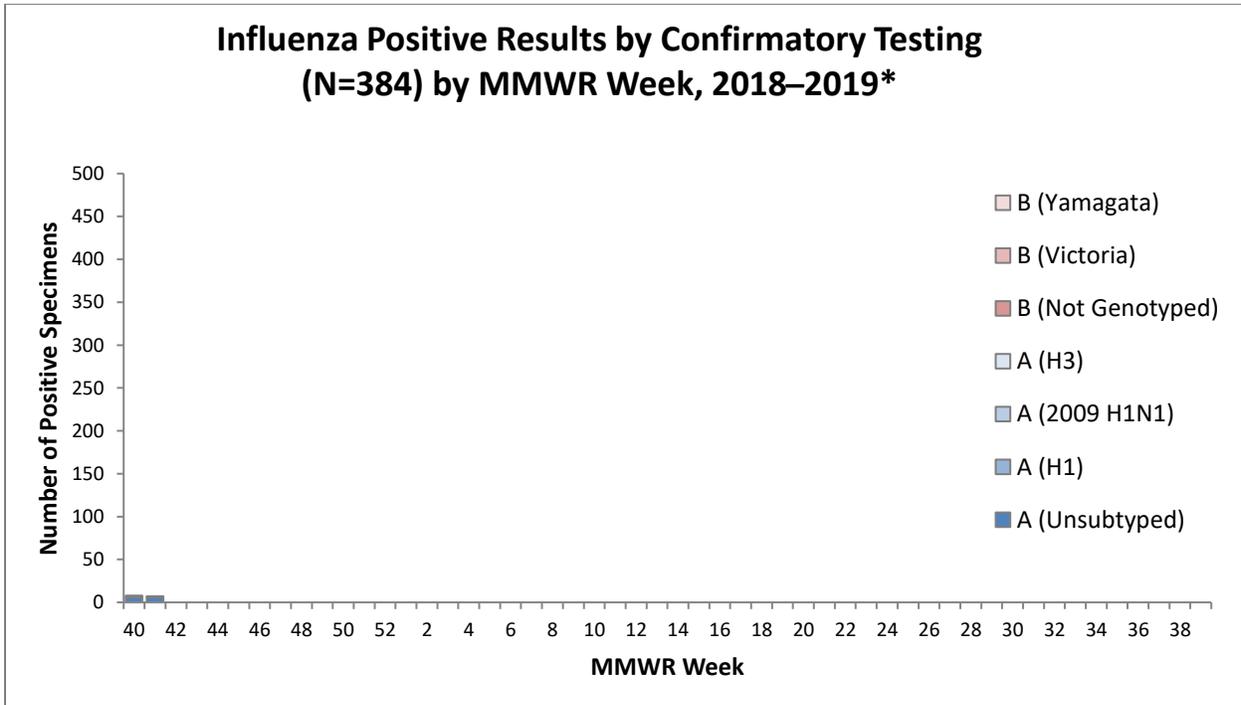
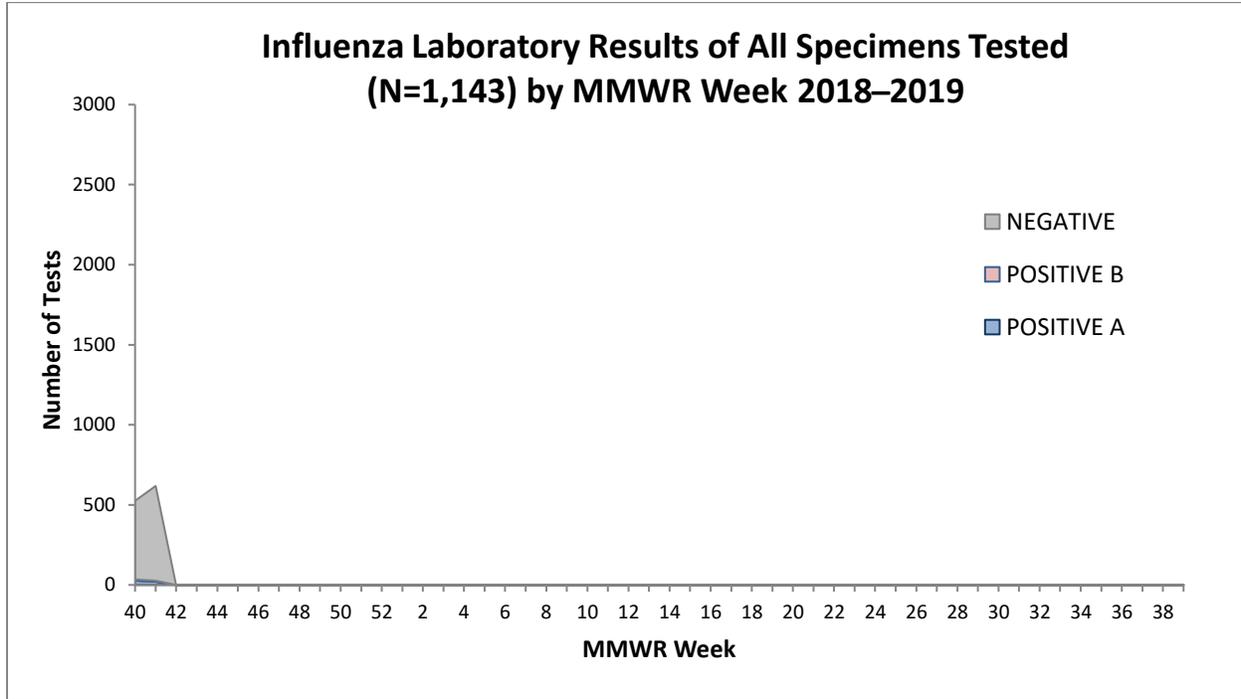


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



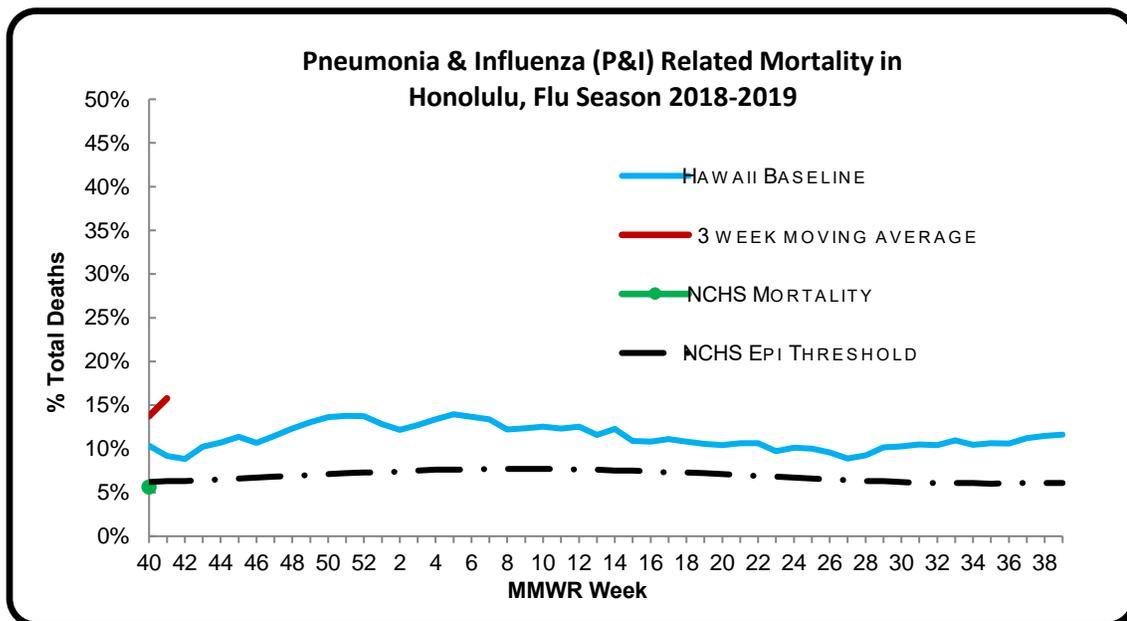
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 41 of the current influenza season:

- **9.6%** of all deaths that occurred in Honolulu during week 41 were related to pneumonia or influenza. For the current season (season to date: **16.1%**), there have been 155 deaths from any cause, 25 of which were due to P&I.
- The P&I rate was comparable the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- National P&I data are backlogged by one week and current data for week 41 is unavailable at this time. Based on NCHS mortality surveillance data, 5.6% of deaths that occurred nationally during week 40⁹ (week ending October 6, 2018) were due to P&I. This percentage is below the national epidemic threshold of 5.8% for week 40.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 41 (week ending October 13, 2018). This death was associated with an influenza A virus for which no subtyping was performed. (Season total: 1).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ There is a backlog of data requiring manual coding within NCHS mortality surveillance data. Efforts continue to reduce and monitor the number of records awaiting manual coding.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 41.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **September 21, 2018**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

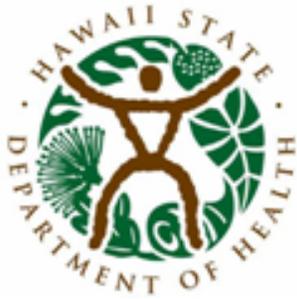
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 42: OCTOBER 14, 2018–OCTOBER 20, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 42

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.8%	Higher than the previous week. Higher than Hawaii’s historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	4.9%	Higher than the previous week. This number means that many, if not all, of the 95.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	5.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	16.7%	Comparable to Hawaii’s historical baseline. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	0	

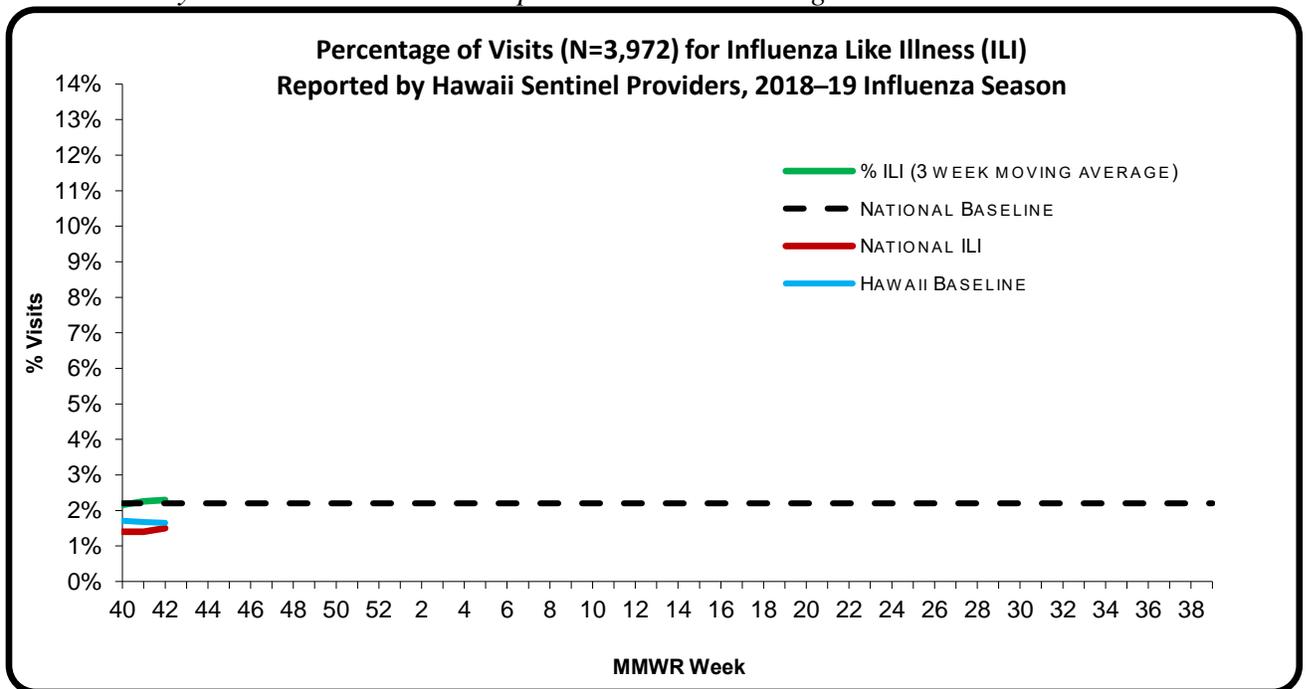
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 42** of the current influenza season:

- **2.8%** (season to date: **2.2%**) of the outpatient visits recorded by Hawaii sentinel providers were for **ILI**.
- **ILI** visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s **ILI** outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national **ILI** rate (1.5%) (i.e., outside the 95% confidence interval).
- **Geographic Spread: Sporadic Activity**⁵
- **ILI Cluster Activity: No new clusters were reported to HDOH during week 42.**



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

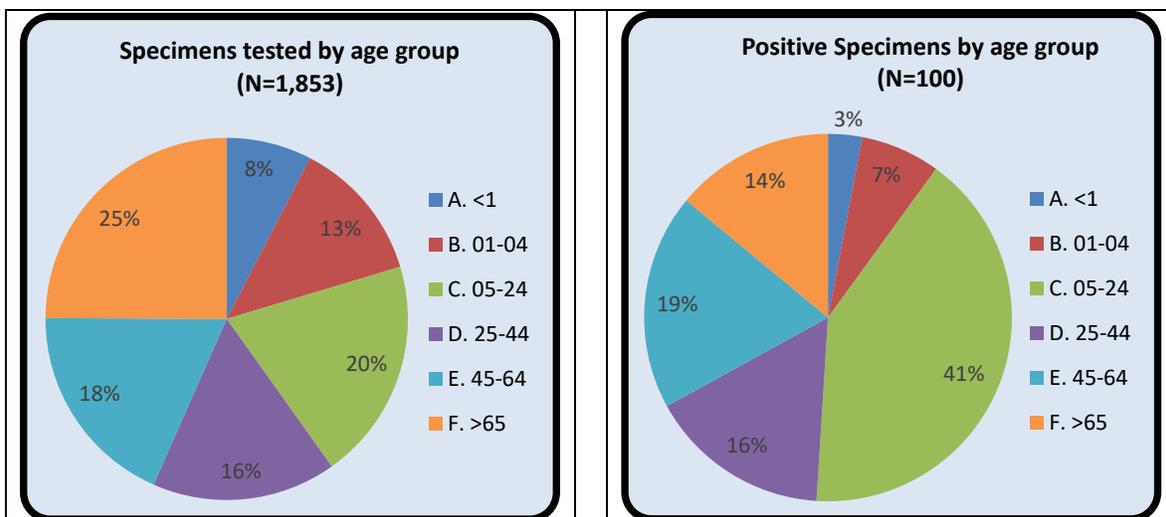
A. INFLUENZA:

- The following reflects laboratory findings for week 42 of the 2018–19 influenza season:
 - A total of **695** specimens have been tested statewide for influenza viruses (positive: **34 [4.9%]**). (Season to date: **1,853** tested [**5.4%** positive])
 - 476 (68.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 219 (31.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 661 (95.1%) were negative.

<i>Influenza type</i>	<i>Current week 42 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	1 (2.9)	1 (1.0)
<i>Influenza A (H3)</i>	1 (2.9)	6 (6.0)
<i>Influenza A no subtyping</i>	26 (76.5)	71 (71.0)
<i>Influenza B (Yamagata)</i>	1 (2.9)	5 (5.0)
<i>Influenza B (Victoria)</i>	0 (0.0)	0 (0.0)
<i>Influenza B no genotyping</i>	5 (14.7)	17 (17.0)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

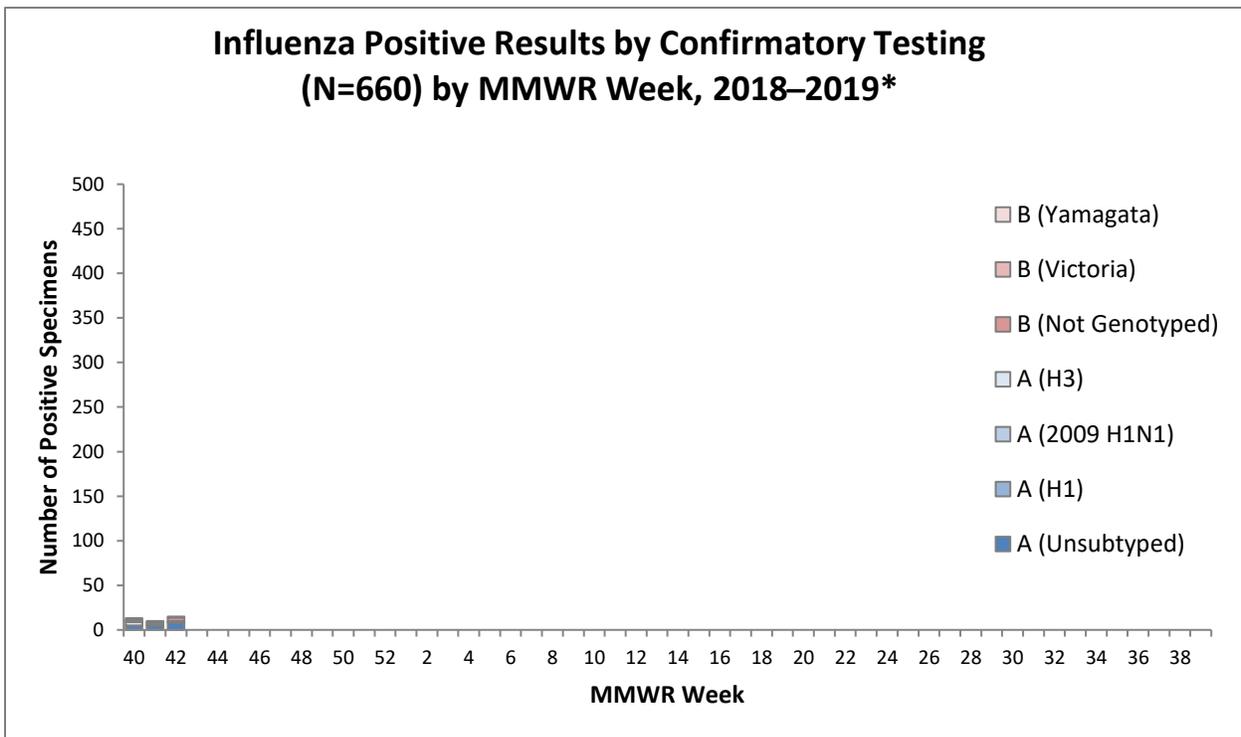
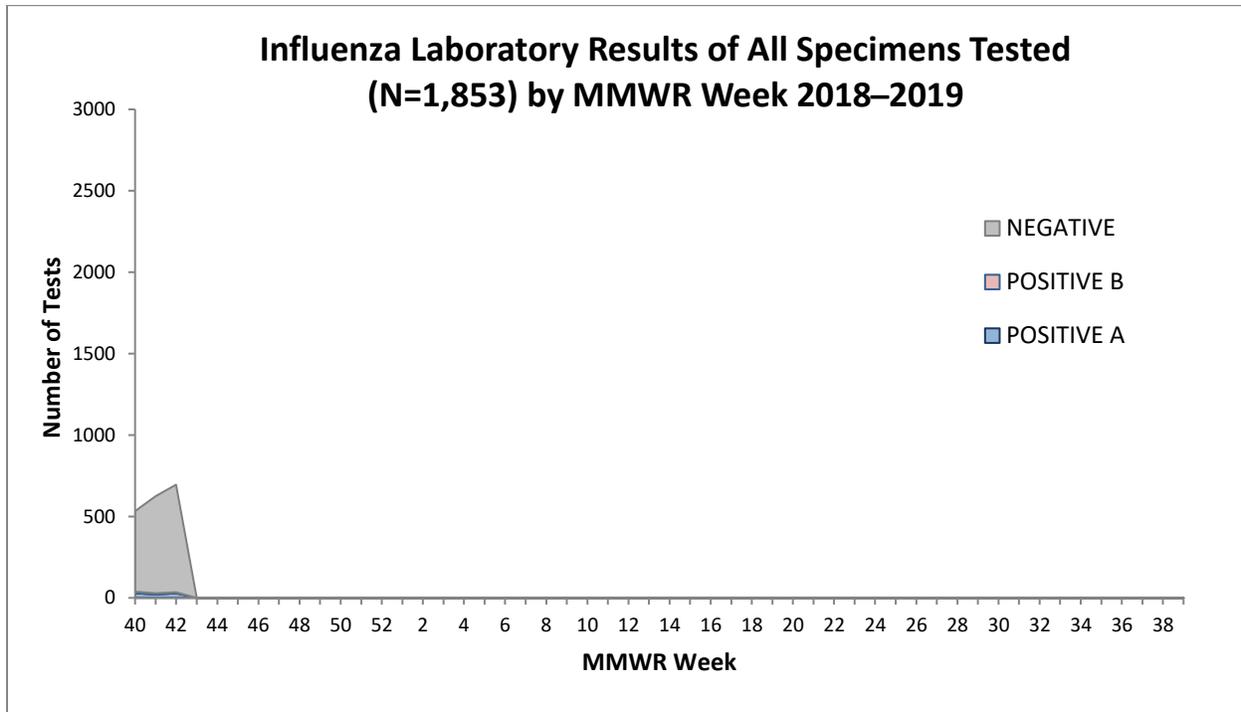


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



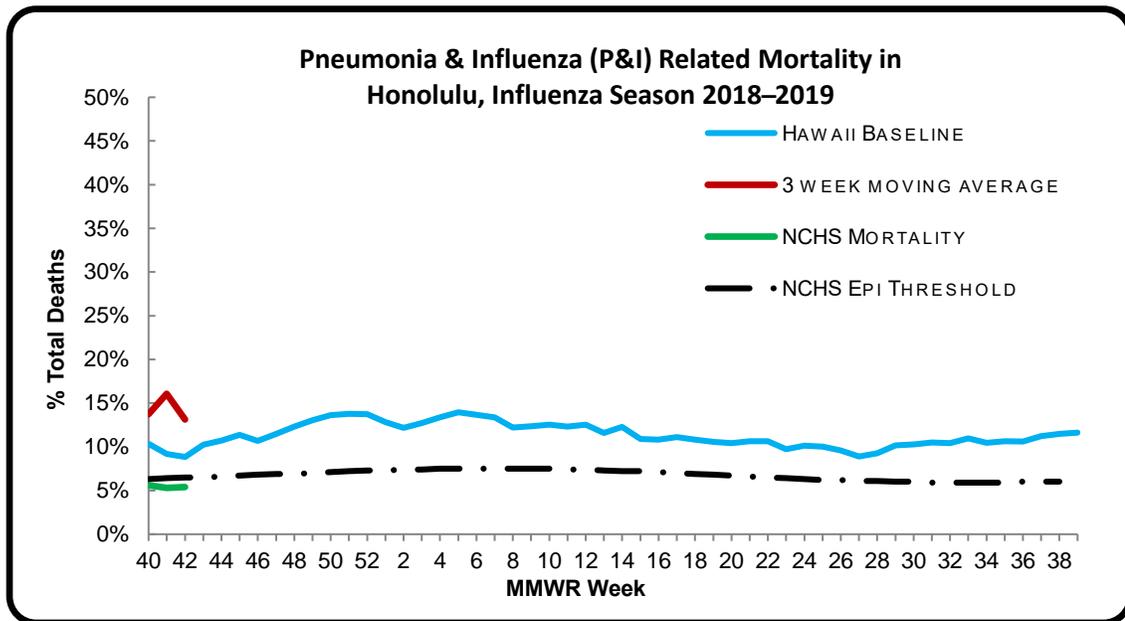
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 42 of the current influenza season:

- *16.7% of all deaths that occurred in Honolulu during week 42 were related to pneumonia or influenza. For the current season (season to date: 16.3%), there have been 251 deaths from any cause, 41 of which were due to P&I.*
- *The P&I rate was comparable the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *Based on NCHS mortality surveillance data, 5.3% of the deaths that occurred nationally during week 41 (week ending October 13, 2018) and 5.4% of deaths that occurred nationally during week 42 (week ending October 20, 2018) were due to P&I. These percentages are below the national epidemic threshold of 5.9% for week 41 and 6.0% for week 42.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 42 (week ending October 20, 2018). (Season total: 1).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

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- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 42.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **September 21, 2018**.

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A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

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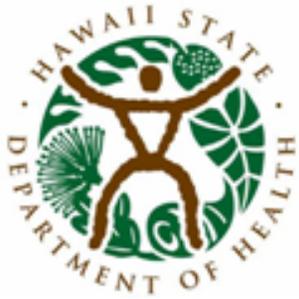
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 43: OCTOBER 21, 2018–OCTOBER 27, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 43

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.3%	Lower than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	3.5%	Lower than the previous week. This number means that many, if not all, of the 96.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	4.9%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	14.0%	Comparable to Hawaii’s historical baseline, higher than the national epidemic threshold and higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	3	

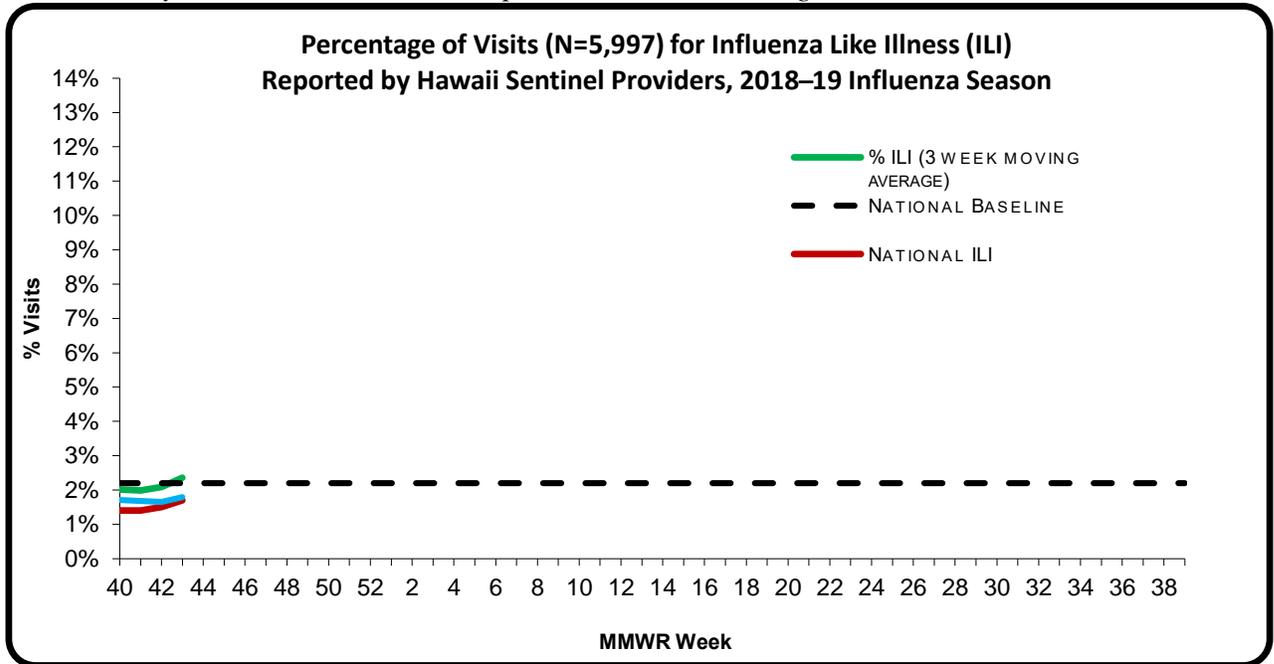
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 43** of the current influenza season:

- **2.3%** (season to date: **2.1%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (1.7%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 43.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

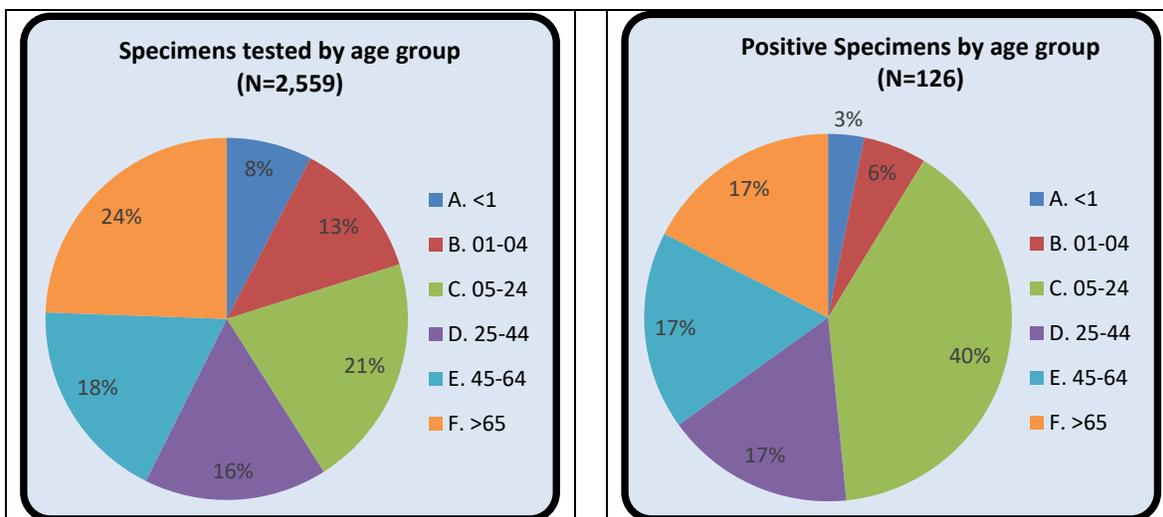
A. INFLUENZA:

- The following reflects laboratory findings for week 43 of the 2018–19 influenza season:
 - A total of 705 specimens have been tested statewide for influenza viruses (positive: 25 [3.5%]). (Season to date: 2,559 tested [4.9% positive])
 - 456 (64.7%) were screened only by rapid antigen tests with no confirmatory testing
 - 249 (35.3%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 680 (96.5%) were negative.

Influenza type	Current week 43 (%)	Season to date (%)
Influenza A (H1) ⁷	1 (4.0)	5 (4.0)
Influenza A (H3)	2 (8.0)	9 (7.1)
Influenza A no subtyping	17 (68.0)	85 (67.5)
Influenza B (Yamagata)	0 (0.0)	5 (4.0)
Influenza B (Victoria)	0 (0.0)	0 (0.0)
Influenza B no genotyping	5 (20.0)	22 (17.5)

1. AGE DISTRIBUTION

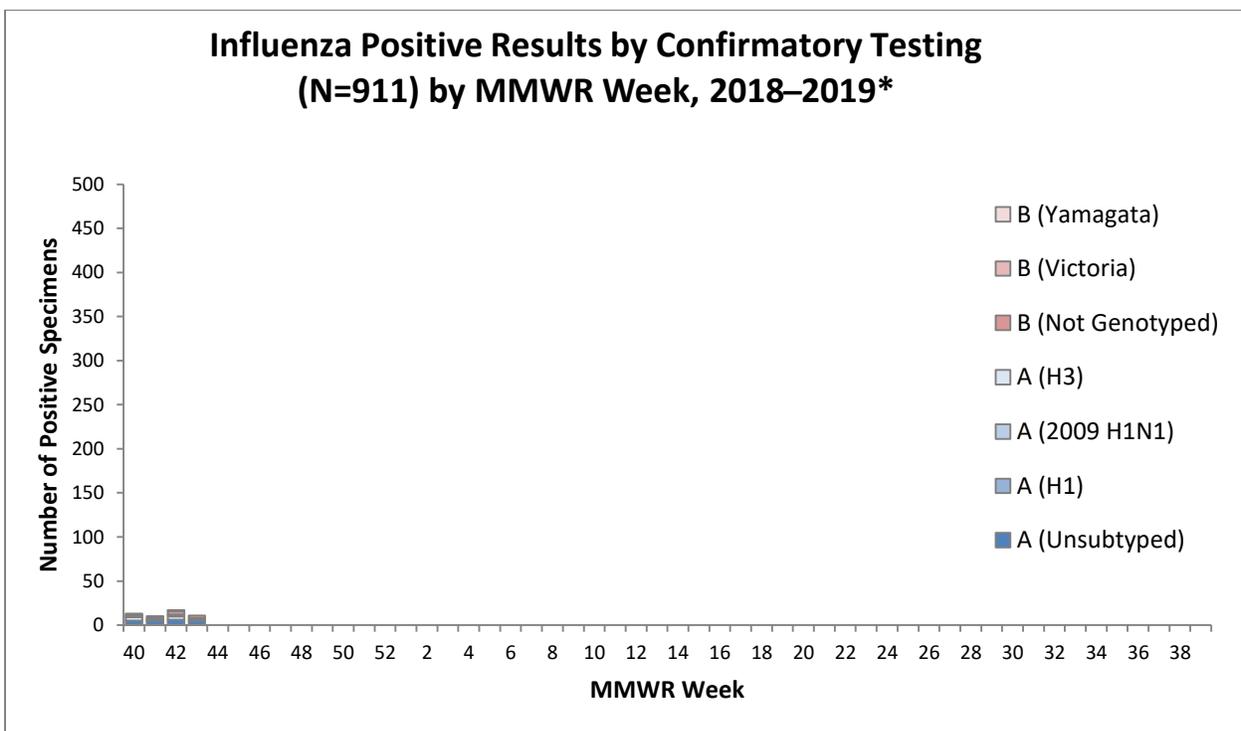
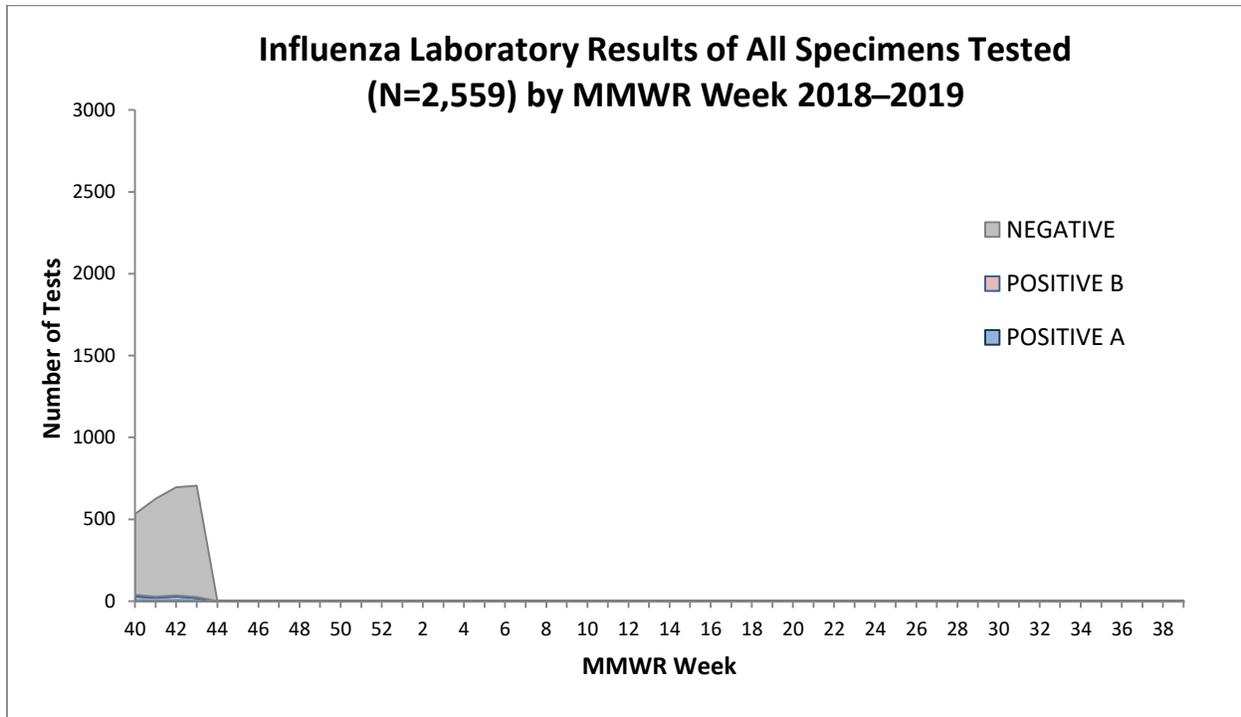
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



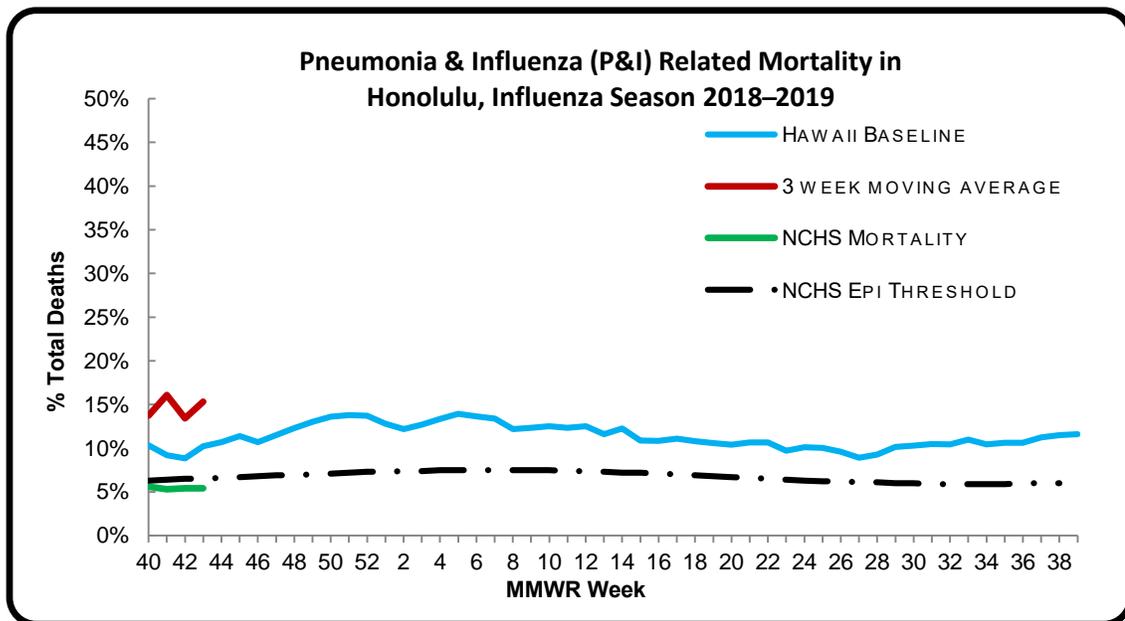
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 43 of the current influenza season:

- *14.0% of all deaths that occurred in Honolulu during week 43 were related to pneumonia or influenza. For the current season (season to date: 15.7%), there have been 351 deaths from any cause, 55 of which were due to P&I.*
- *The P&I rate was comparable the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Honolulu P&I rate was higher than the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.4%) (i.e., outside the 95% confidence interval) and higher than the national epidemic threshold (6.1%) (i.e., outside the 95% confidence interval).*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 43. One death was associated with an influenza A(H1N1)pdm09 virus and occurred during week 41 (week ending October 13, 2018). (Season total: 2). An additional two deaths that occurred during the 2017-2018 season were reported to

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

CDC. One death was associated with an influenza A(H3) virus and one death was associated with an influenza B virus. (2017-2018 season: 185).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 43.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **September 21, 2018**.

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32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
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43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
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51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 44: OCTOBER 28, 2018–NOVEMBER 3, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 44

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.9%	Lower than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	6.4%	Higher than the previous week. This number means that many, if not all, of the 93.6% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	5.3%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	12.1%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

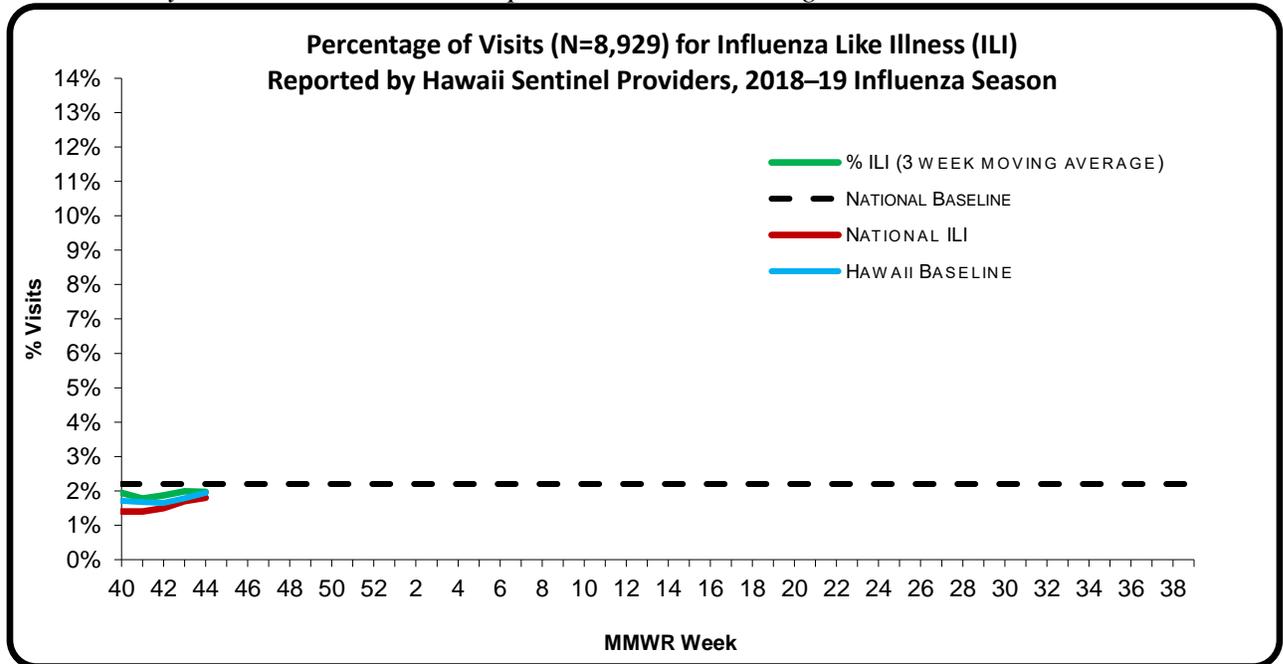
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 44** of the current influenza season:

- **1.9%** (season to date: **1.8%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (**1.8%**) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 44.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

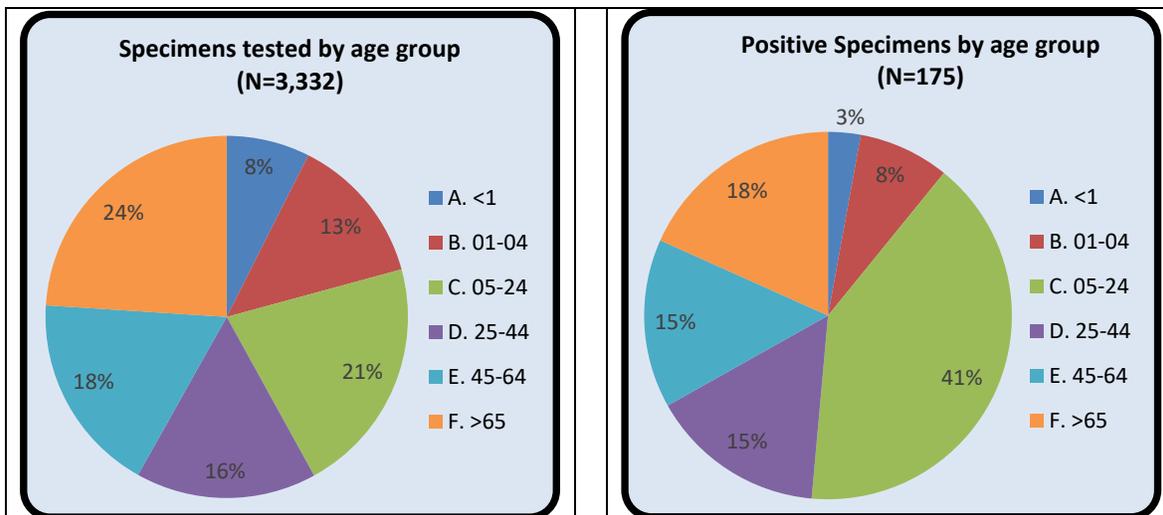
A. INFLUENZA:

- The following reflects laboratory findings for week 44 of the 2018–19 influenza season:
 - A total of 770 specimens have been tested statewide for influenza viruses (positive: 49 [6.4%]). (Season to date: 3,332 tested [5.3% positive])
 - 483 (62.7%) were screened only by rapid antigen tests with no confirmatory testing
 - 287 (37.3%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 721 (93.6%) were negative.

Influenza type	Current week 44 (%)	Season to date (%)
Influenza A (H1) ⁷	1 (2.0)	6 (3.4)
Influenza A (H3)	4 (8.2)	14 (8.0)
Influenza A no subtyping	32 (65.3)	118 (67.4)
Influenza B (Yamagata)	0 (0.0)	5 (2.9)
Influenza B (Victoria)	1 (2.0)	1 (0.6)
Influenza B no genotyping	11 (22.4)	31 (17.7)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

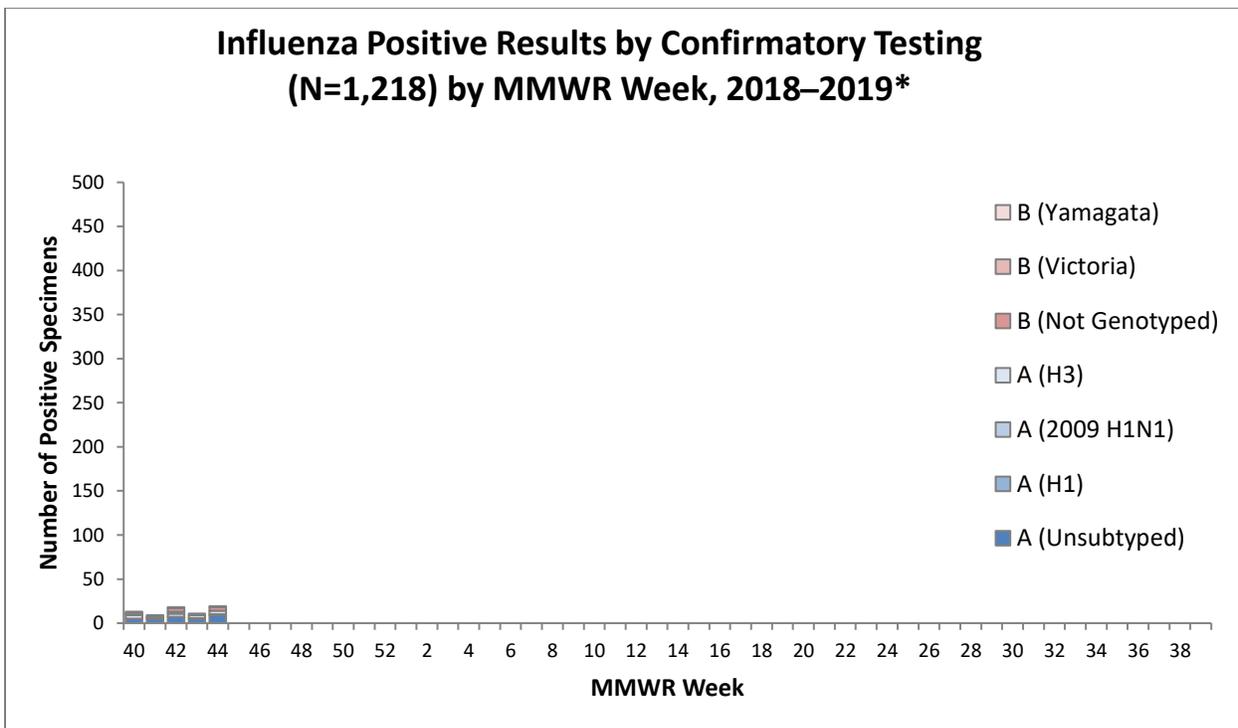
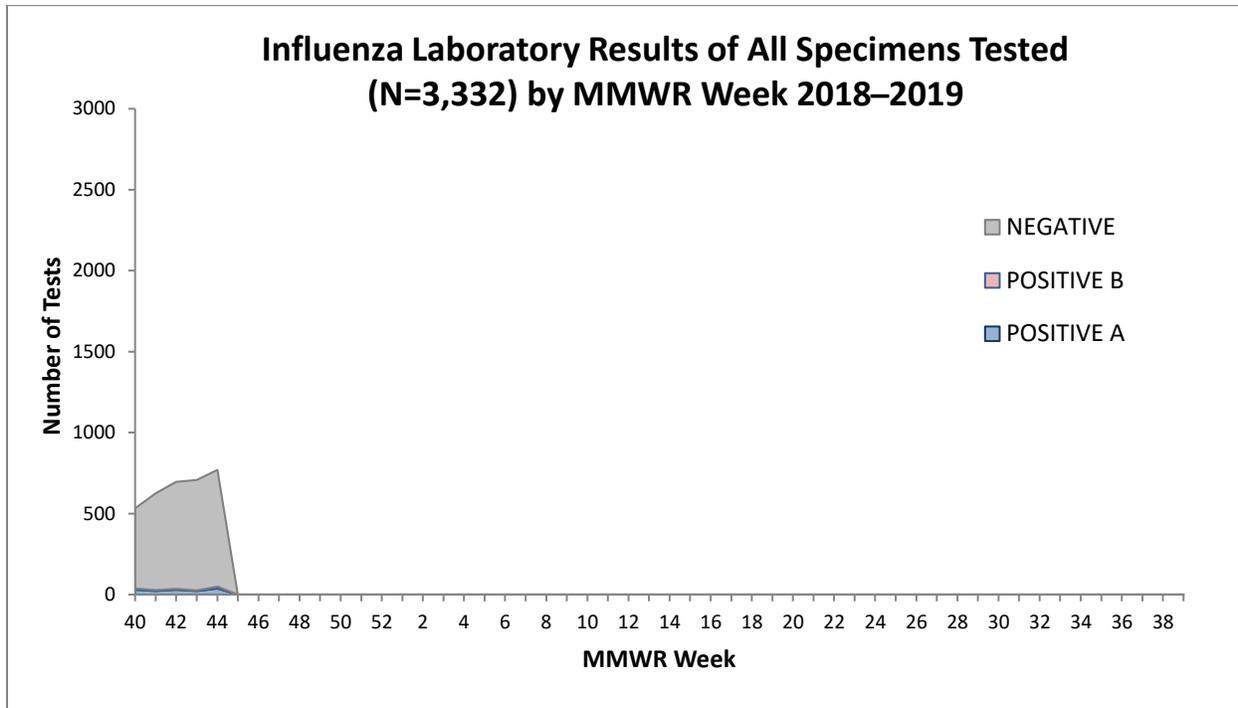


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



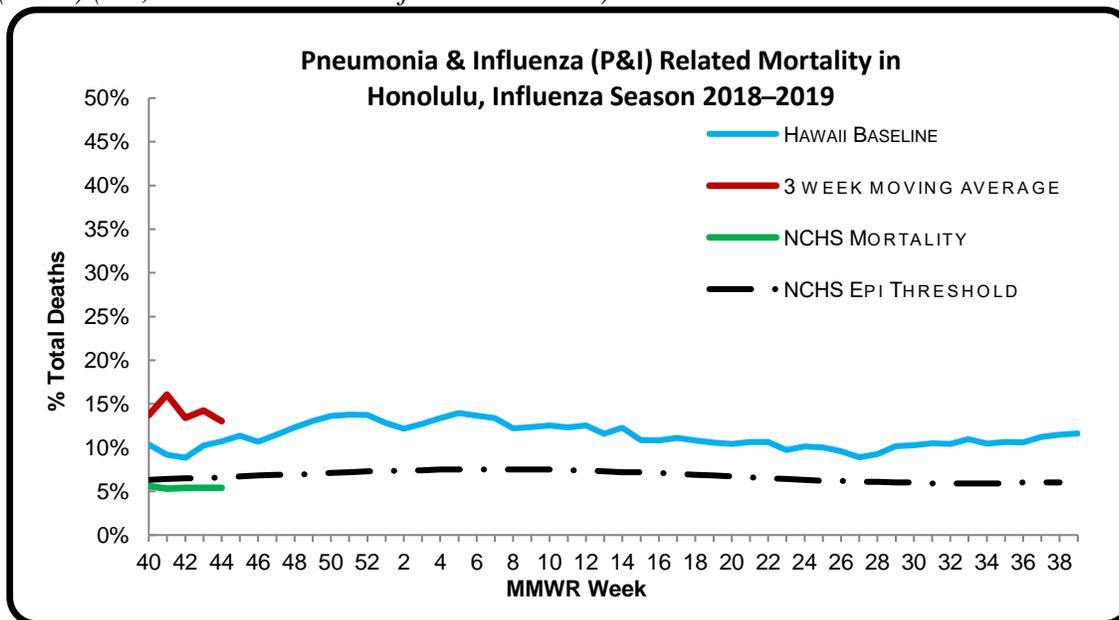
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 44 of the current influenza season:

- *12.1% of all deaths that occurred in Honolulu during week 44 were related to pneumonia or influenza. For the current season (season to date: 15.0%), there have been 434 deaths from any cause, 65 of which were due to P&I.*
- *The P&I rate was comparable the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Honolulu P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.4%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.2%) (i.e., inside the 95% confidence interval).*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 44. (Season total: 2).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 44.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **November 1, 2018**. Since the last update, two new laboratory-confirmed human cases of influenza A(H5N6) virus infection were reported to WHO from China. The first case was a male who was hospitalized with severe pneumonia and was in critical condition at the time of reporting. The patient reported exposure to live poultry before illness onset. The second case was a male who was hospitalized and passed away. The patient did not have a history of contact with live poultry before illness onset. A total of 22 laboratory-confirmed cases of human infection with influenza A(H5N6) virus have been reported to WHO from China since 2014.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

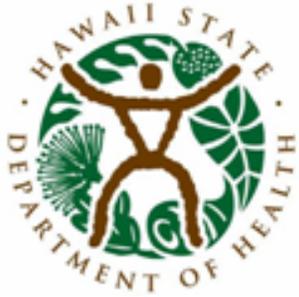
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
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13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
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23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
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48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 45: NOVEMBER 4, 2018–NOVEMBER 10, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 45

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.6%	Lower than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	5.2%	Lower than the previous week. This number means that many, if not all, of the 94.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	5.2%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	7.1%	Comparable to Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

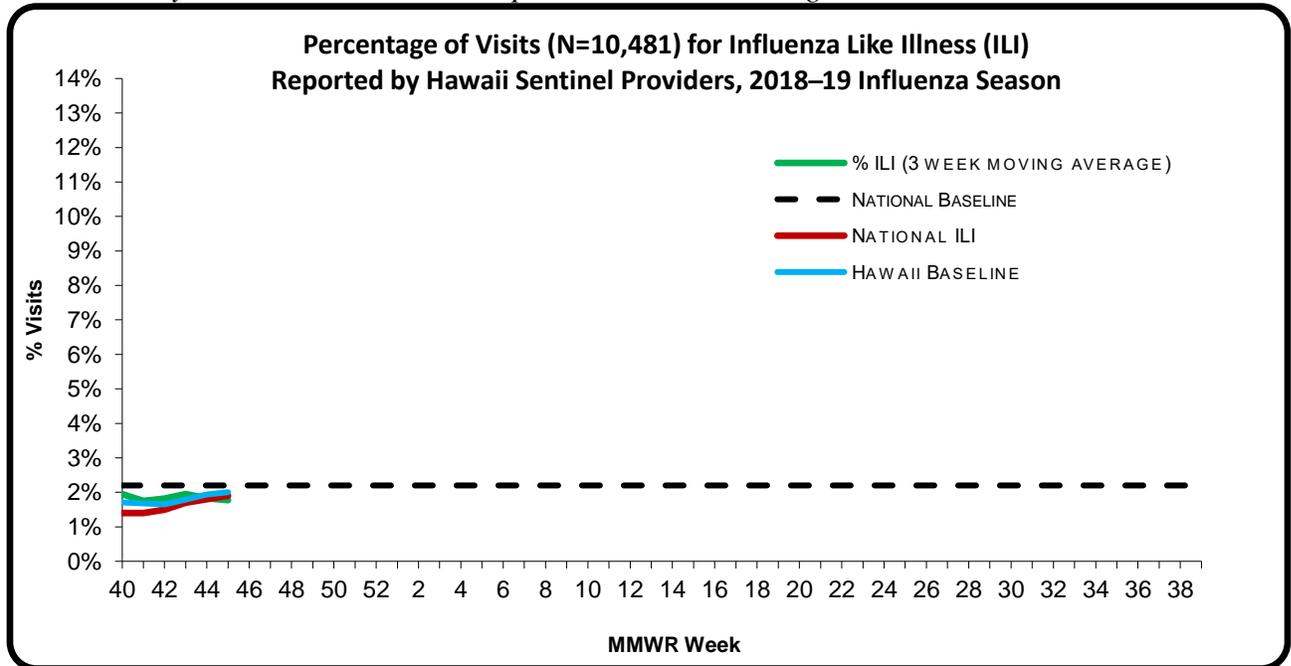
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 45** of the current influenza season:

- **1.6%** (season to date: **1.8%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (**1.9%**) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 45.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

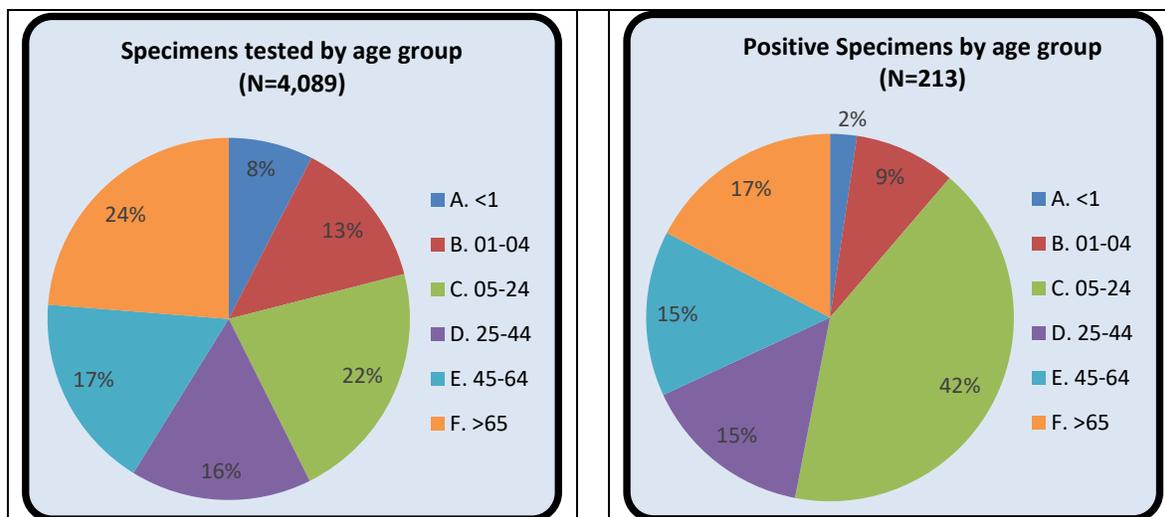
A. INFLUENZA:

- The following reflects laboratory findings for week 45 of the 2018–19 influenza season:
 - A total of 755 specimens have been tested statewide for influenza viruses (positive: 39 [5.2%]). (Season to date: 4,089 tested [5.2% positive])
 - 457 (60.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 298 (39.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 716 (94.8%) were negative.

Influenza type	Current week 45 (%)	Season to date (%)
Influenza A (H1) ⁷	0 (0.0)	7 (3.3)
Influenza A (H3)	0 (0.0)	14 (6.6)
Influenza A no subtyping	34 (87.2)	150 (70.4)
Influenza B (Yamagata)	0 (0.0)	5 (2.3)
Influenza B (Victoria)	0 (0.0)	1 (0.5)
Influenza B no genotyping	5 (12.8)	36 (16.9)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

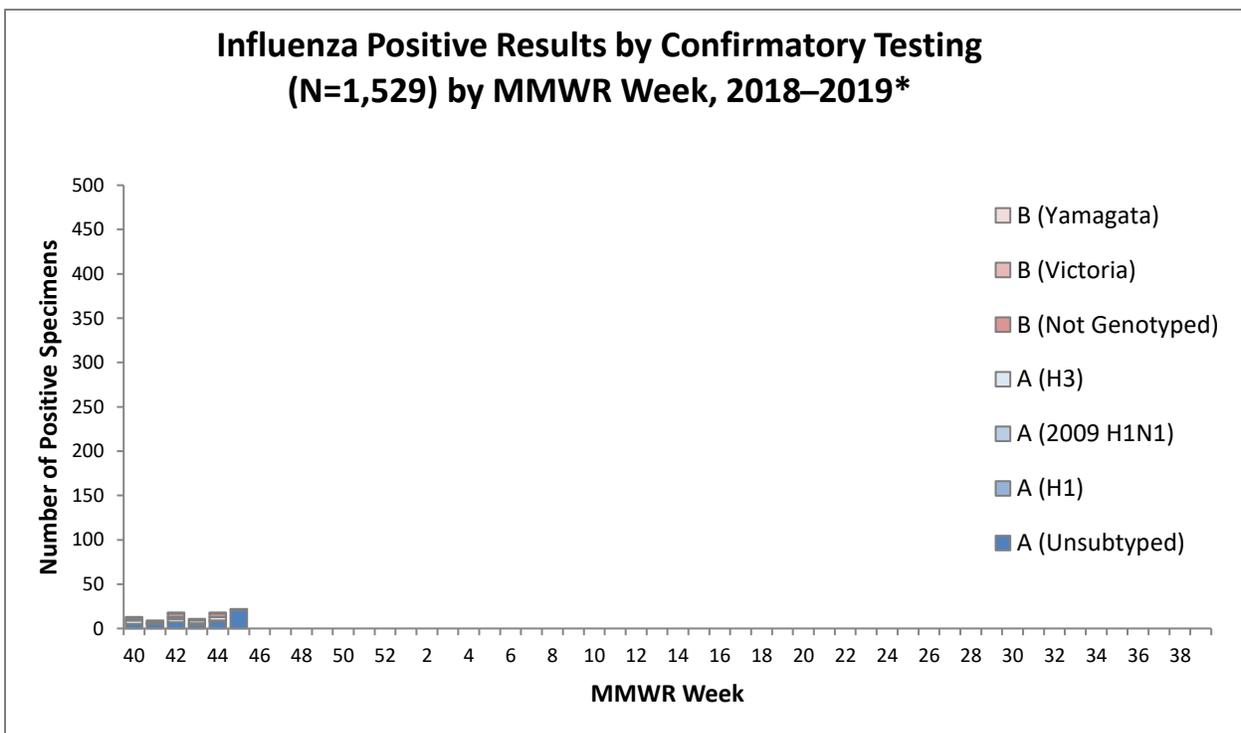
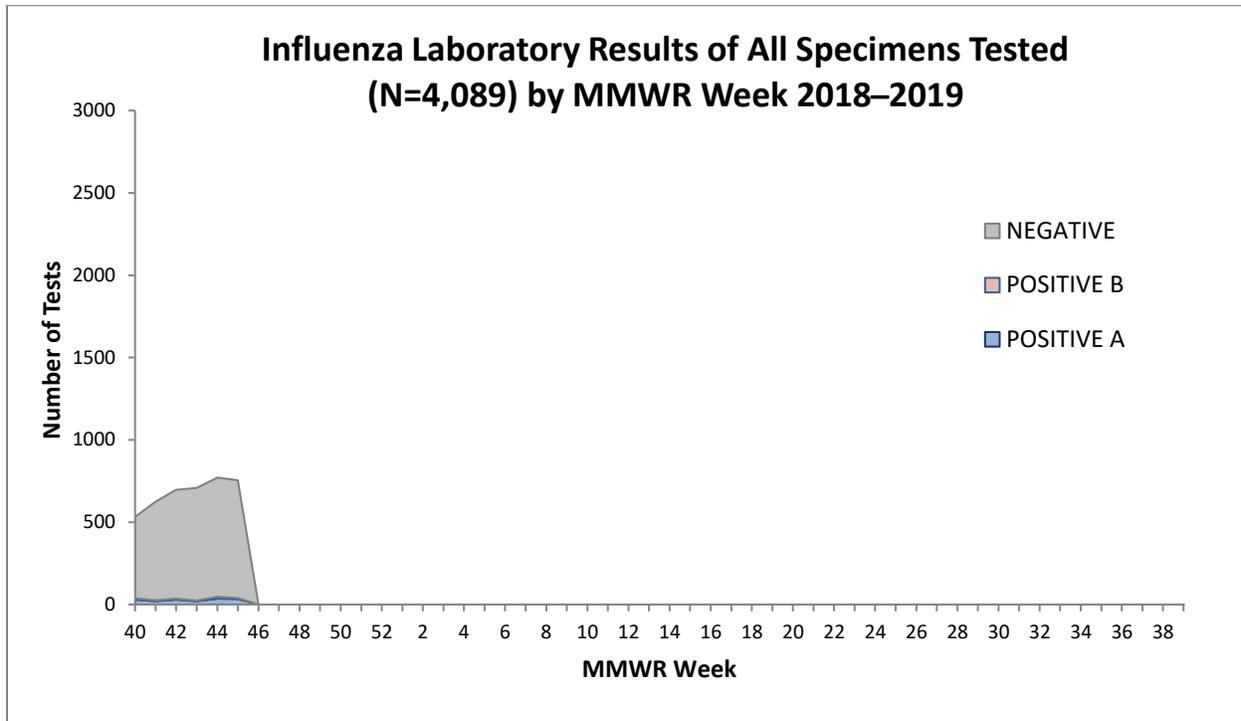


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



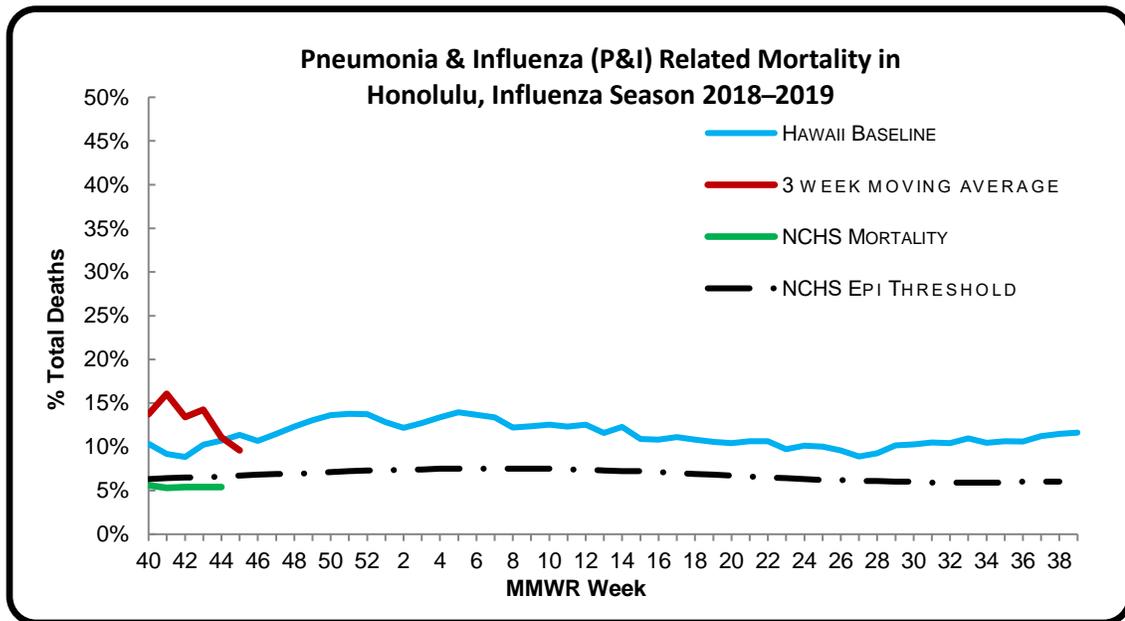
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 45 of the current influenza season:

- 7.1% of all deaths that occurred in Honolulu during week 45 were related to pneumonia or influenza. For the current season (season to date: 13.7%), there have been 518 deaths from any cause, 71 of which were due to P&I.
- The P&I rate was comparable the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- National P&I data are backlogged by one week and current data for week 45 is unavailable at this time. The Honolulu P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.4%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.2%) (i.e., inside the 95% confidence interval) for week 45.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 45. (Season total: 2).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 45.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **November 1, 2018**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

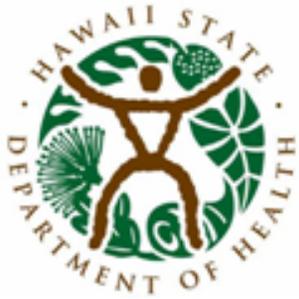
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 46: NOVEMBER 11, 2018–NOVEMBER 17, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 46

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.3%	Higher than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	4.3%	Lower than the previous week. This number means that many, if not all, of the 95.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	5.1%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	13.0%	Comparable to Hawaii’s historical baseline, higher than the national epidemic threshold and higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	1	

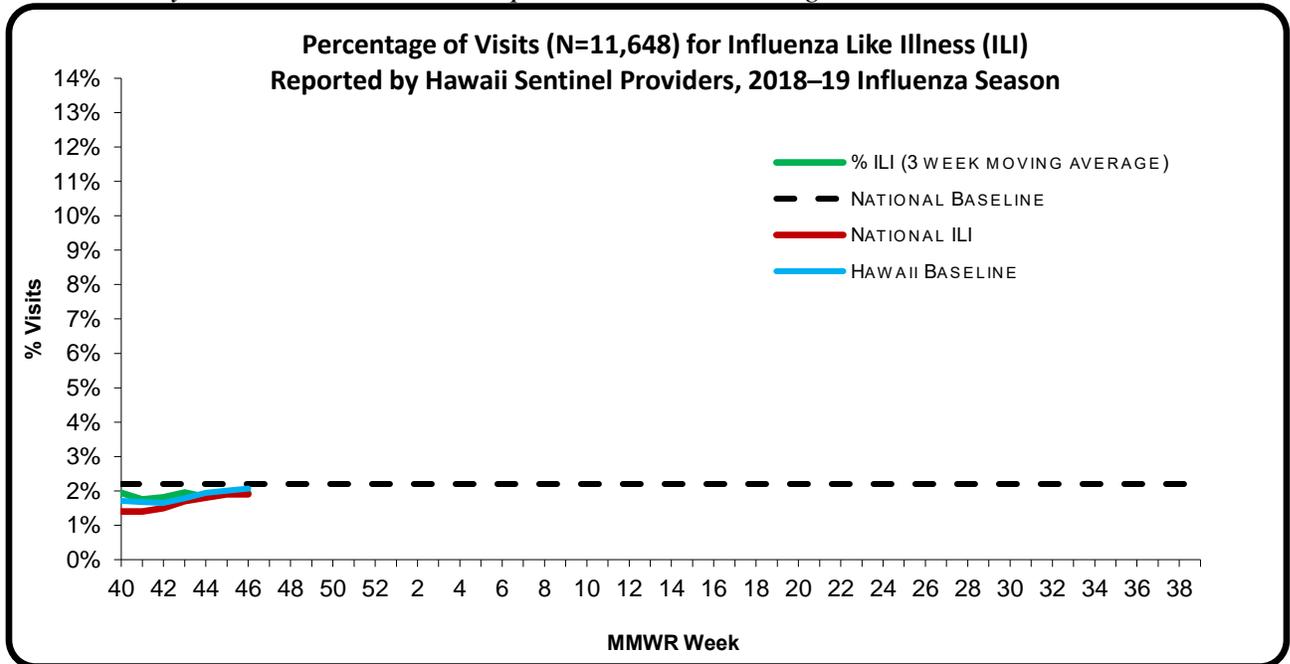
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 46** of the current influenza season:

- **2.3%** (season to date: **1.8%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (**1.9%**) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 46.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

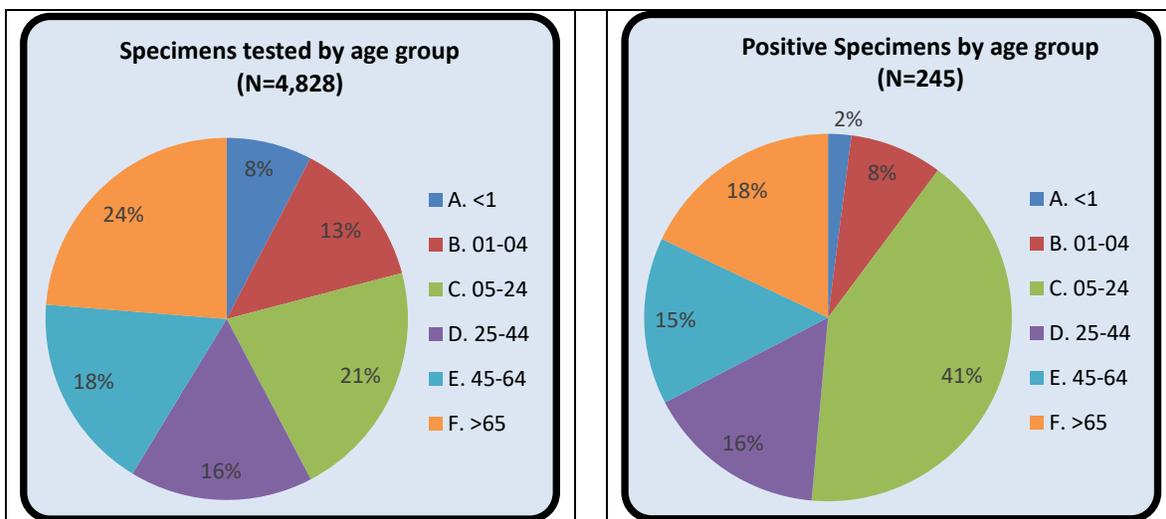
A. INFLUENZA:

- The following reflects laboratory findings for week 46 of the 2018–19 influenza season:
 - A total of 740 specimens have been tested statewide for influenza viruses (positive: 32 [4.3%]). (Season to date: 4,828 tested [5.1% positive])
 - 447 (60.4%) were screened only by rapid antigen tests with no confirmatory testing
 - 293 (39.6%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 708 (95.7%) were negative.

Influenza type	Current week 46 (%)	Season to date (%)
Influenza A (H1) ⁷	1 (3.1)	8 (3.3)
Influenza A (H3)	0 (0.0)	14 (5.7)
Influenza A no subtyping	29 (90.6)	179 (73.1)
Influenza B (Yamagata)	0 (0.0)	5 (2.0)
Influenza B (Victoria)	0 (0.0)	1 (0.4)
Influenza B no genotyping	2 (6.3)	38 (15.5)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

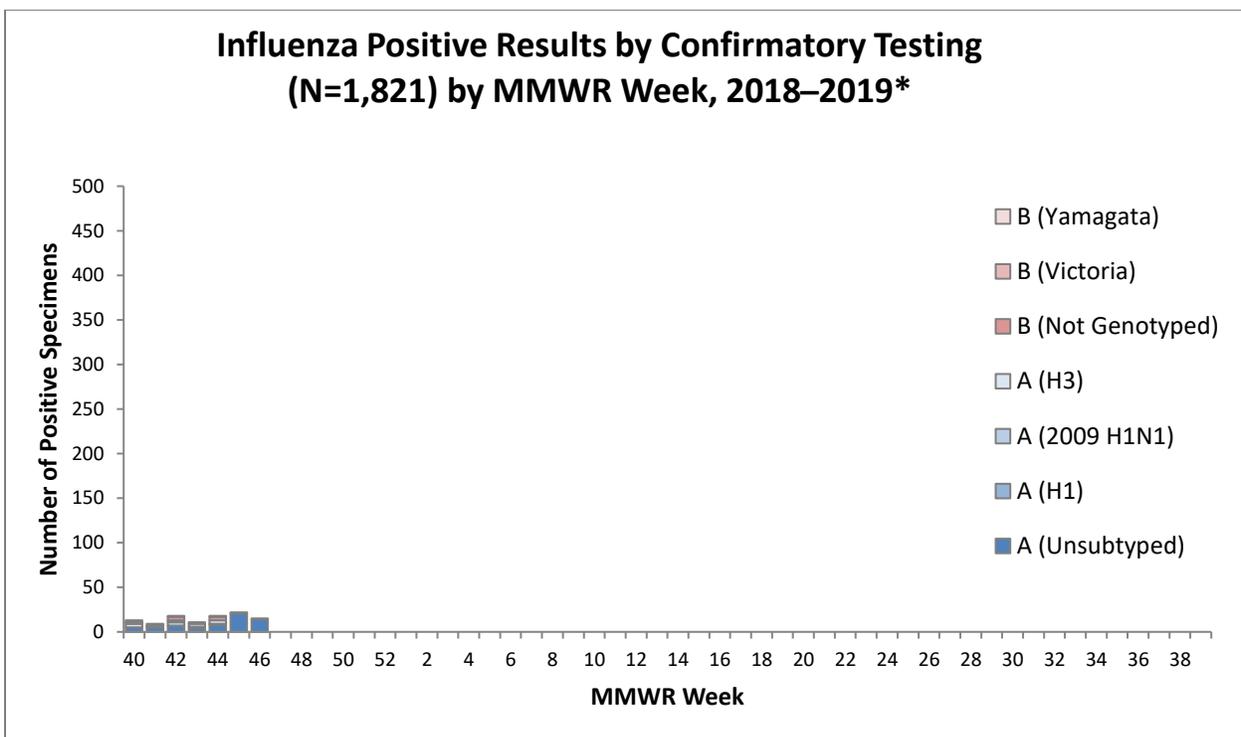
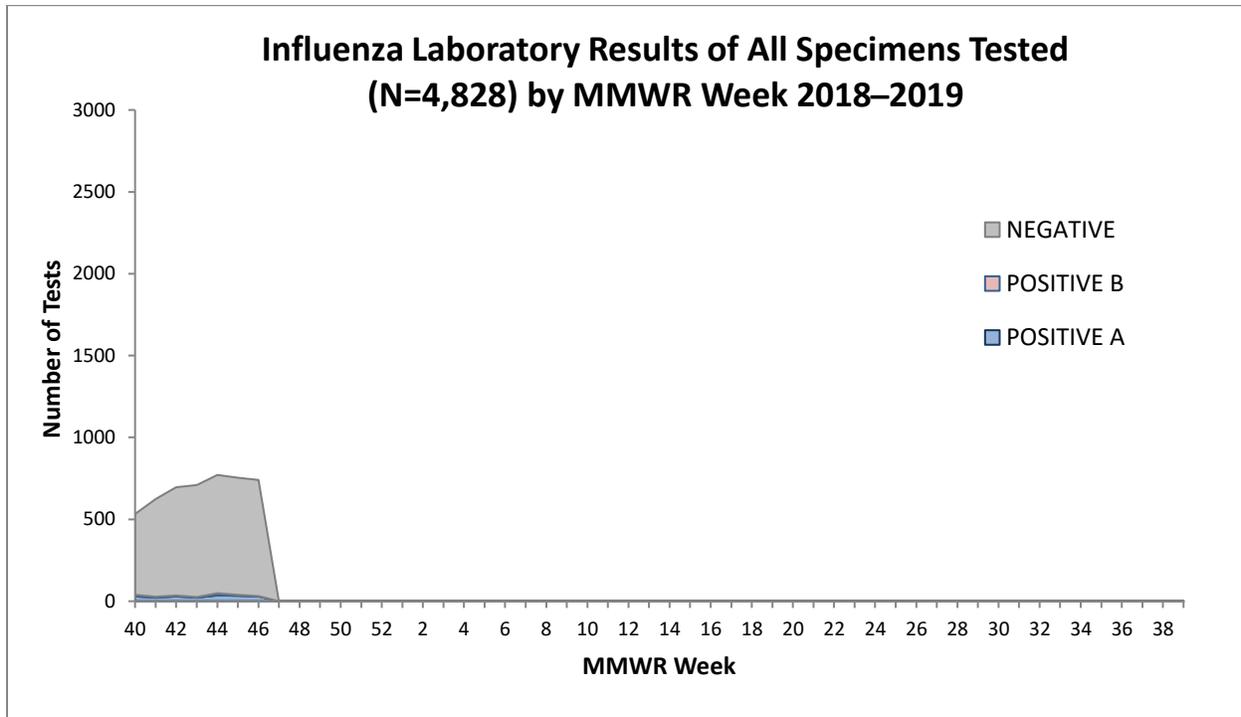


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



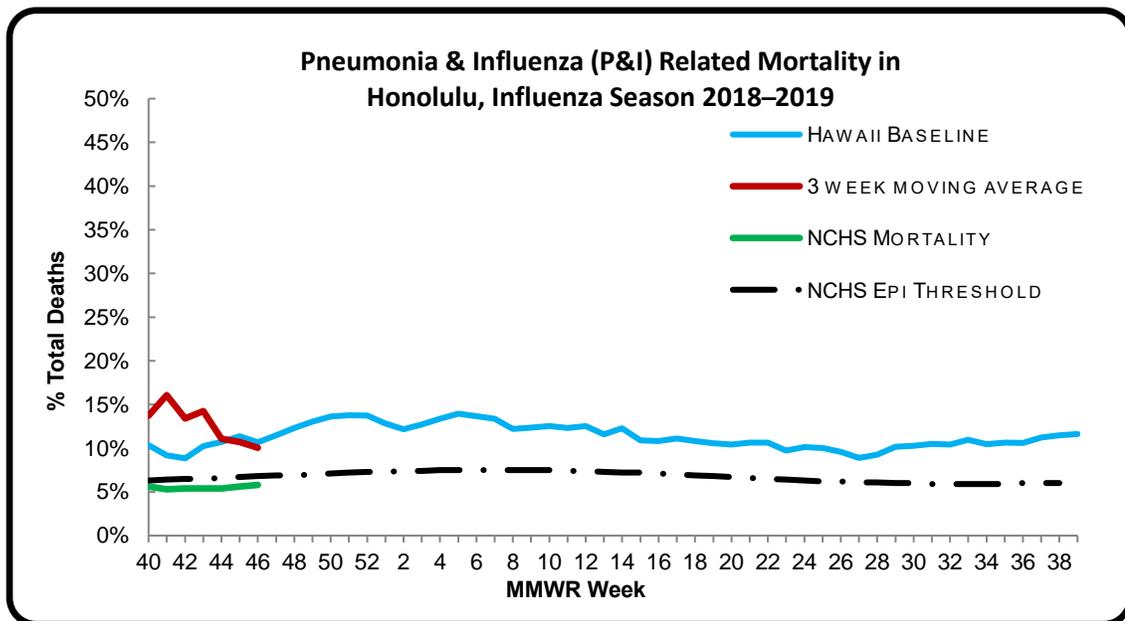
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 46 of the current influenza season:

- *13.0% of all deaths that occurred in Honolulu during week 46 were related to pneumonia or influenza. For the current season (season to date: 13.6%), there have been 626 deaths from any cause, 85 of which were due to P&I.*
- *The P&I rate was comparable the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Honolulu P&I rate was higher than the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.8%) (i.e., outside the 95% confidence interval) and higher than the national epidemic threshold (6.4%) (i.e., outside the 95% confidence interval) for week 46.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 46. This death was associated with an influenza A(H1N1)pdm09 virus and occurred during week 46 (week ending November 17, 2018). (Season total: 3).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 46.*

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These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **November 1, 2018**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

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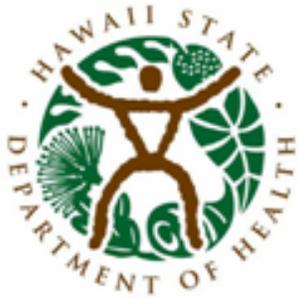
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Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 47: NOVEMBER 18, 2018–NOVEMBER 24, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 47

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.2%	Lower than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	4.9%	Higher than the previous week. This number means that many, if not all, of the 95.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	5.1%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	0.0%	Lower than Hawaii’s historical baseline, lower than the national epidemic threshold and lower than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	2	

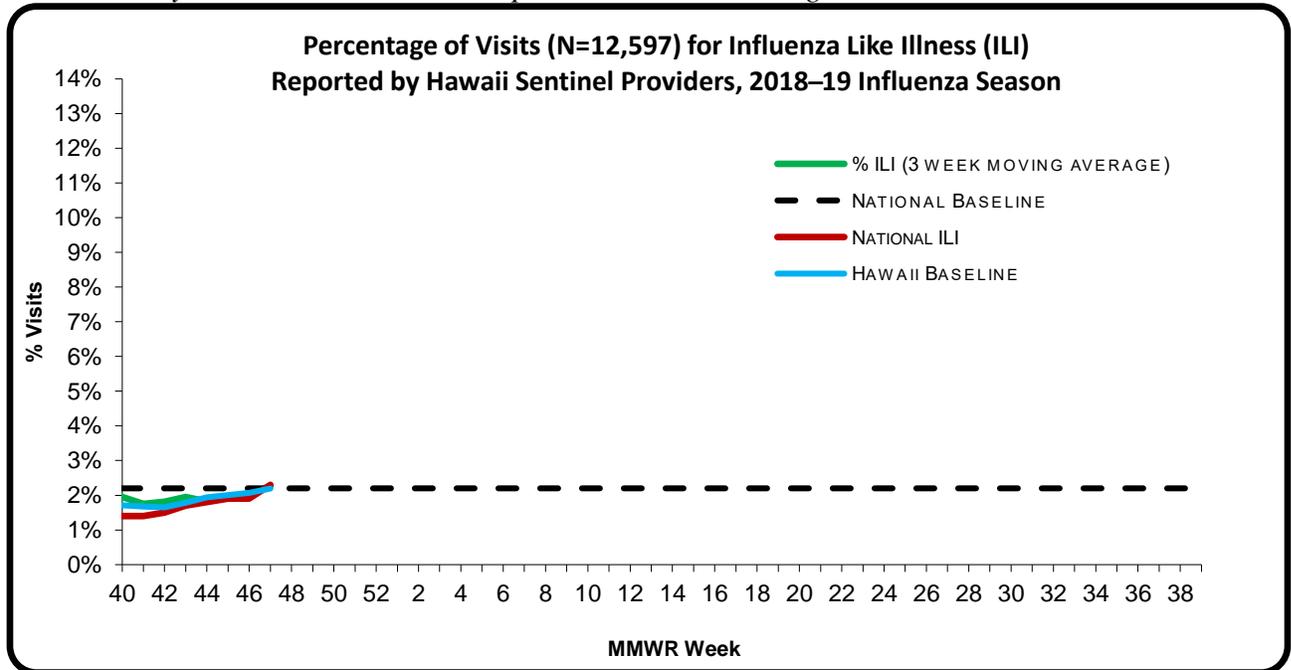
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 47** of the current influenza season:

- **2.2%** (season to date: **1.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (2.3%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 47.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

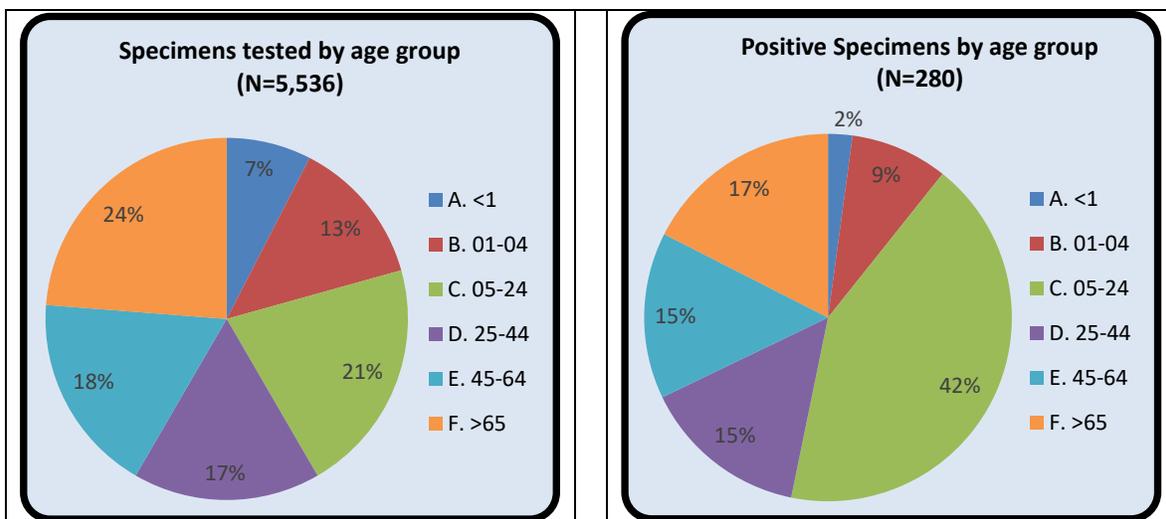
A. INFLUENZA:

- The following reflects laboratory findings for week 47 of the 2018–19 influenza season:
 - A total of **709** specimens have been tested statewide for influenza viruses (positive: **35 [4.9%]**). (Season to date: 5,536 tested [5.1% positive])
 - 457 (64.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 252 (35.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 674 (95.1%) were negative.

Influenza type	Current week 47 (%)	Season to date (%)
Influenza A (H1) ⁷	0 (0.0)	8 (2.9)
Influenza A (H3)	0 (0.0)	14 (5.0)
Influenza A no subtyping	34 (97.1)	213 (76.1)
Influenza B (Yamagata)	0 (0.0)	5 (1.8)
Influenza B (Victoria)	0 (0.0)	1 (0.4)
Influenza B no genotyping	1 (2.9)	39 (13.9)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

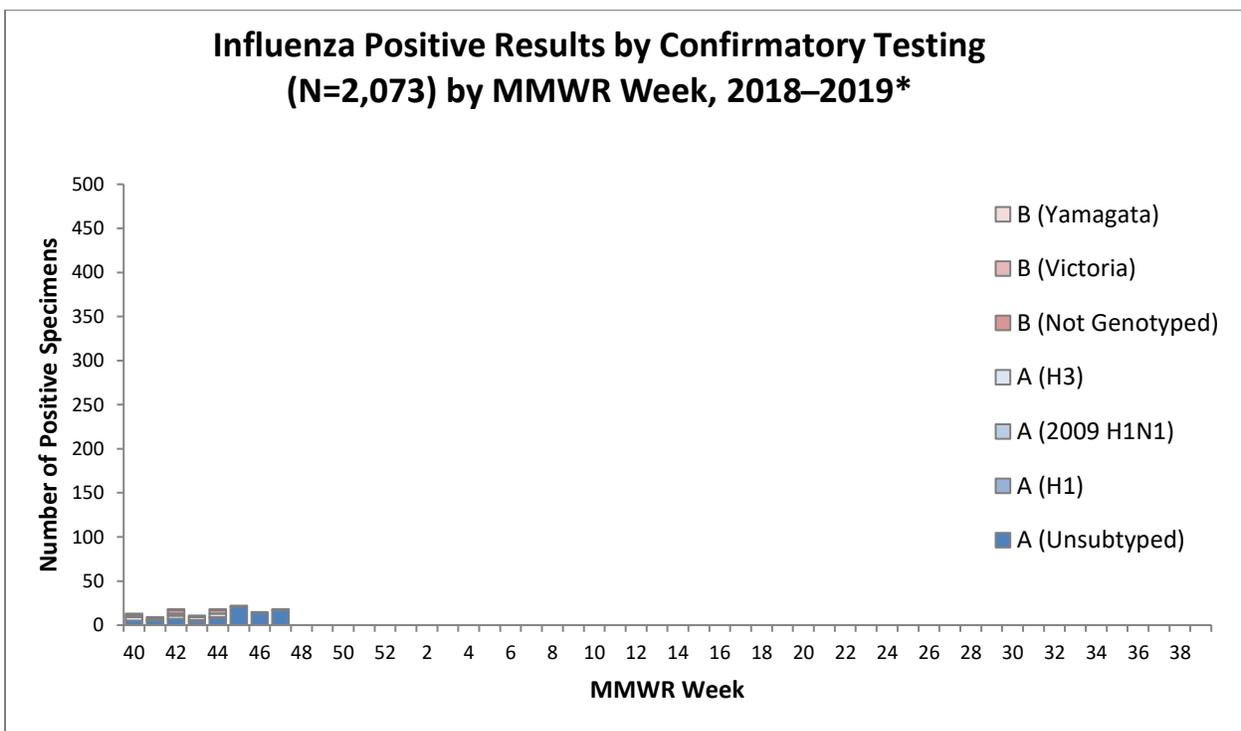
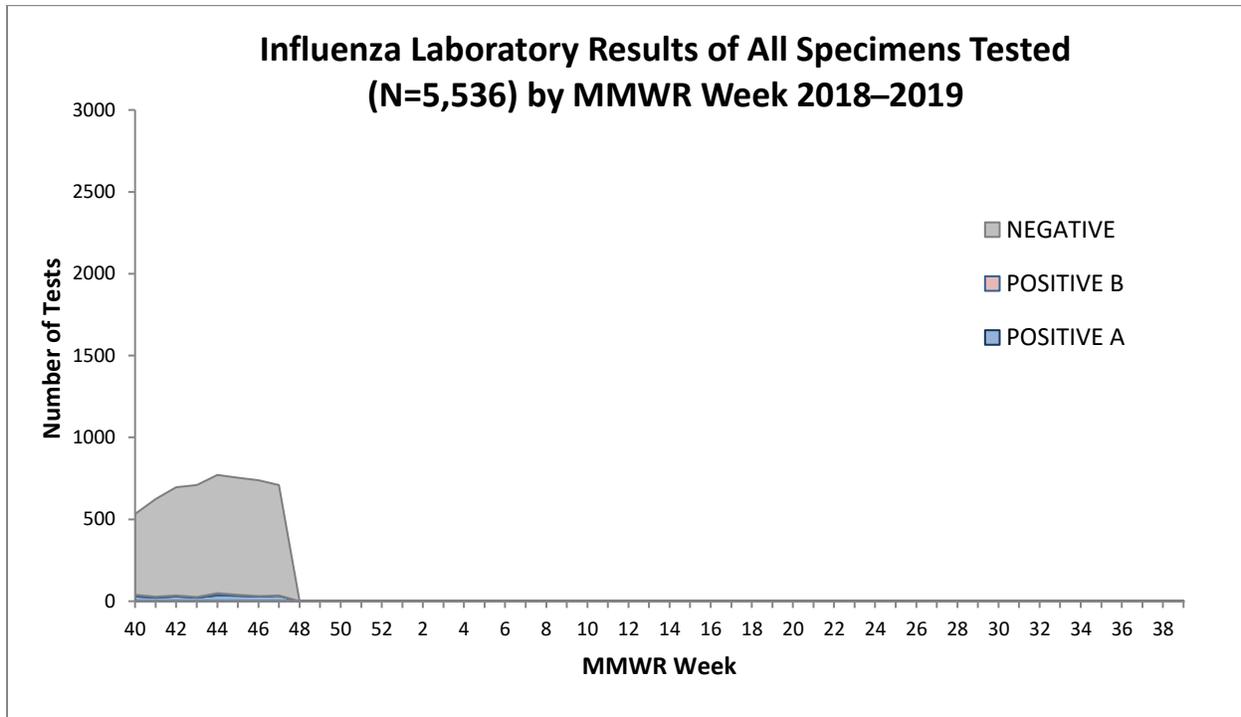


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



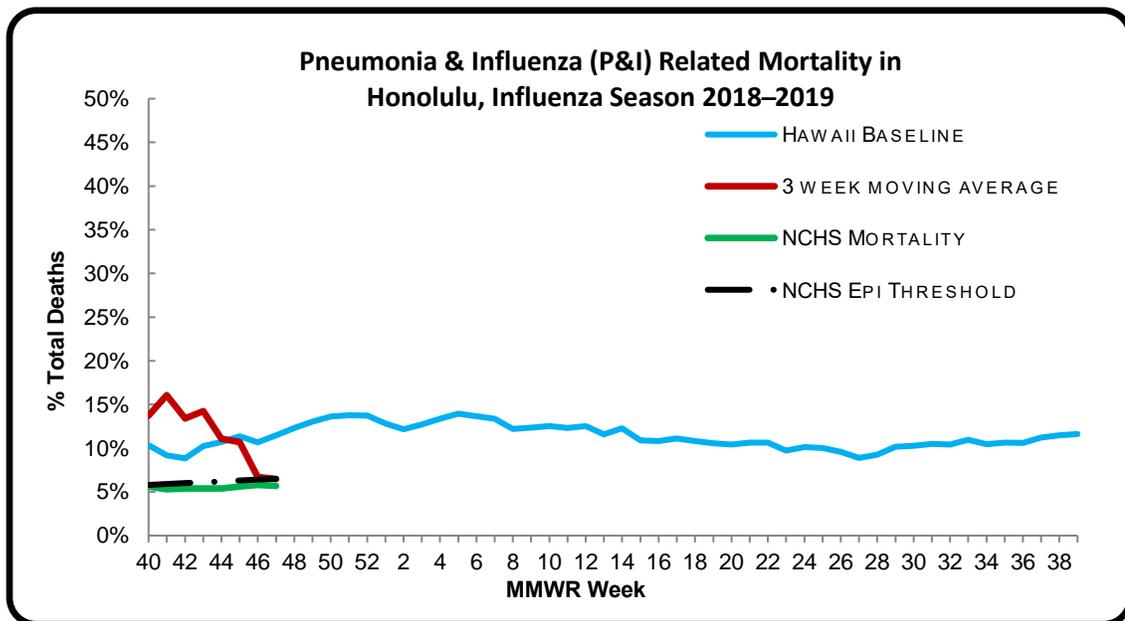
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 47 of the current influenza season:

- *0.0% of all deaths that occurred in Honolulu during week 47 were related to pneumonia or influenza. For the current season (season to date: 12.1%), there have been 701 deaths from any cause, 85 of which were due to P&I.*
- *The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).*
- *The Honolulu P&I rate was lower than the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.7%) (i.e., outside the 95% confidence interval) and lower than the national epidemic threshold (6.5%) (i.e., outside the 95% confidence interval) for week 47.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 47. One death was associated with an influenza A(H1N1)pdm09 virus and occurred during week 46 (week ending November 17,

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

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2018) and one death was associated with an influenza A(H3) virus and occurred during week 47 (week ending November 24, 2018). (Season total: 5).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

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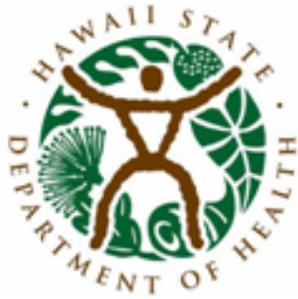
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11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
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33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
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51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 48: NOVEMBER 25, 2018–DECEMBER 1, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 48

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.3%	Higher than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	5.5%	Higher than the previous week. This number means that many, if not all, of the 94.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	5.1%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	11.1%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

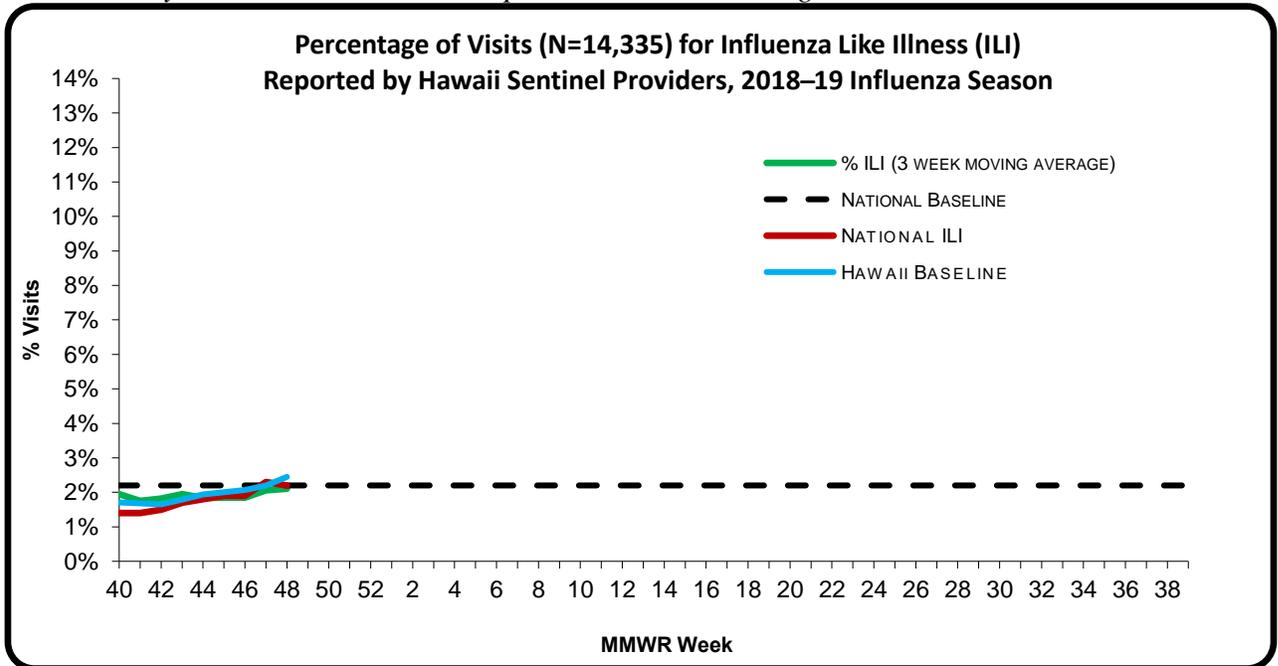
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 48** of the current influenza season:

- **2.3%** (season to date: **1.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (2.2%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 48.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

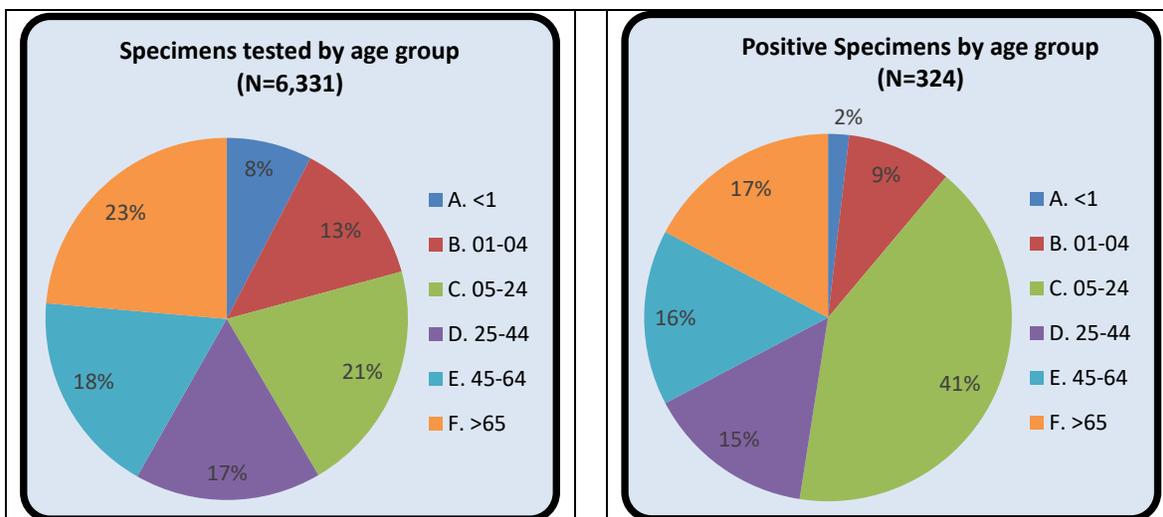
A. INFLUENZA:

- The following reflects laboratory findings for week 48 of the 2018–19 influenza season:
 - A total of **795** specimens have been tested statewide for influenza viruses (positive: **44 [5.5%]**). (Season to date: 6,331 tested [5.1% positive])
 - 508 (63.9%) were screened only by rapid antigen tests with no confirmatory testing
 - 287 (36.1%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 751 (94.5%) were negative.

<i>Influenza type</i>	<i>Current week 48 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	0 (0.0)	8 (2.5)
<i>Influenza A (H3)</i>	0 (0.0)	14 (4.3)
<i>Influenza A no subtyping</i>	40 (90.9)	253 (78.1)
<i>Influenza B (Yamagata)</i>	0 (0.0)	5 (1.5)
<i>Influenza B (Victoria)</i>	0 (0.0)	1 (0.3)
<i>Influenza B no genotyping</i>	4 (9.1)	43 (13.3)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

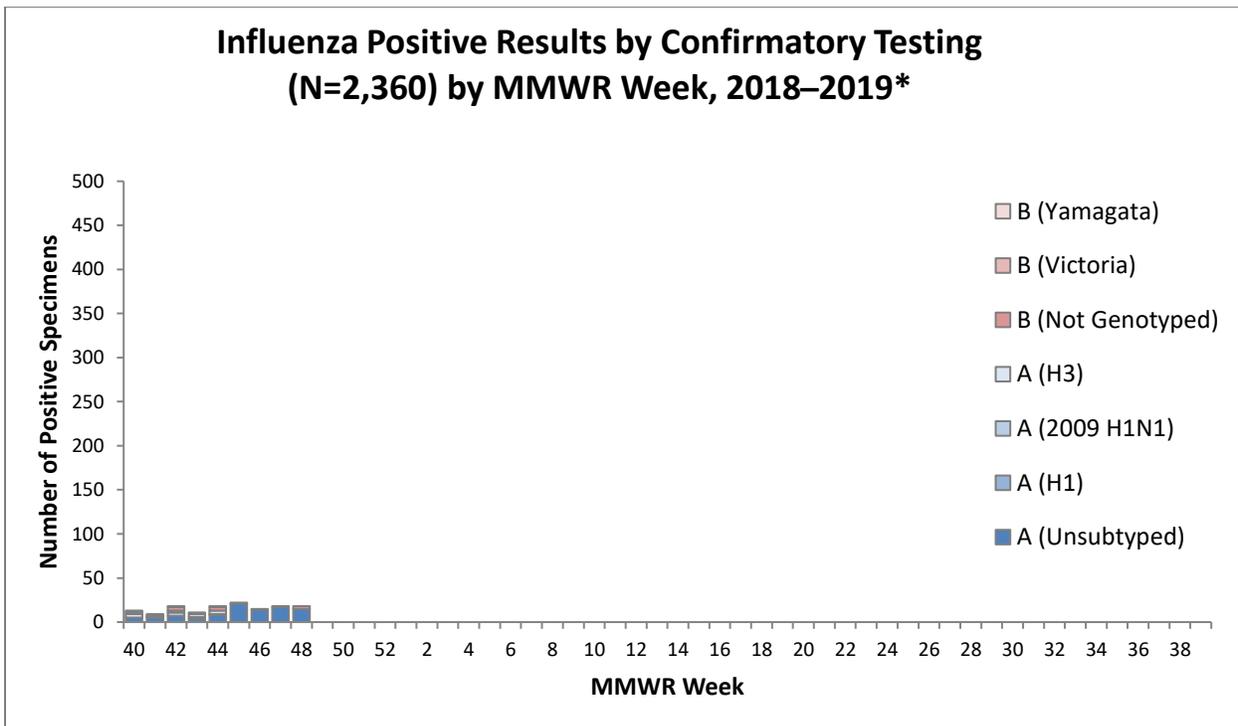
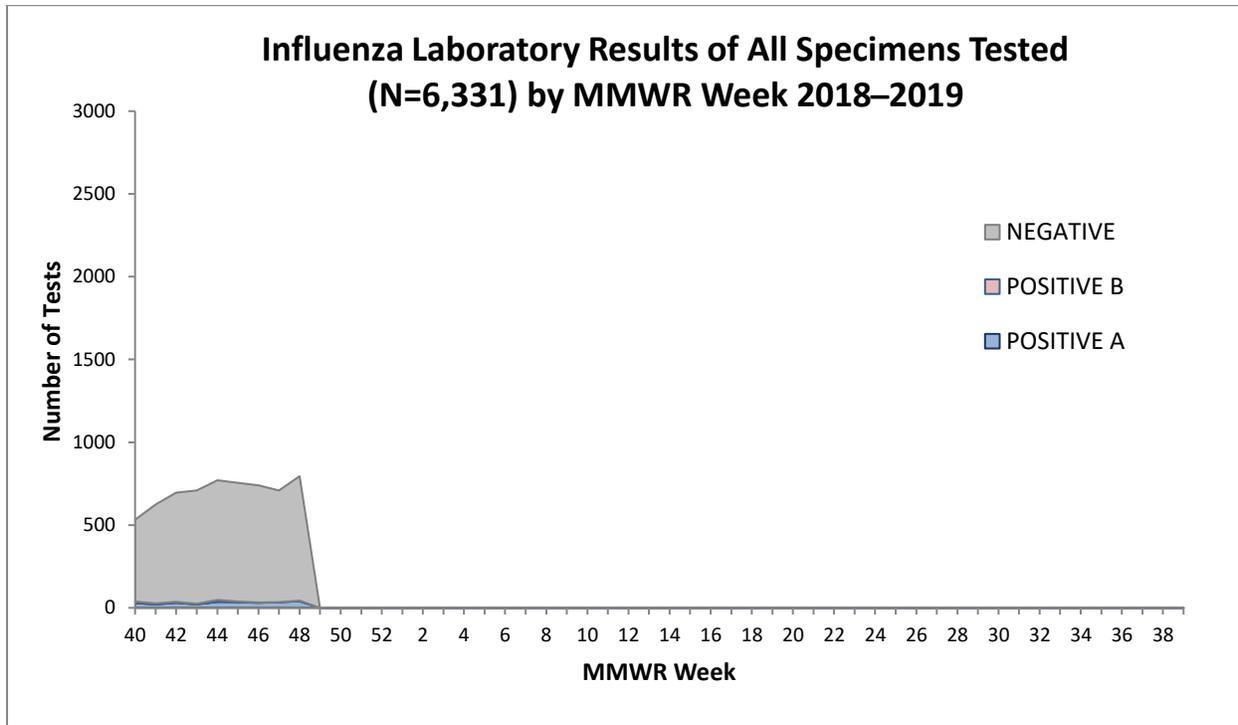


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



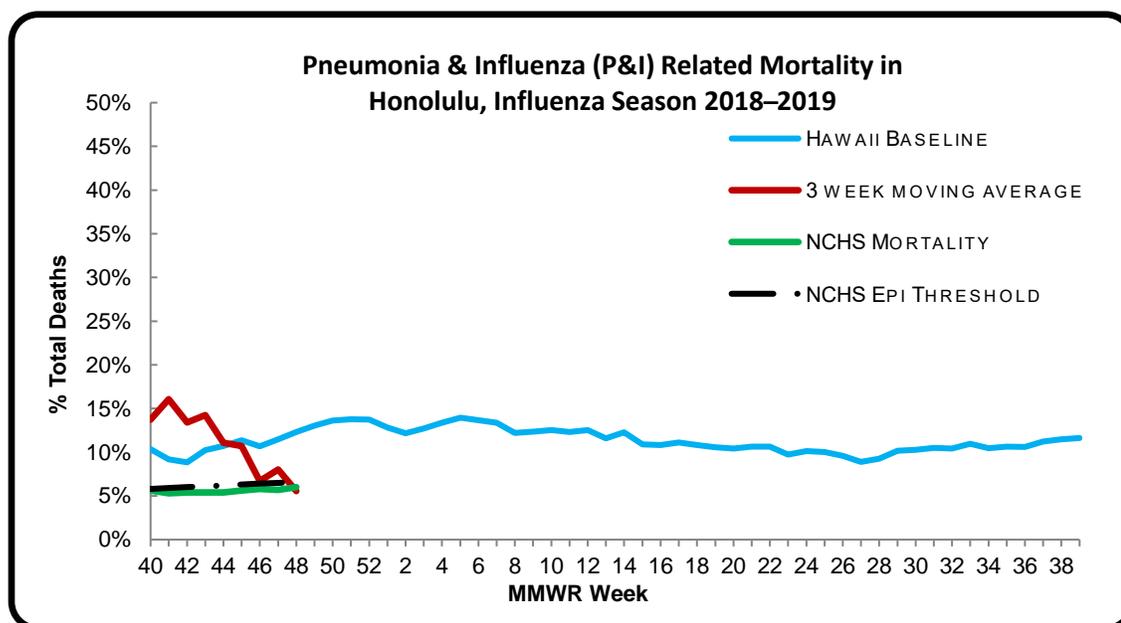
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 48 of the current influenza season:

- *11.1% of all deaths that occurred in Honolulu during week 48 were related to pneumonia or influenza. For the current season (season to date: 12.0%), there have been 791 deaths from any cause, 95 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Honolulu P&I rate was comparable to CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (6.0%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.6%) (i.e., inside the 95% confidence interval) for week 48.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 48. (Season total: 5).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 48.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **November 1, 2018**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

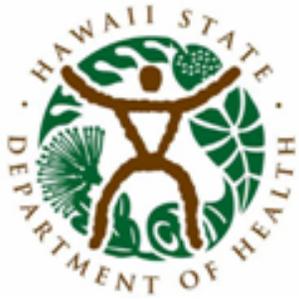
For more information regarding local and national influenza surveillance programs, visit the following sites.

<p>Centers for Disease Control and Prevention</p>	<p>General Influenza National ILI and P&I Data Vaccine Virus Selection</p>
<p>Flu.gov</p>	<p>General Influenza Information</p>
<p>HDOH Flu and Pneumonia</p>	<p>General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator</p>
<p>World Health Organization</p>	<p>General Global and Local Influenza Avian Influenza</p>

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
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22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
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36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
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40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
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42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
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44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 49: DECEMBER 2, 2018–DECEMBER 8, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 49

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.7%	Higher than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	9.7%	Higher than the previous week. This number means that many, if not all, of the 90.3% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	5.7%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	10.7%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	1	

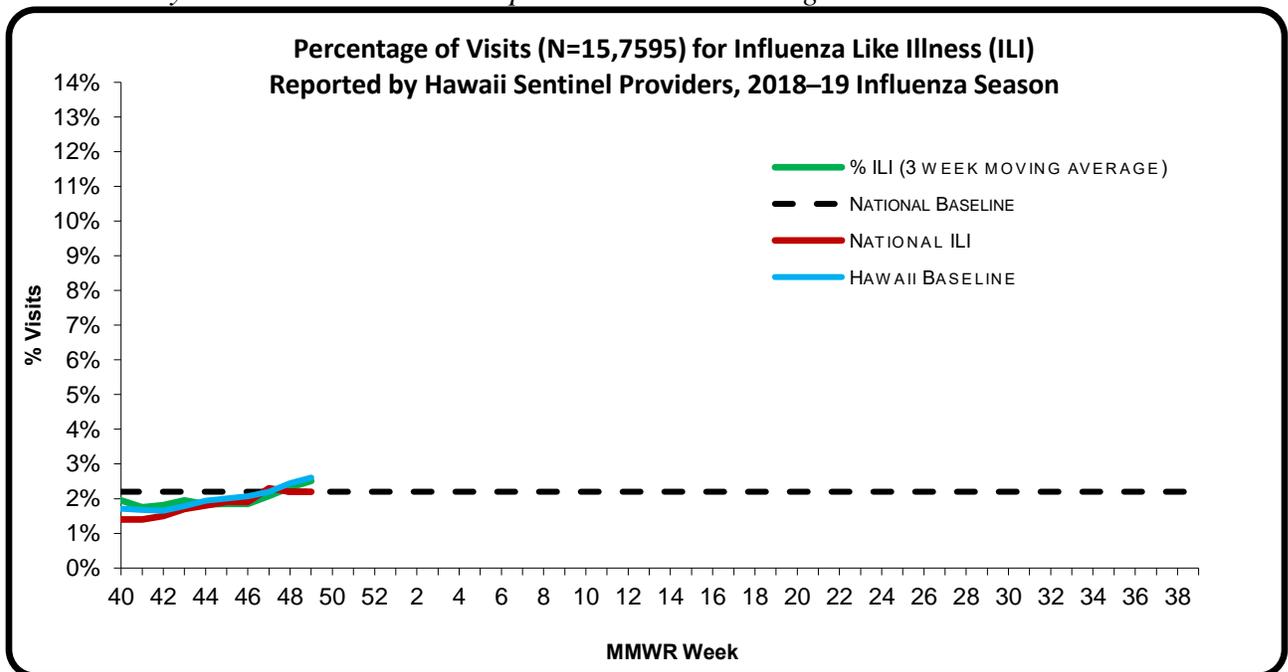
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 49** of the current influenza season:

- **2.7%** (season to date: **1.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (2.2%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 49.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

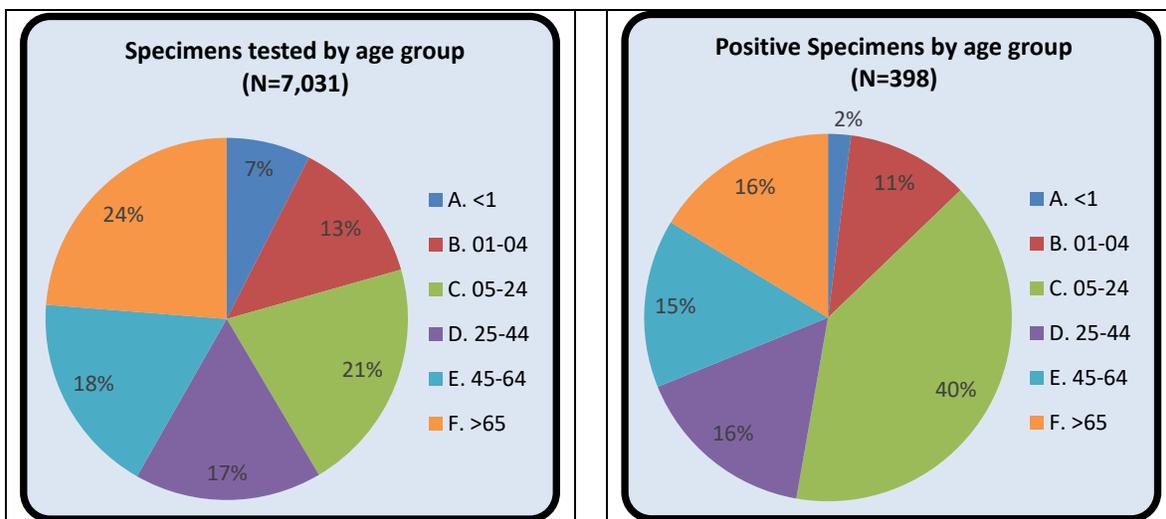
A. INFLUENZA:

- The following reflects laboratory findings for week 49 of the 2018–19 influenza season:
 - A total of **673** specimens have been tested statewide for influenza viruses (positive: **65 [9.7%]**). (Season to date: 7,031 tested [5.7% positive])
 - 329 (48.9%) were screened only by rapid antigen tests with no confirmatory testing
 - 344 (51.1%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 608 (90.3%) were negative.

<i>Influenza type</i>	<i>Current week 49 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	6 (9.2)	29 (7.3)
<i>Influenza A (H3)</i>	0 (0.0)	22 (5.5)
<i>Influenza A no subtyping</i>	50 (76.9)	287 (72.1)
<i>Influenza B (Yamagata)</i>	2 (3.1)	11 (2.8)
<i>Influenza B (Victoria)</i>	0 (0.0)	1 (0.3)
<i>Influenza B no genotyping</i>	7 (10.8)	48 (12.1)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

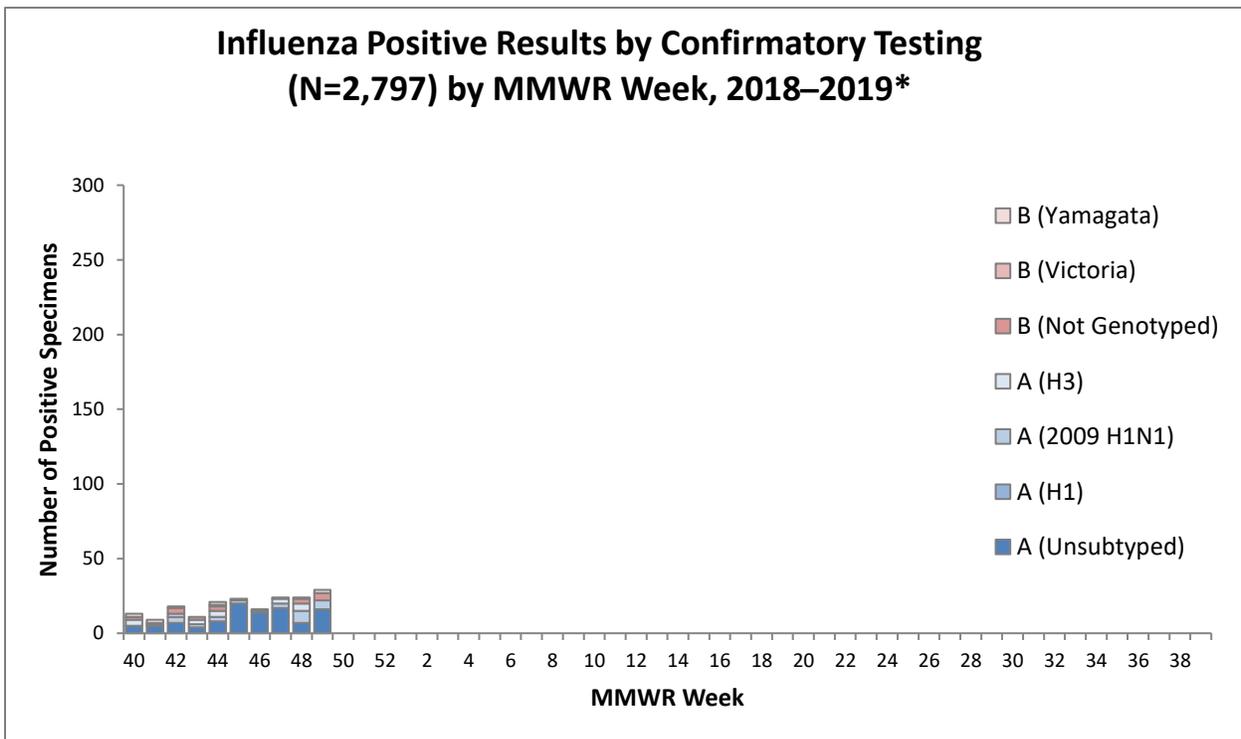
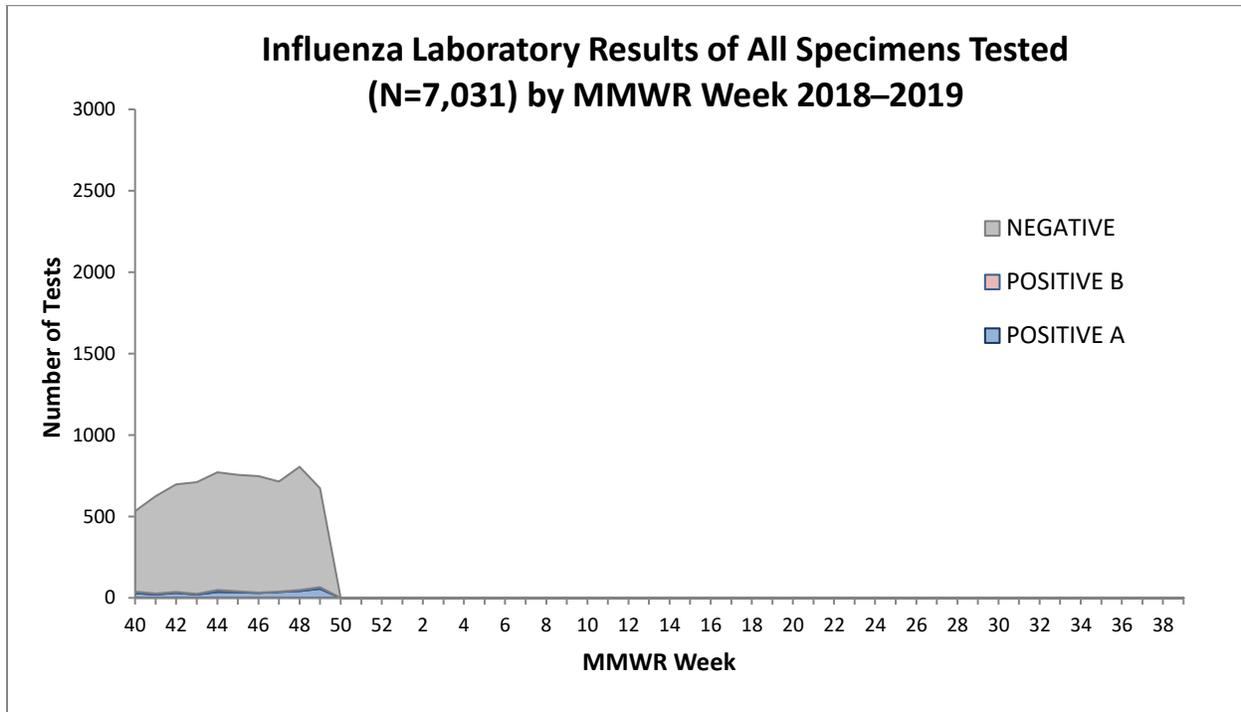


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



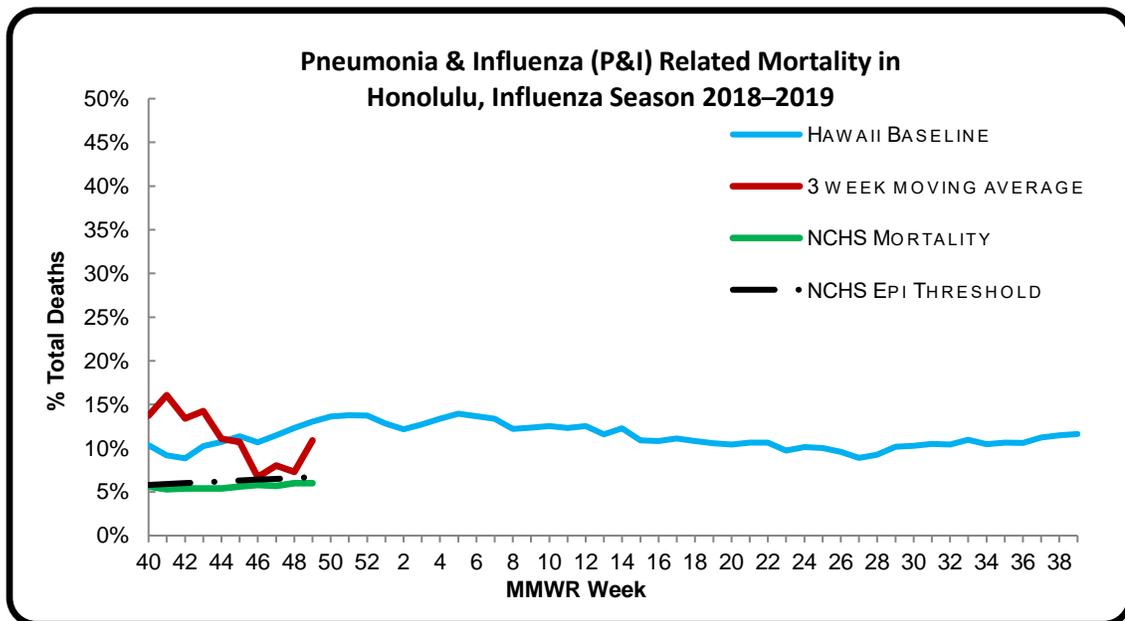
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 49 of the current influenza season:

- 10.7% of all deaths that occurred in Honolulu during week 49 were related to pneumonia or influenza. For the current season (season to date: 11.9%), there have been 875 deaths from any cause, 104 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was comparable to CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (6.0%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.7%) (i.e., inside the 95% confidence interval) for week 49.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 49. This death was associated with an influenza B virus and occurred during week 48 (week ending December 1, 2018). (Season total: 6).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 49.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **November 1, 2018**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

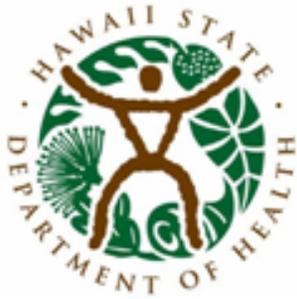
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 50: DECEMBER 9, 2018–DECEMBER 15, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 50

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.9%	Lower than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	4.3%	Lower than the previous week. This number means that many, if not all, of the 95.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	5.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	9.8%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	1	

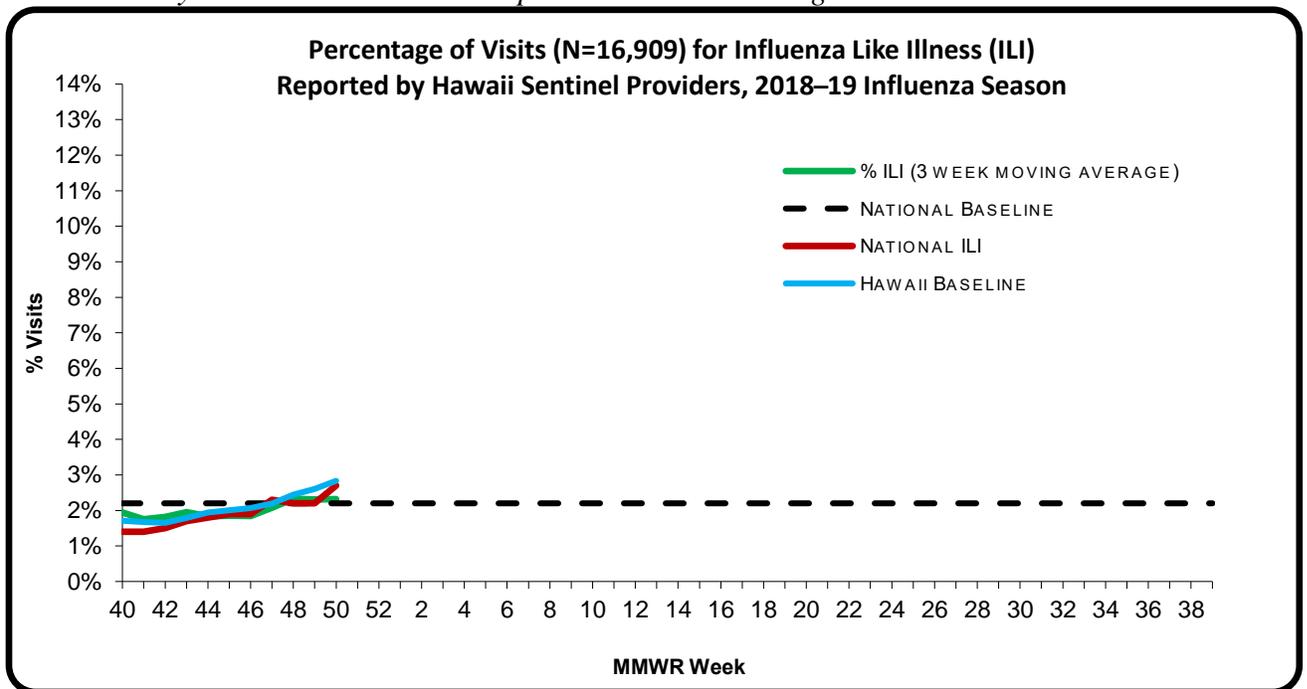
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 50** of the current influenza season:

- **1.9%** (season to date: **1.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (2.7%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 50.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

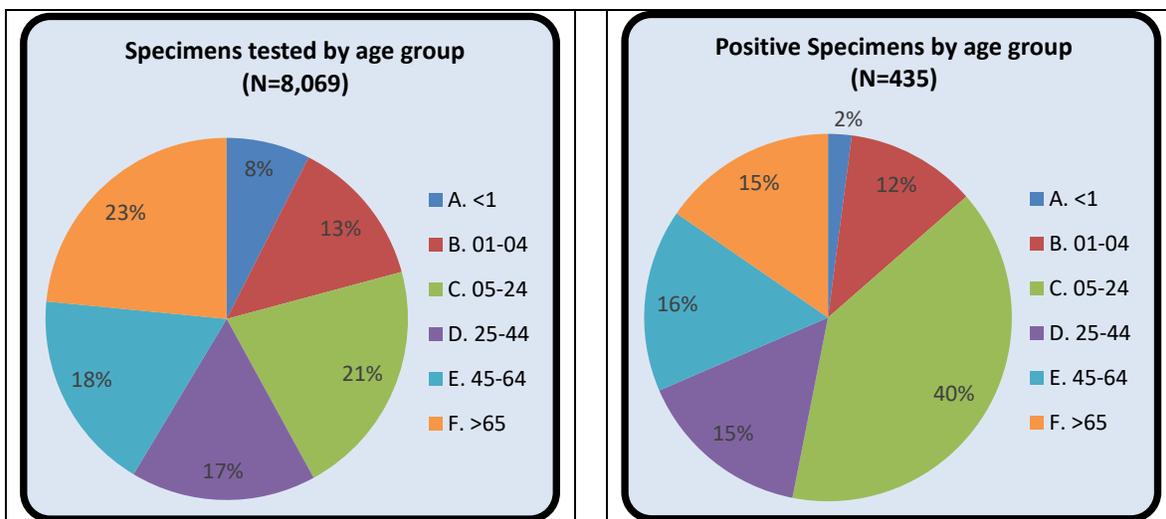
A. INFLUENZA:

- The following reflects laboratory findings for week 50 of the 2018–19 influenza season:
 - A total of **863 specimens** have been tested statewide for influenza viruses (positive: **37 [4.3%]**). (Season to date: 8,069 tested [5.4% positive])
 - 605 (70.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 258 (29.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 826 (95.7%) were negative.

<i>Influenza type</i>	<i>Current week 50 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	1 (2.7)	30 (6.9)
<i>Influenza A (H3)</i>	0 (0.0)	22 (5.1)
<i>Influenza A no subtyping</i>	32 (86.5)	319 (73.3)
<i>Influenza B (Yamagata)</i>	1 (2.7)	12 (2.8)
<i>Influenza B (Victoria)</i>	0 (0.0)	1 (0.2)
<i>Influenza B no genotyping</i>	3 (8.1)	51 (11.7)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

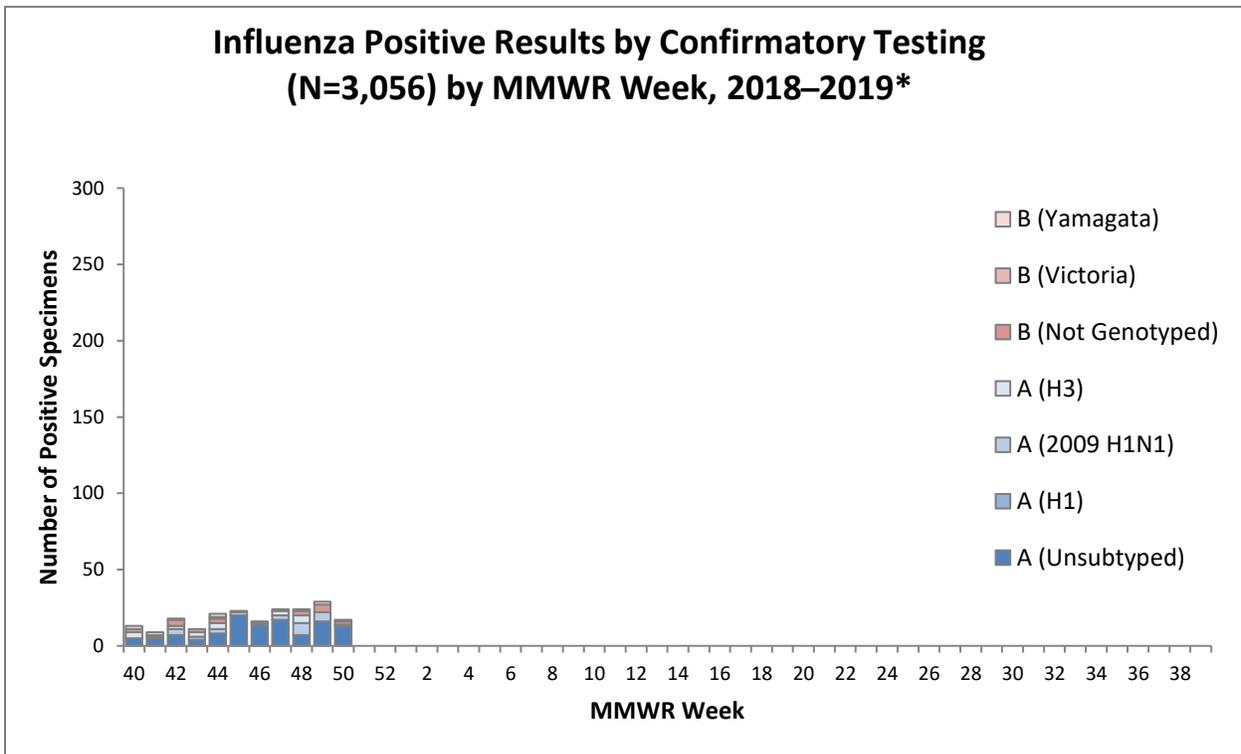
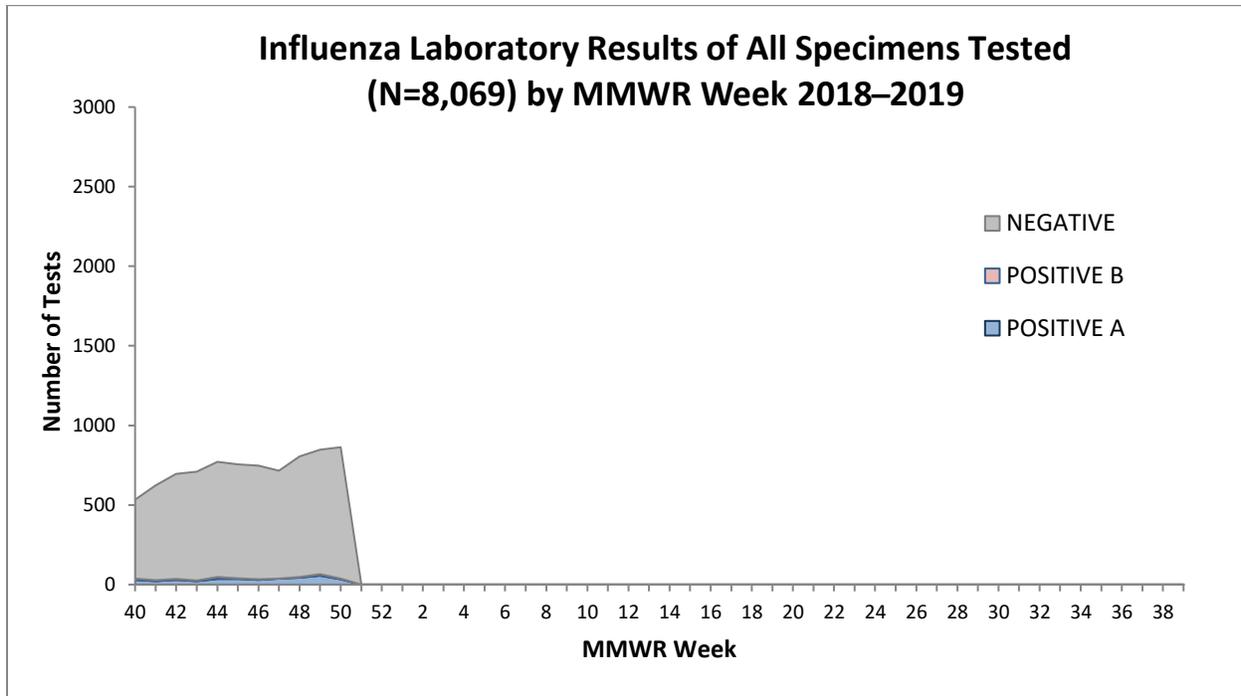


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



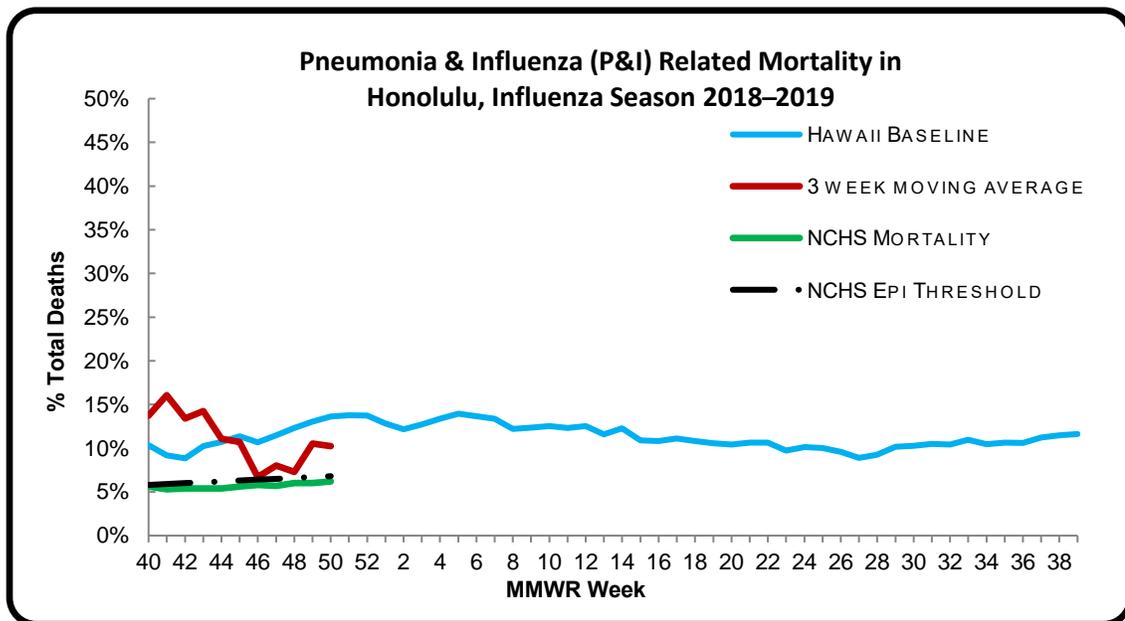
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 50 of the current influenza season:

- *9.8% of all deaths that occurred in Honolulu during week 50 were related to pneumonia or influenza. For the current season (season to date: 11.7%), there have been 957 deaths from any cause, 112 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Honolulu P&I rate was comparable to CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (6.2%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.8%) (i.e., inside the 95% confidence interval) for week 50.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 50. This death was associated with an influenza A virus for which no subtyping was performed and occurred during week 49 (week ending December 8, 2018). (Season total: 7).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 50.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **December 13, 2018**. Since the last update, no new laboratory-confirmed human cases of influenza A(H5) virus infections were reported to WHO. One laboratory-confirmed human case of infection with an avian influenza A(H7N2) virus associated with an outbreak in cats in December 2016 in the United States was detected. The individual reported mild respiratory illness following close contact with infected cats during the outbreak. This is the second human case of infection with an influenza A(H7N2) virus transmitted from cats to humans. Two new laboratory-confirmed human cases of influenza A(H9N2) virus infections were reported to WHO from China. One case reportedly had exposure to backyard poultry while the other did not have known contact with live poultry.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

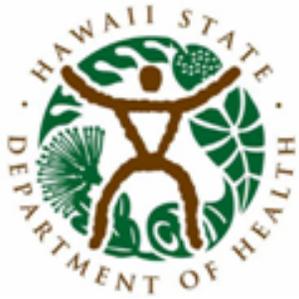
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 51: DECEMBER 16, 2018–DECEMBER 22, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 51

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.9%	Comparable to the previous week. Comparable to Hawaii’s historical baseline, lower than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	8.6%	Higher than the previous week. This number means that many, if not all, of the 91.4% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	5.8%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	7.5%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	4	

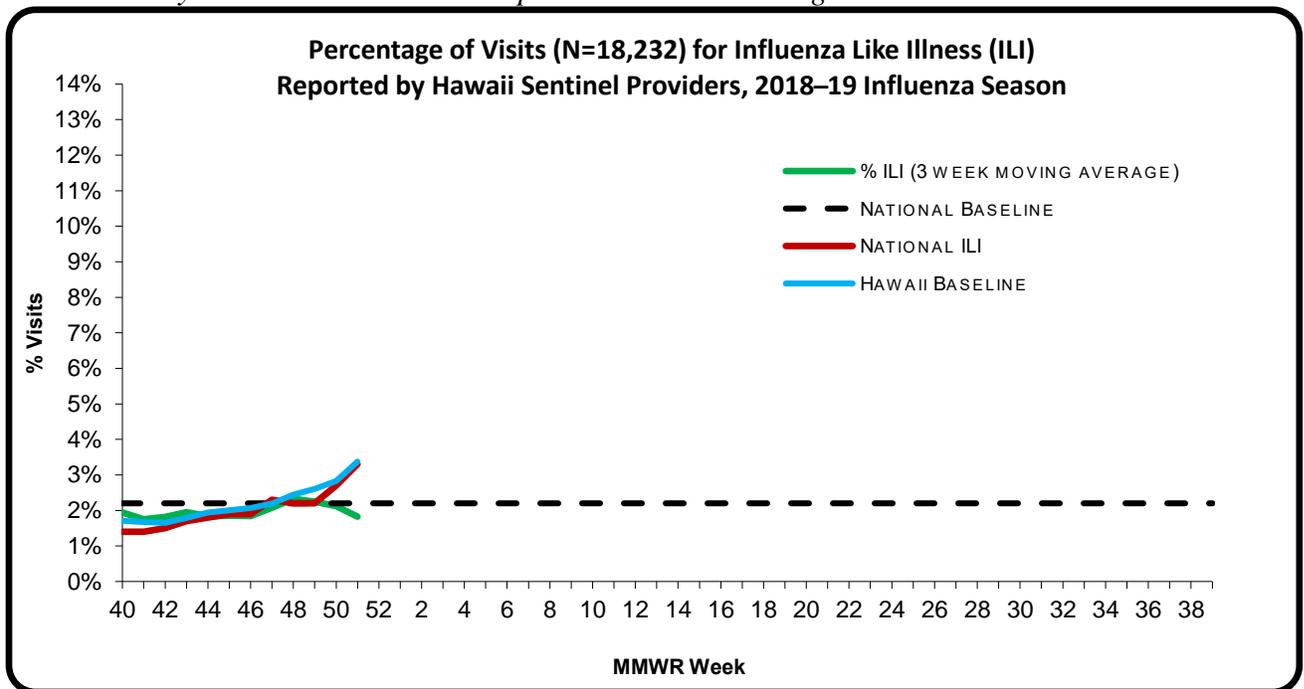
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 51** of the current influenza season:

- **1.9%** (season to date: **1.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and lower than the national ILI rate (3.3%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 51.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

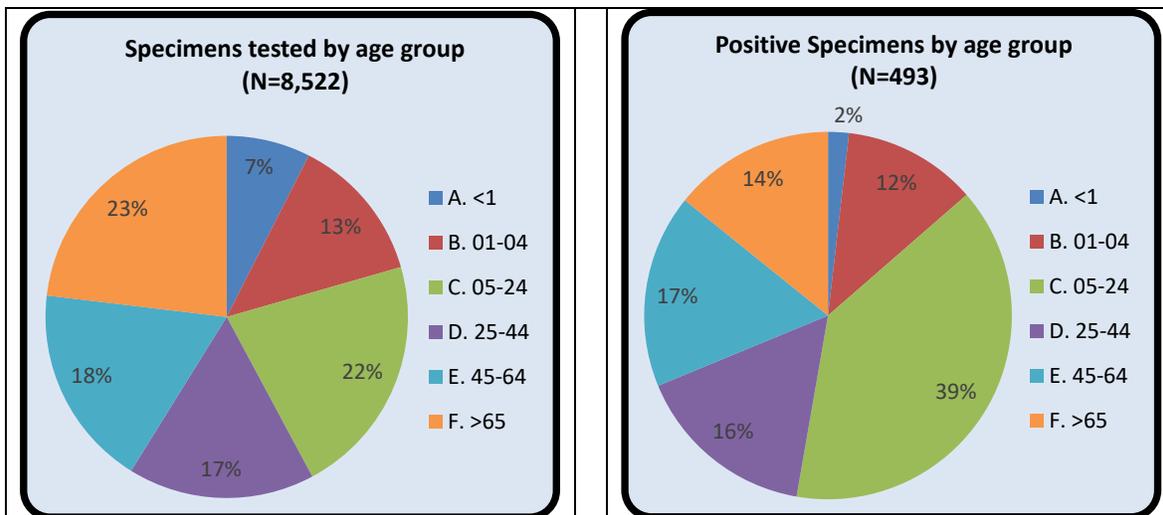
A. INFLUENZA:

- The following reflects laboratory findings for week 51 of the 2018–19 influenza season:
 - A total of 857 specimens have been tested statewide for influenza viruses (positive: 74 [8.6%]). (Season to date: 8,522 tested [5.8% positive])
 - 532 (62.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 325 (37.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 783 (95.7%) were negative.

Influenza type	Current week 51 (%)	Season to date (%)
Influenza A (H1) ⁷	0 (0.0)	29 (5.9)
Influenza A (H3)	0 (0.0)	21 (4.3)
Influenza A no subtyping	71 (95.9)	377 (76.5)
Influenza B (Yamagata)	0 (0.0)	12 (2.4)
Influenza B (Victoria)	0 (0.0)	1 (0.2)
Influenza B no genotyping	3 (4.1)	53 (10.8)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

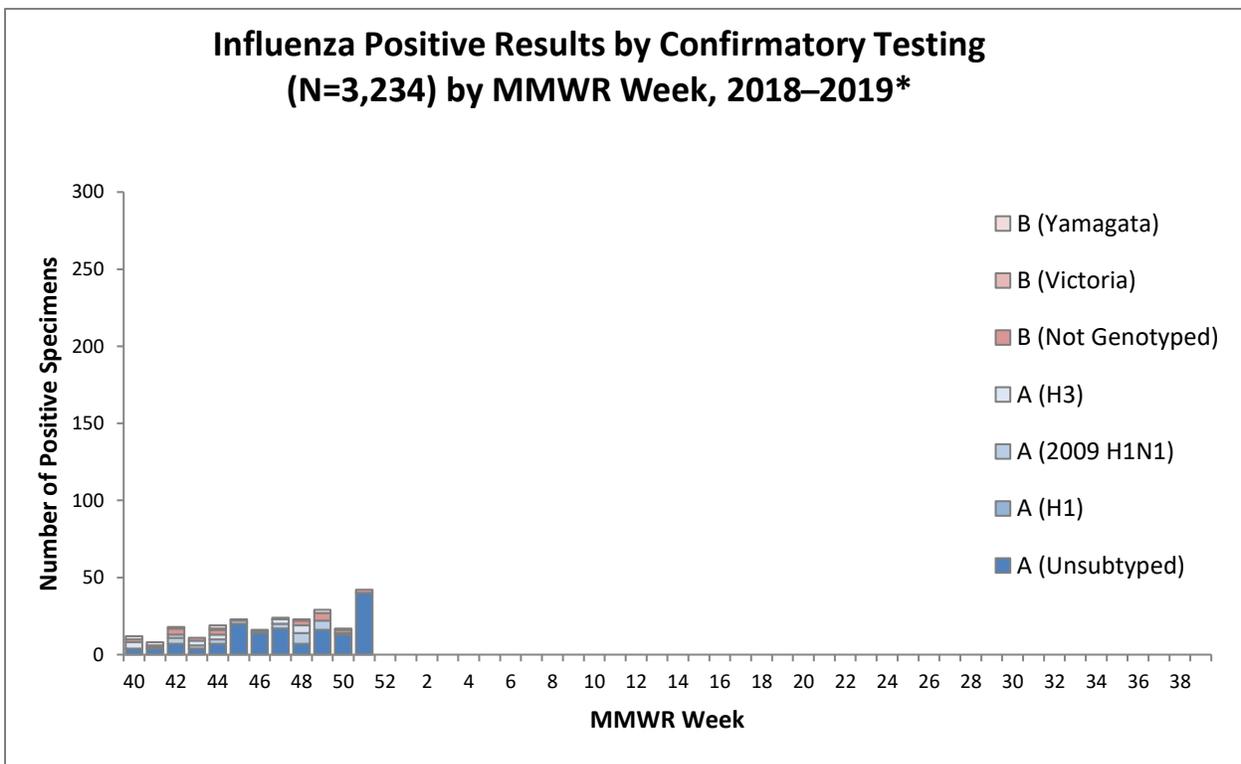
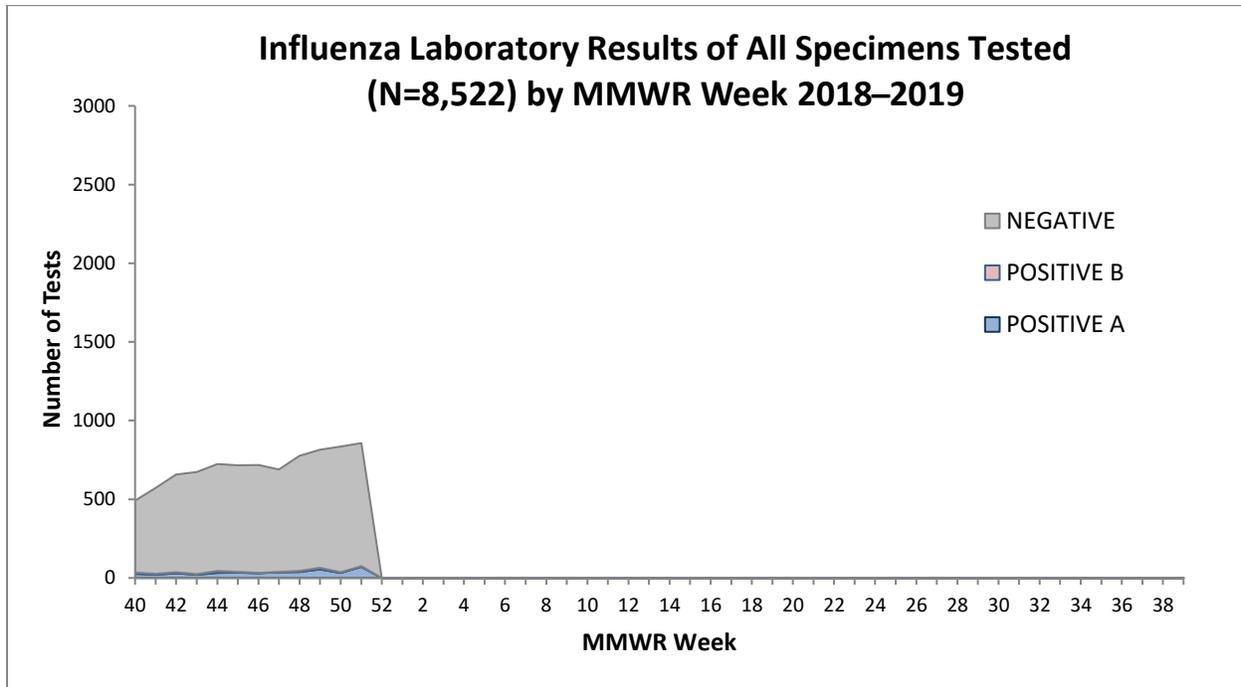


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



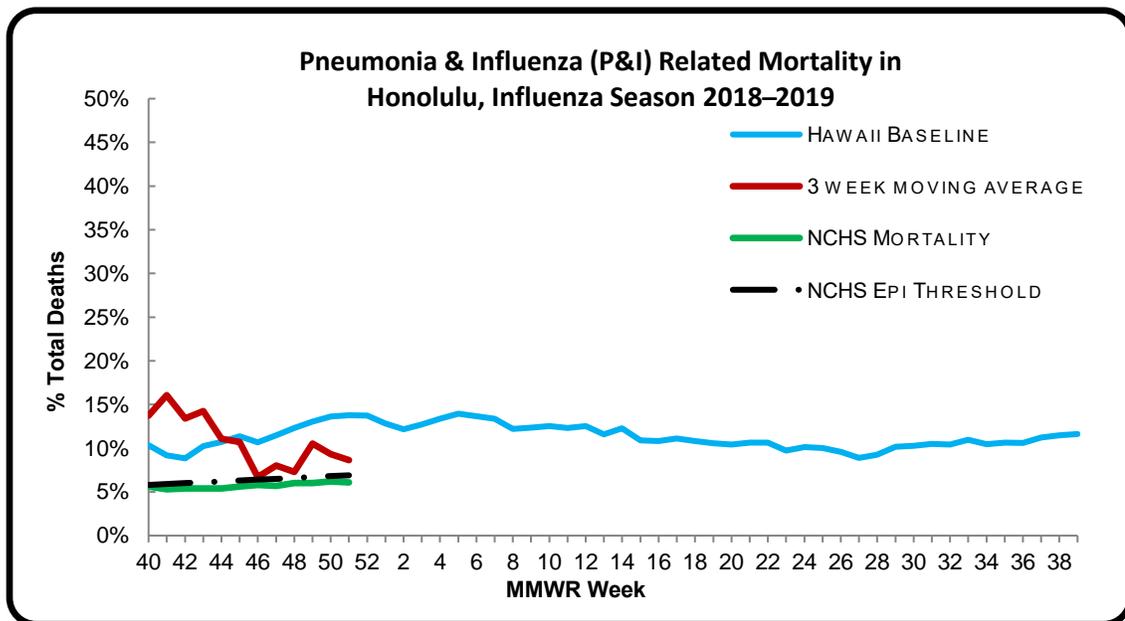
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 51 of the current influenza season:

- 7.5% of all deaths that occurred in Honolulu during week 51 were related to pneumonia or influenza. For the current season (season to date: 11.4%), there have been 1,037 deaths from any cause, 118 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was comparable to CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (6.1%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.9%) (i.e., inside the 95% confidence interval) for week 51.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, four influenza-associated pediatric deaths were reported to CDC during week 51. One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 49 (week

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

ending December 8, 2018). Three deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during weeks 50 and 51 (weeks ending December 15 and December 22, 2018, respectively). (Season total: 11).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 51.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **December 13, 2018**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

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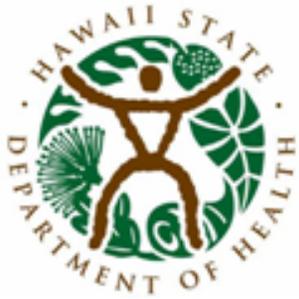
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APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 52: DECEMBER 23, 2018–DECEMBER 29, 2018

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 52

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.5%	Higher than the previous week. Comparable to Hawaii’s historical baseline, lower than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 1 cluster this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	16.2%	Higher than the previous week. This number means that many, if not all, of the 83.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	7.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	19.4%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	2	

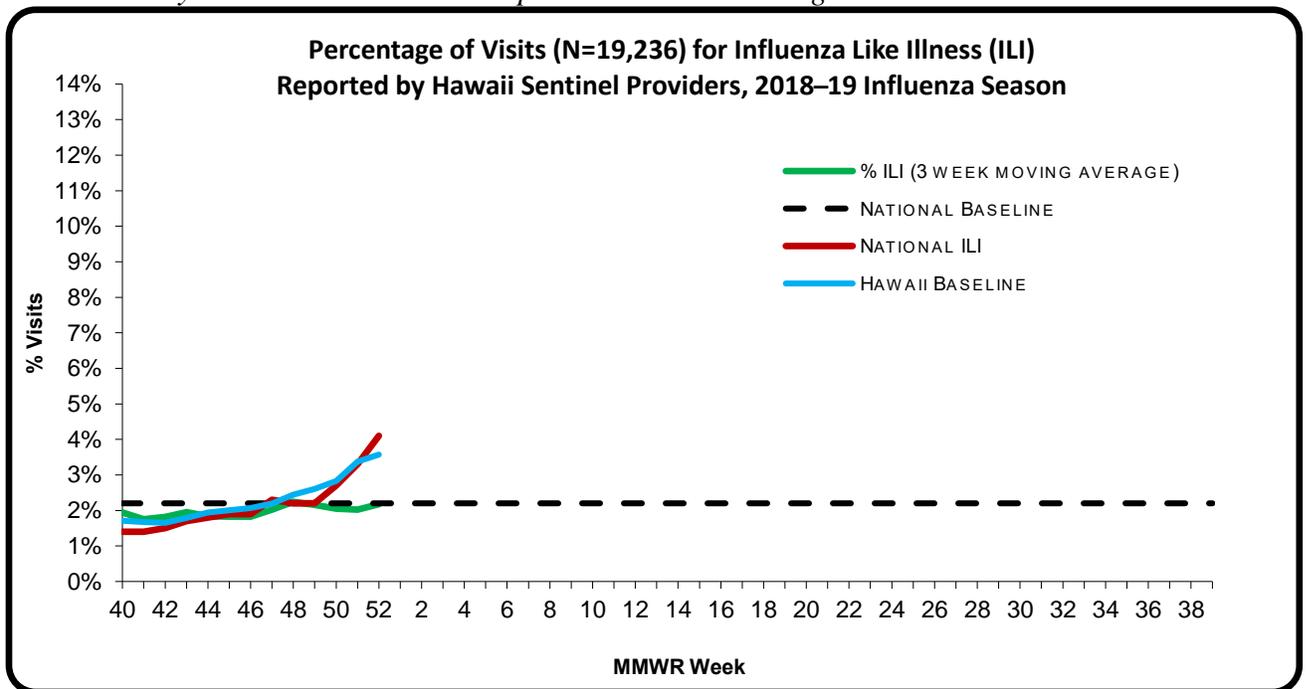
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 52** of the current influenza season:

- **2.5%** (season to date: **1.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and lower than the national ILI rate (**4.1%**) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 52.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

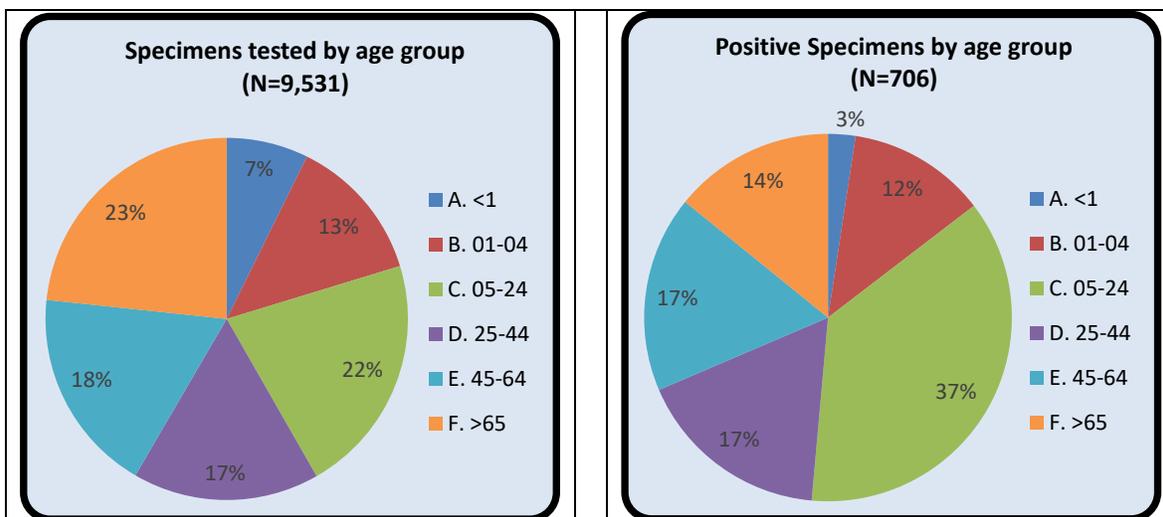
A. INFLUENZA:

- The following reflects laboratory findings for week 52 of the 2018–19 influenza season:
 - A total of **997** specimens have been tested statewide for influenza viruses (positive: **162 [16.2%]**). (Season to date: 9,531 tested [7.4% positive])
 - 681 (68.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 316 (31.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 835 (83.8%) were negative.

<i>Influenza type</i>	<i>Current week 52 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	0 (0.0)	52 (7.4)
<i>Influenza A (H3)</i>	0 (0.0)	25 (3.5)
<i>Influenza A no subtyping</i>	157 (96.9)	556 (78.8)
<i>Influenza B (Yamagata)</i>	1 (0.6)	13 (1.8)
<i>Influenza B (Victoria)</i>	0 (0.0)	1 (0.1)
<i>Influenza B no genotyping</i>	4 (2.5)	59 (8.4)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

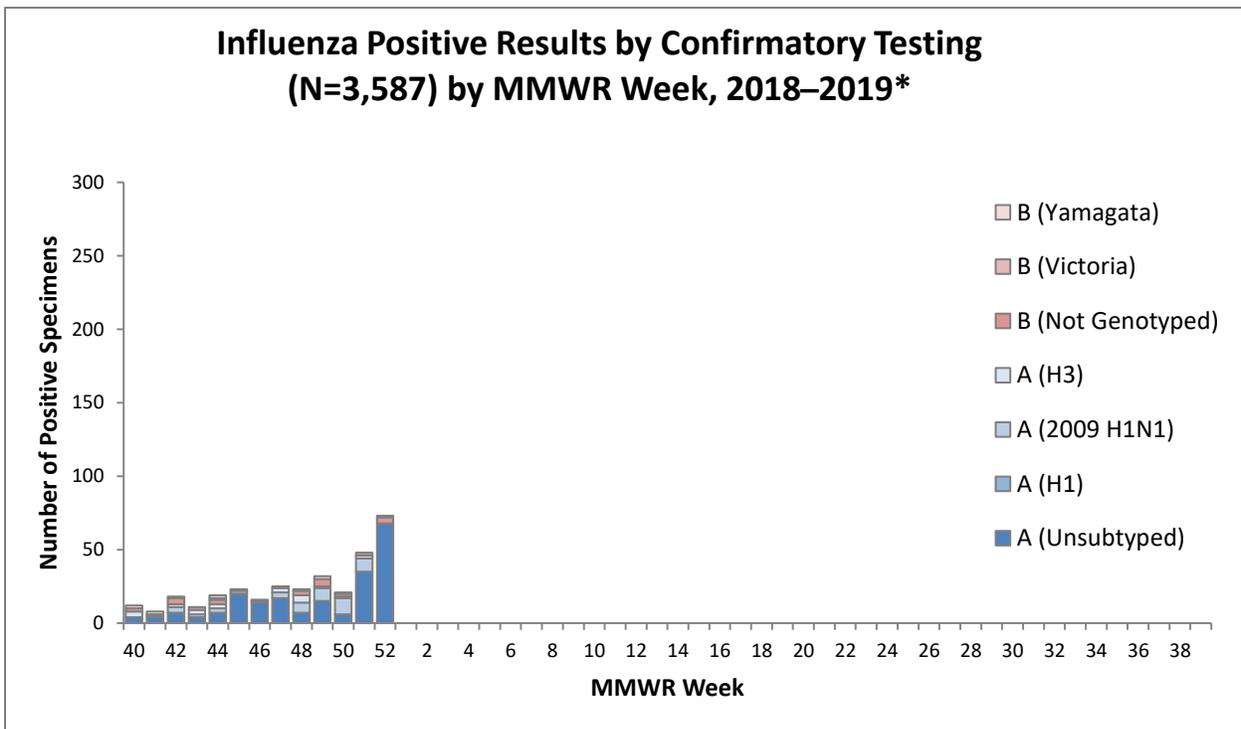
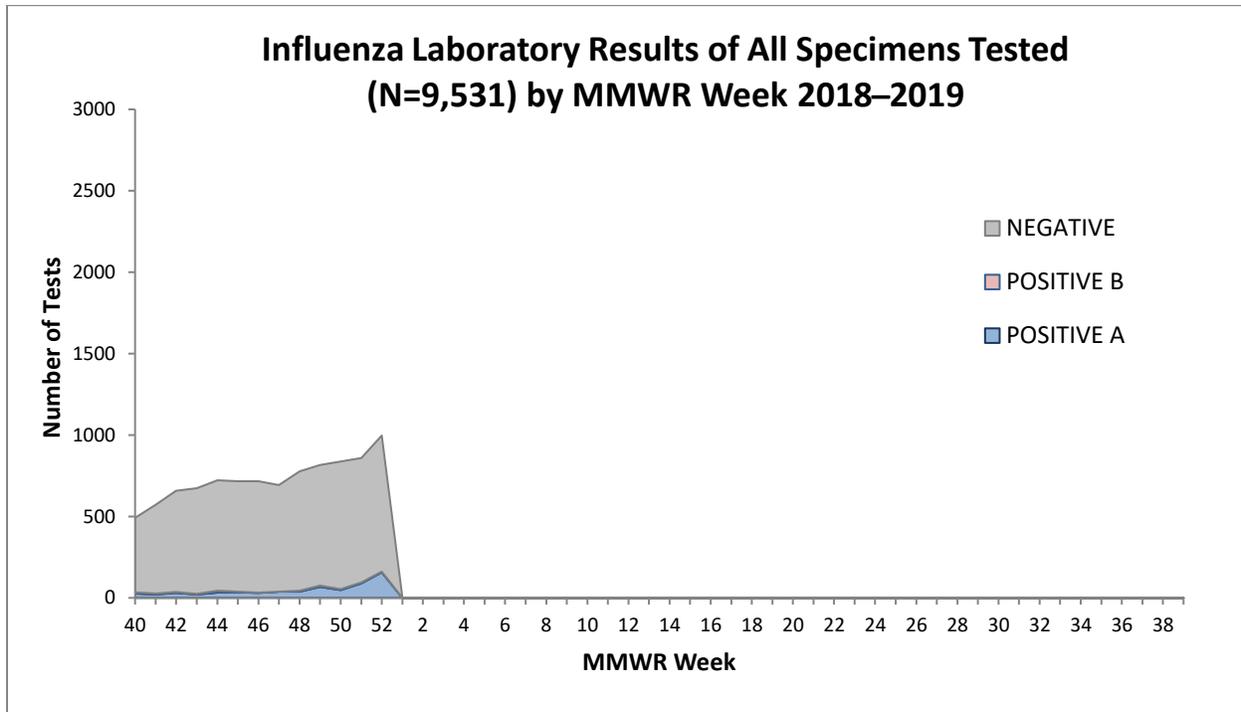


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



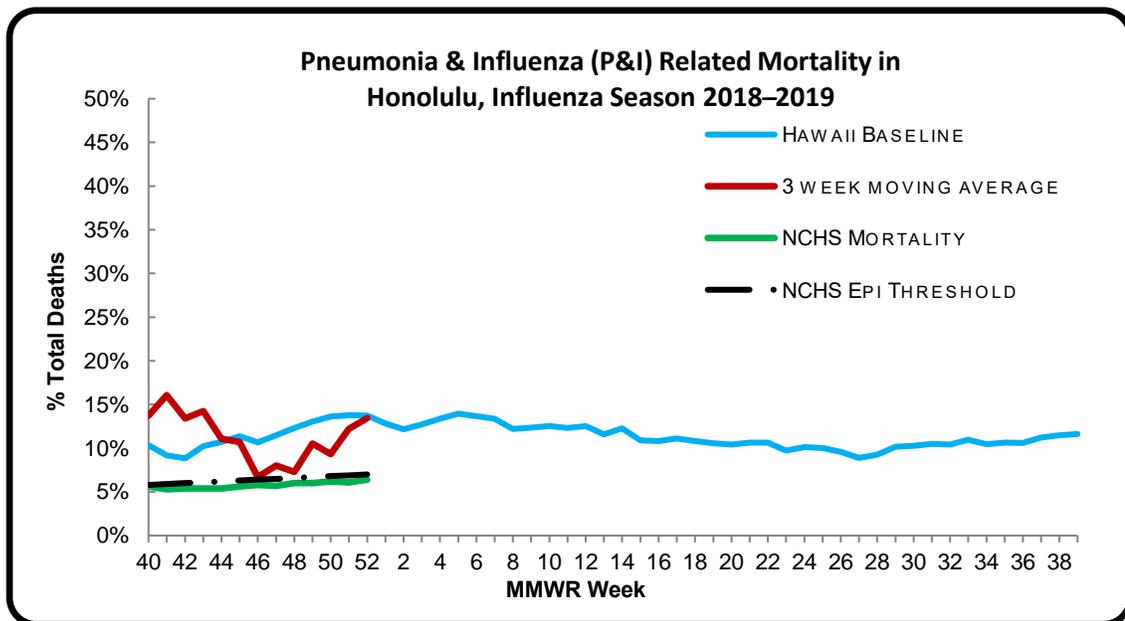
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 52 of the current influenza season:

- *19.4% of all deaths that occurred in Honolulu during week 52 were related to pneumonia or influenza. For the current season (season to date: 11.9%), there have been 1,104 deaths from any cause, 131 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Honolulu P&I rate was higher than the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (6.4%) (i.e., outside the 95% confidence interval) and higher than the national epidemic threshold (7.0%) (i.e., outside the 95% confidence interval) for week 52.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 52. Both deaths were associated with influenza A(H1N1)pdm09 viruses and occurred during weeks 51 and 52 (weeks ending December 22 and December 29, 2018, respectively). (Season total: 13).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 52.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **December 13, 2018**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school

days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

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HDOH/DOCD Influenza Surveillance Report

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39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 1: DECEMBER 30, 2018–JANUARY 5, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 1

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.0%	Higher than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	1	There has been a total of 2 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	25.1%	Higher than the previous week. This number means that many, if not all, of the 74.9% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	9.2%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	10.1%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	3	

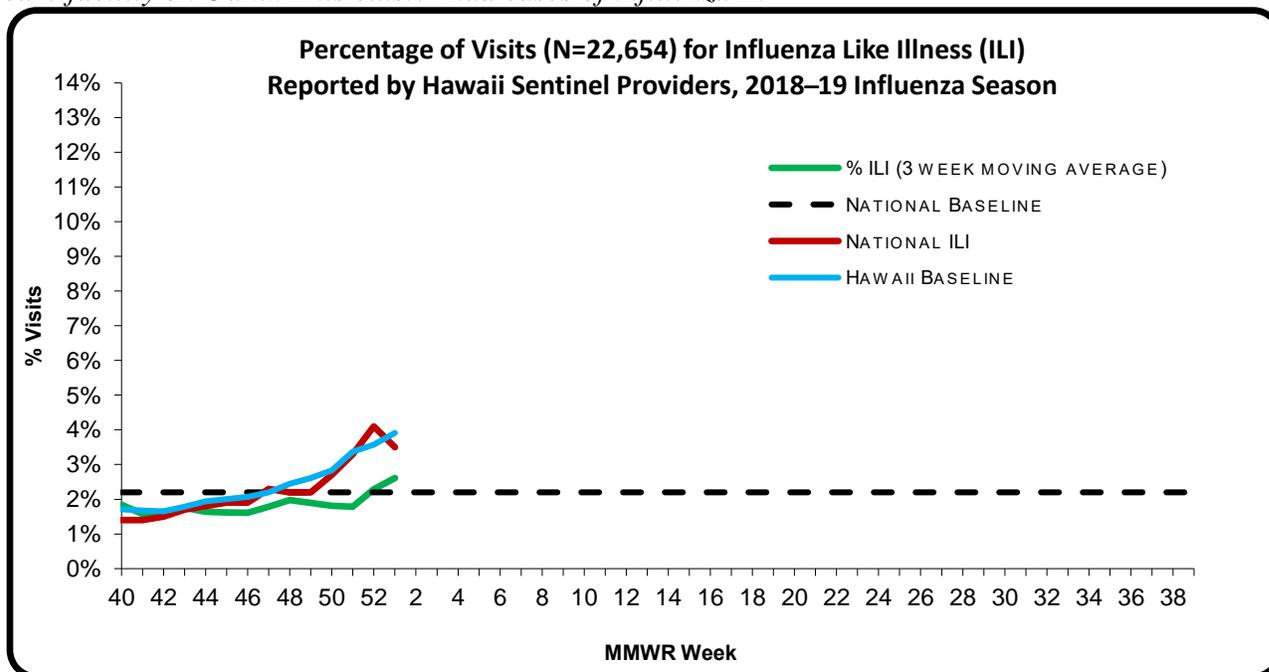
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 1** of the current influenza season:

- **3.0%** (season to date: **1.8%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (3.5%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 1. This cluster occurred at a long-term care facility on Oahu. This cluster had cases of influenza A.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

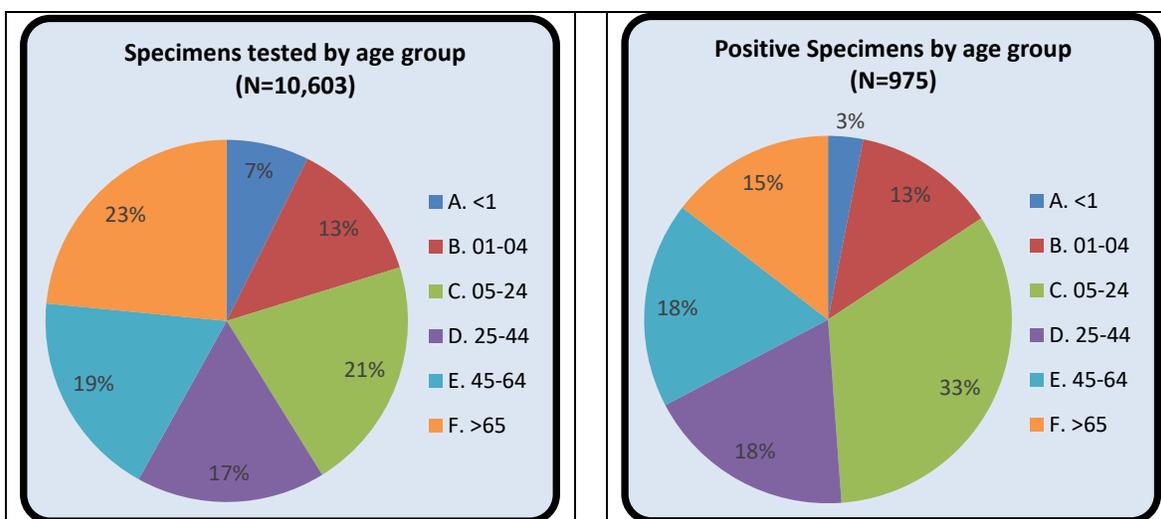
A. INFLUENZA:

- The following reflects laboratory findings for week 1 of the 2018–19 influenza season:
 - A total of **1,071** specimens have been tested statewide for influenza viruses (positive: 269 [25.1%]). (Season to date: 10,603 tested [9.2% positive])
 - 701 (65.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 370 (34.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 802 (74.9%) were negative.

<i>Influenza type</i>	<i>Current week 1 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	2 (0.7)	56 (5.7)
<i>Influenza A (H3)</i>	0 (0.0)	25 (2.6)
<i>Influenza A no subtyping</i>	258 (95.9)	812 (83.3)
<i>Influenza B (Yamagata)</i>	0 (0.0)	13 (1.3)
<i>Influenza B (Victoria)</i>	0 (0.0)	1 (0.1)
<i>Influenza B no genotyping</i>	9 (3.3)	68 (7.0)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

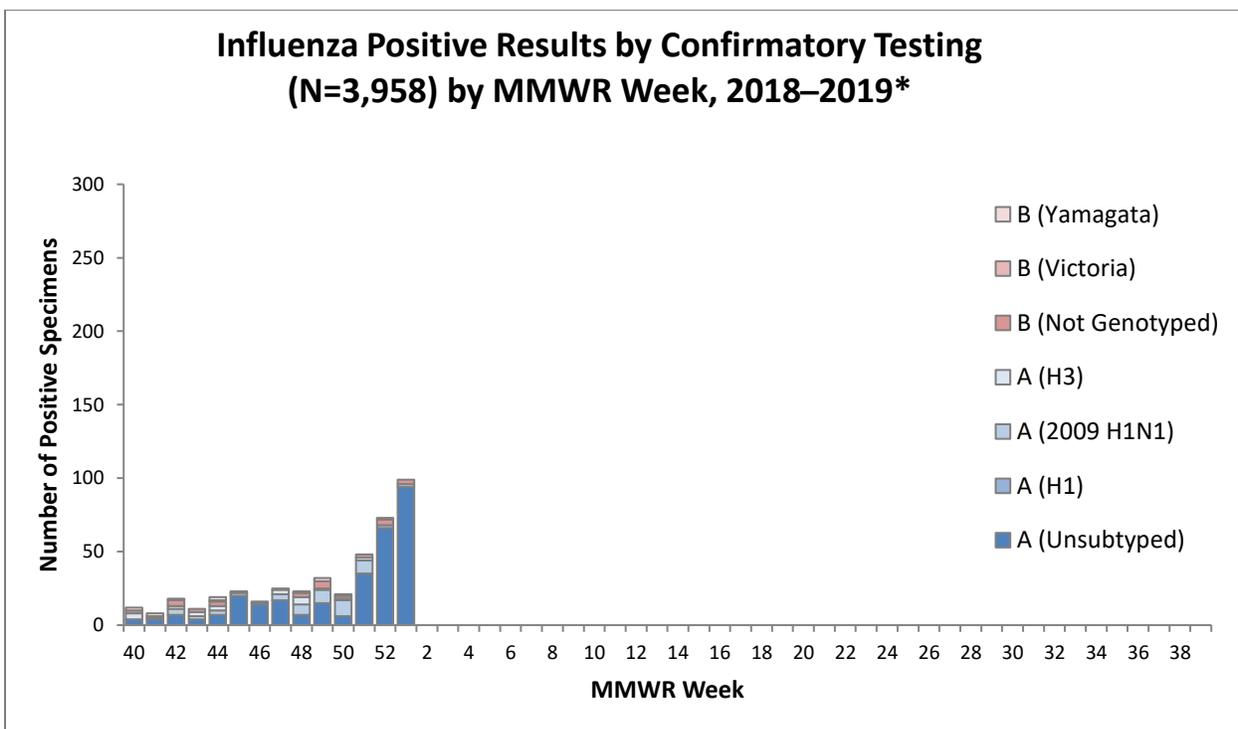
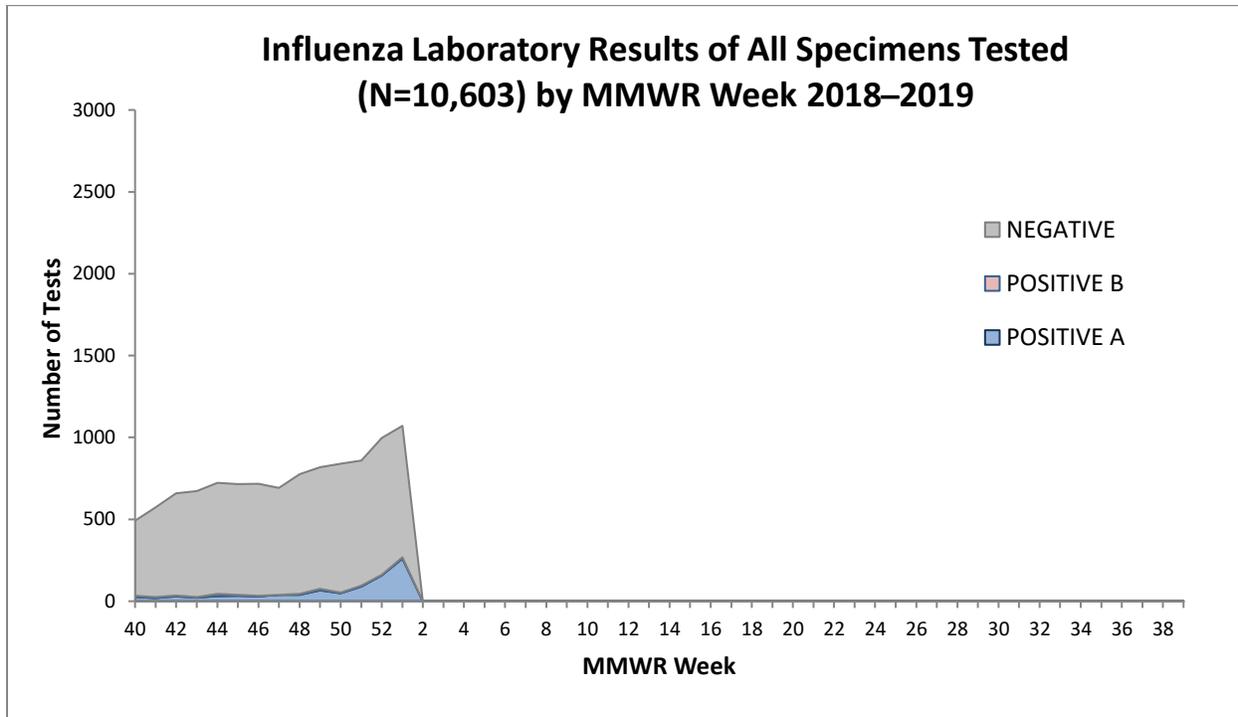


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



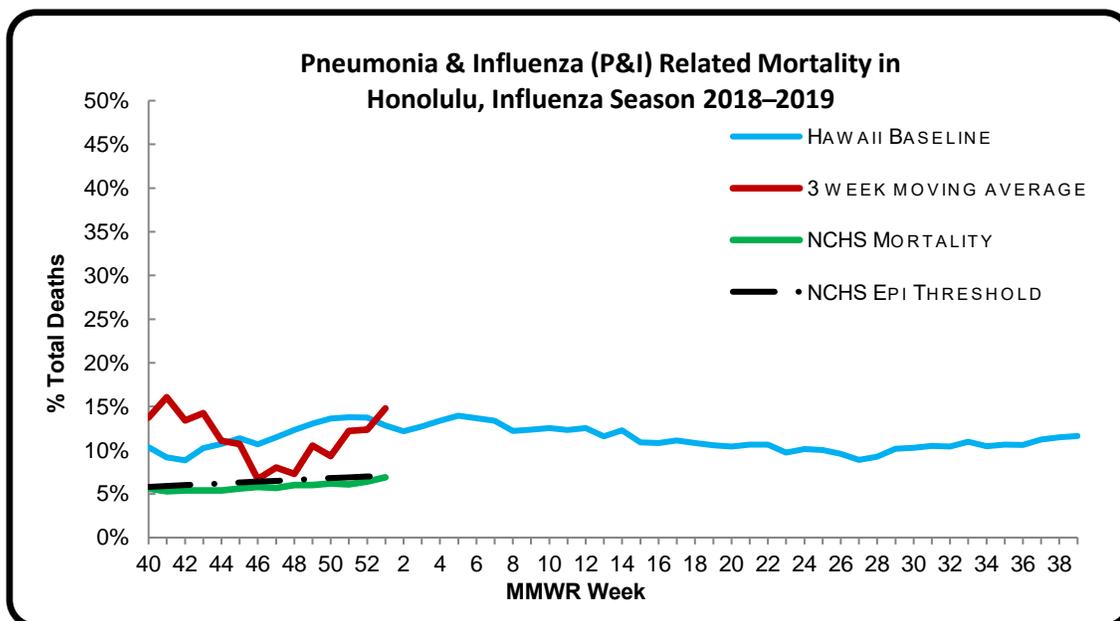
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 1 of the current influenza season:

- 10.1% of all deaths that occurred in Honolulu during week 1 were related to pneumonia or influenza. For the current season (season to date: 11.8%), there have been 1,173 deaths from any cause, 138 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (6.9%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (7.0%) (i.e., inside the 95% confidence interval) for week 1.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 1. One death was associated with an influenza A(H3) virus, one death was associated with an influenza A(H1N1)pdm09 virus and

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

one death was associated with an influenza A virus for which no subtyping was performed. All three deaths occurred during week 52 (week ending December 29, 2018). (Season total: 16).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 1.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **December 13, 2018**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
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15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
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30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 2: JANUARY 6–JANUARY 12, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

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REPORT SNAPSHOT FOR WEEK 1

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.4%	Higher than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 2 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	24.8%	Lower than the previous week. This number means that many, if not all, of the 75.2% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	11.0%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	11.0%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	3	

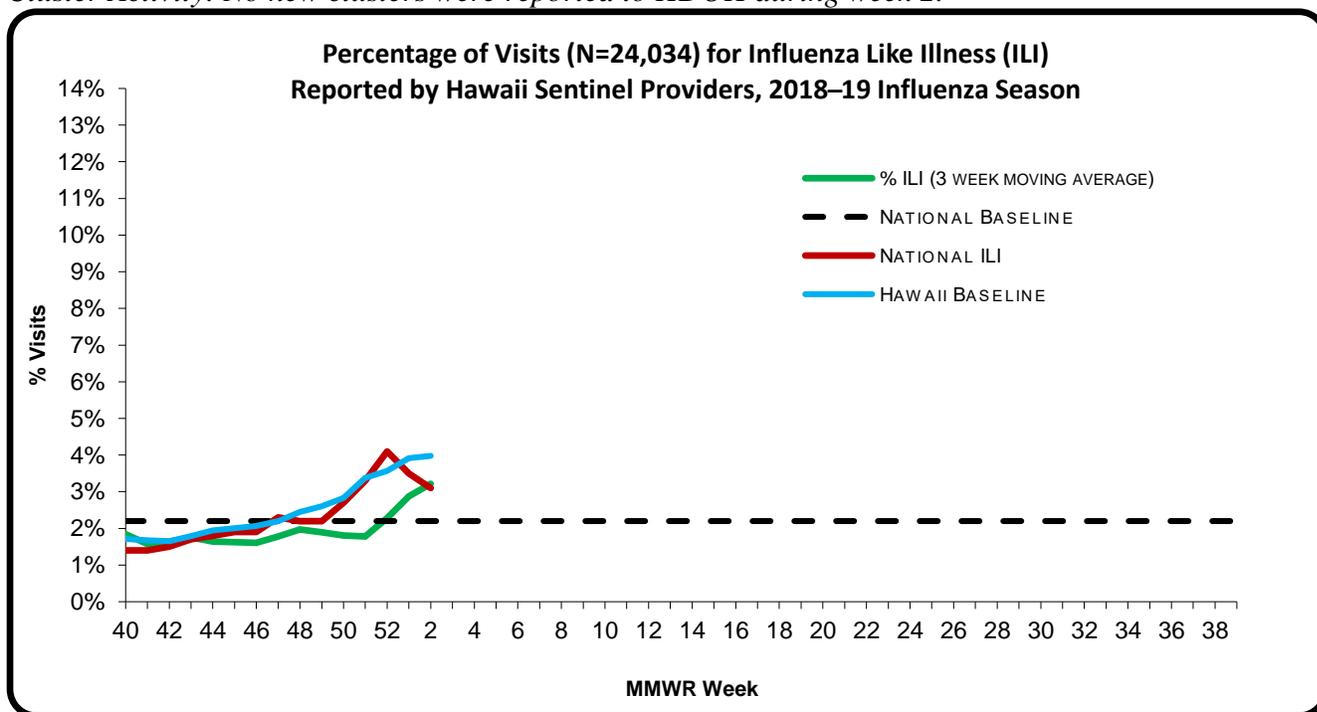
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INFLUENZA SURVEILLANCE

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For **week 2** of the current influenza season:

- **3.4%** (season to date: **1.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (3.1%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 2.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

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⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

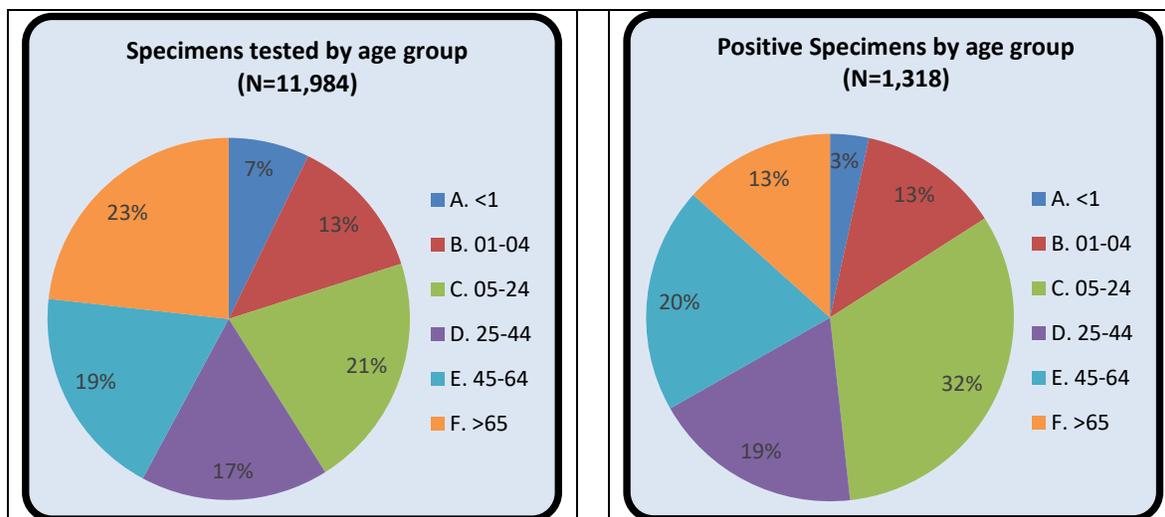
A. INFLUENZA:

- The following reflects laboratory findings for week 2 of the 2018–19 influenza season:
 - A total of **1,365** specimens have been tested statewide for influenza viruses (positive: 339 [24.8%]). (Season to date: 11,984 tested [11.0% positive])
 - 919 (67.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 446 (32.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,026 (75.2%) were negative.

Influenza type	Current week 2 (%)	Season to date (%)
Influenza A (H1) ⁷	2 (0.6)	60 (4.6)
Influenza A (H3)	0 (0.0)	25 (1.9)
Influenza A no subtyping	326 (96.2)	1,138 (86.3)
Influenza B (Yamagata)	1 (0.3)	15 (1.1)
Influenza B (Victoria)	0 (0.0)	2 (0.2)
Influenza B no genotyping	10 (2.9)	78 (5.9)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

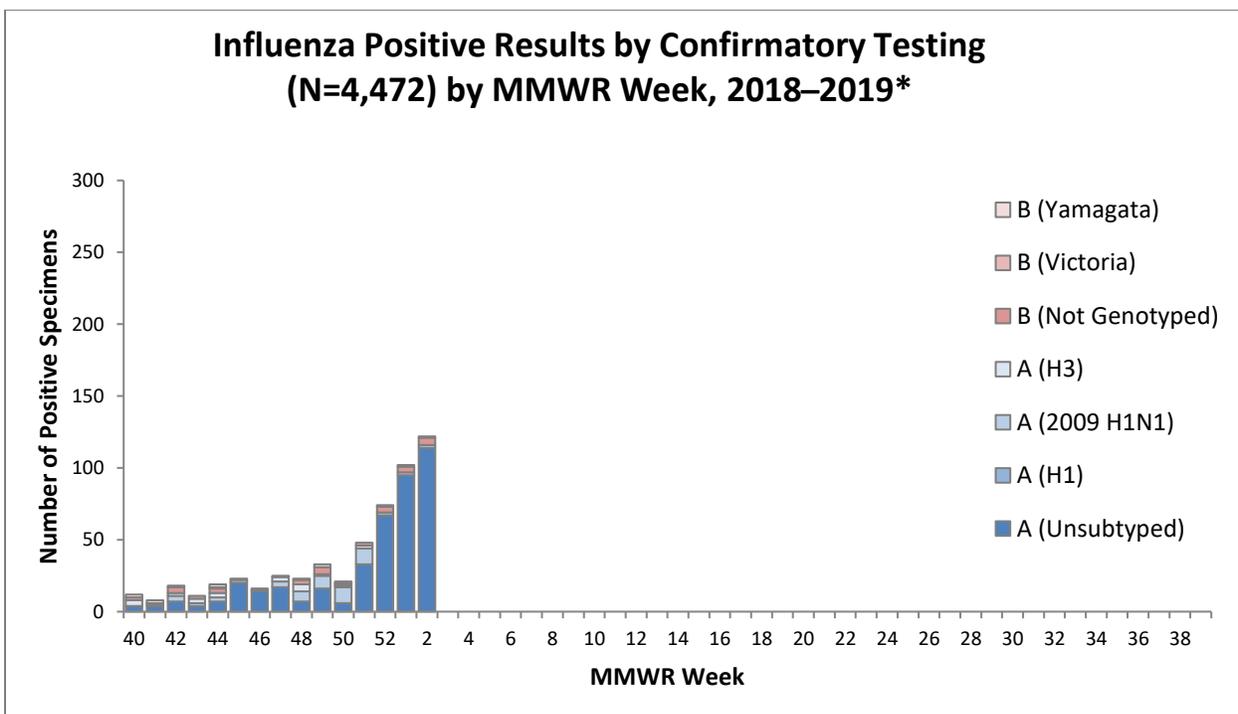
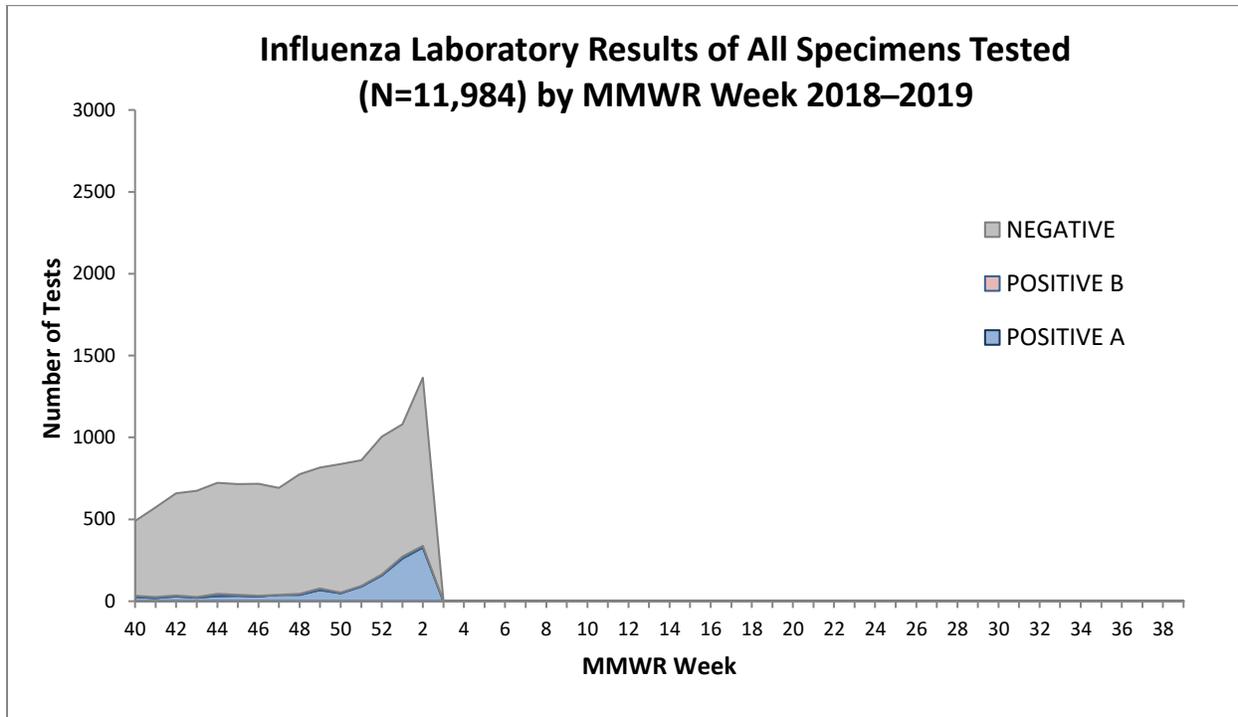


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



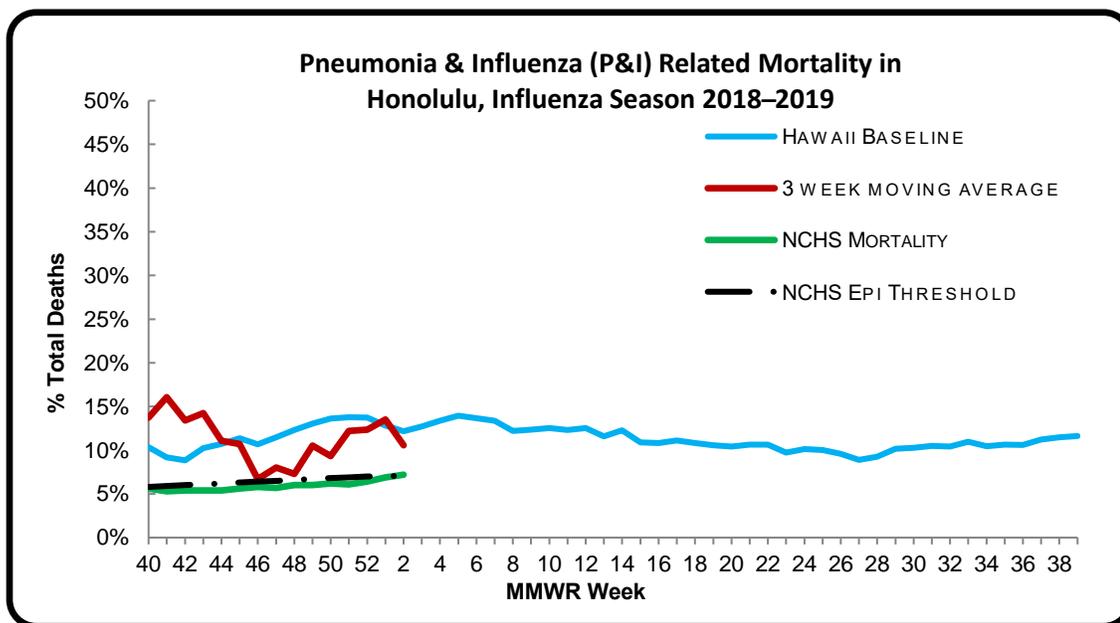
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 2 of the current influenza season:

- *11.0% of all deaths that occurred in Honolulu during week 2 were related to pneumonia or influenza. For the current season (season to date: 11.7%), there have been 1,246 deaths from any cause, 146 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Honolulu P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (7.2%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (7.1%) (i.e., inside the 95% confidence interval) for week 2.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 2. Two deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during weeks 52 and 2 (weeks ending

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

December 29, 2018 and January 12, 2019, respectively). One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 52. (Season total: 19).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 2.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **December 13, 2018**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

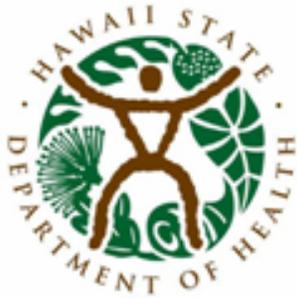
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 3: JANUARY 13–JANUARY 19, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 3

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.6%	Lower than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	2	There has been a total of 4 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	27.4%	Higher than the previous week. This number means that many, if not all, of the 72.6% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	12.7%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	11.7%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	3	

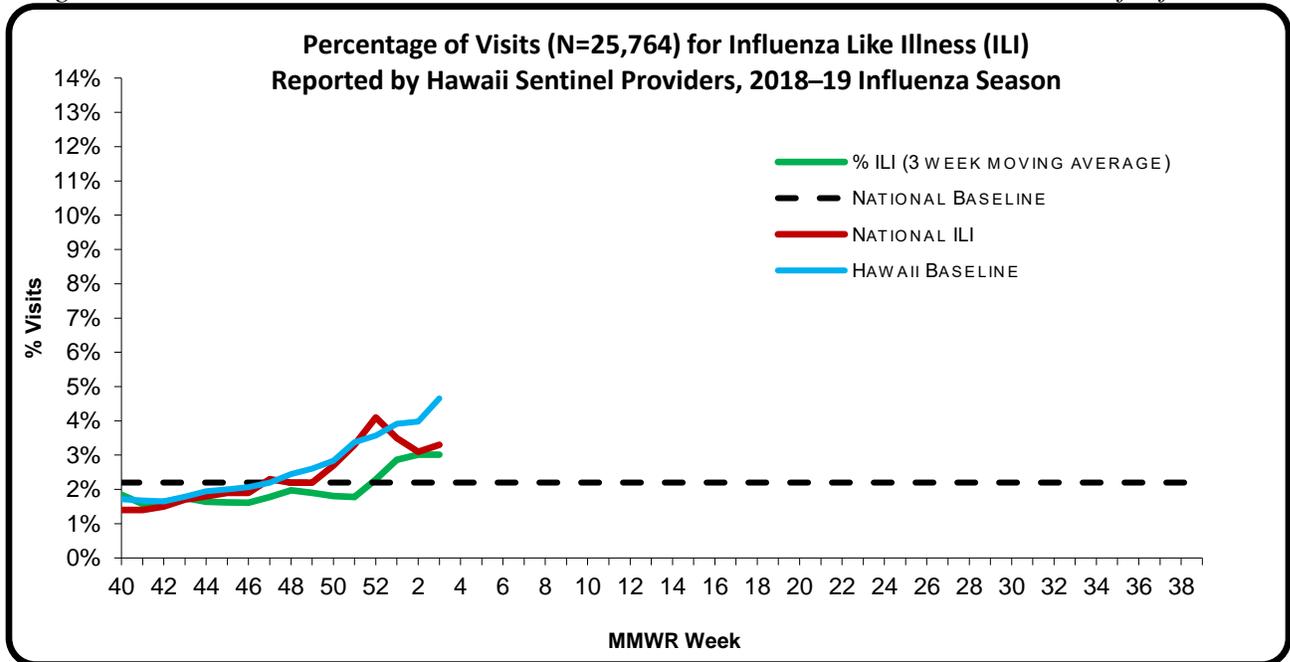
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 3** of the current influenza season:

- **2.6%** (season to date: **1.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (3.3%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Regional Activity*⁵
- *ILI Cluster Activity: Two new clusters were reported to HDOH during week 3. One cluster occurred at a school on the Big Island. One cluster occurred at a school on Oahu. Both clusters included cases of influenza A.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

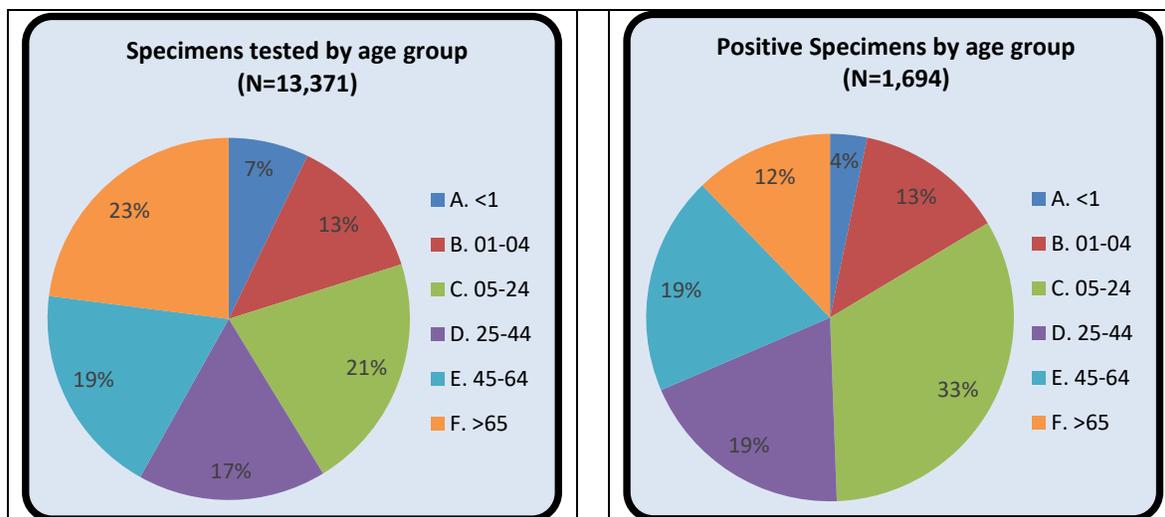
A. INFLUENZA:

- The following reflects laboratory findings for week 3 of the 2018–19 influenza season:
 - A total of **1,376** specimens have been tested statewide for influenza viruses (positive: 377 [27.4%]). (Season to date: 13,371 tested [12.7% positive])
 - 896 (65.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 480 (34.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 999 (72.6%) were negative.

Influenza type	Current week 3 (%)	Season to date (%)
Influenza A (H1) ⁷	1 (0.3)	104 (6.1)
Influenza A (H3)	0 (0.0)	32 (1.9)
Influenza A no subtyping	366 (97.1)	1,456 (86.0)
Influenza B (Yamagata)	0 (0.0)	15 (0.9)
Influenza B (Victoria)	0 (0.0)	2 (0.1)
Influenza B no genotyping	10 (2.7)	85 (5.0)

1. AGE DISTRIBUTION

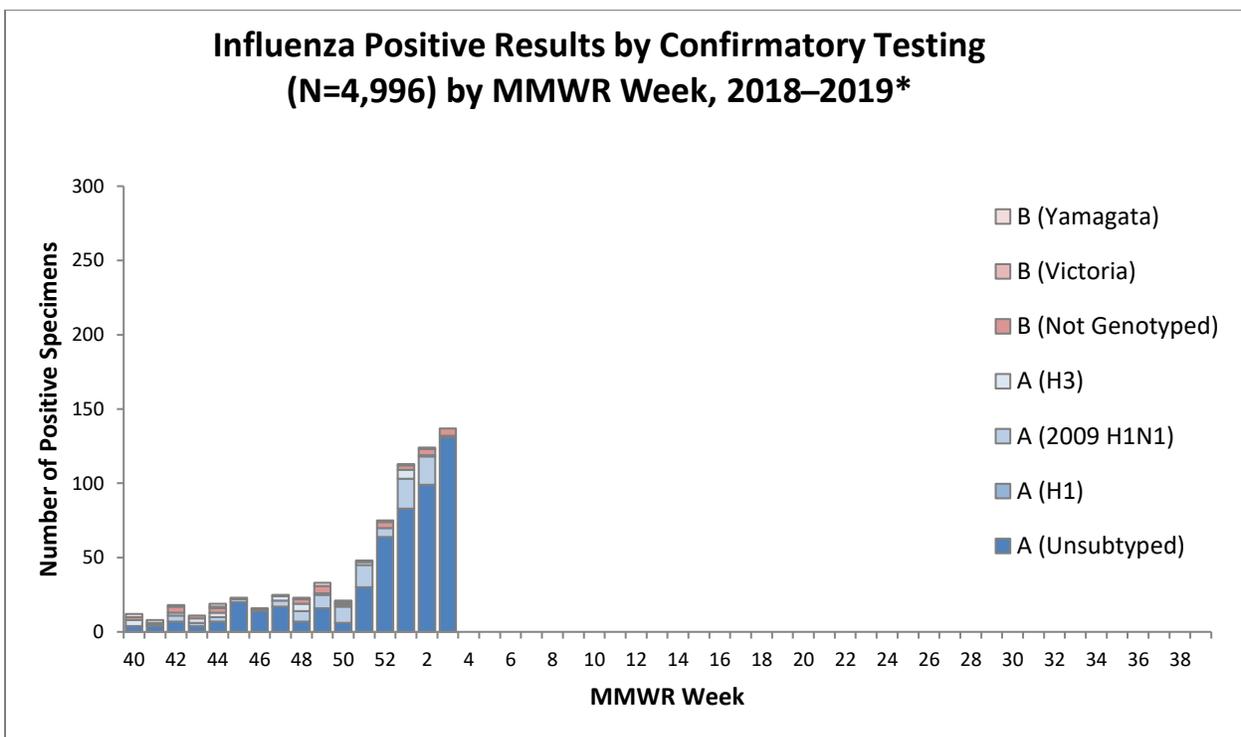
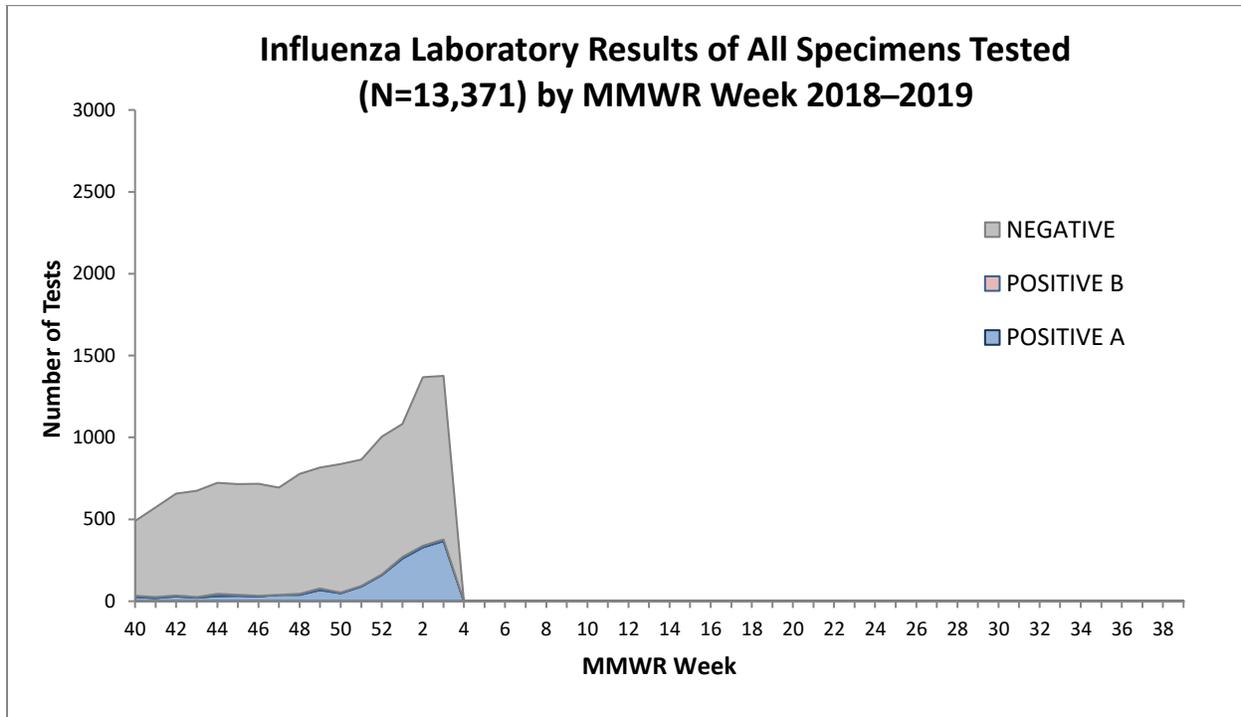
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



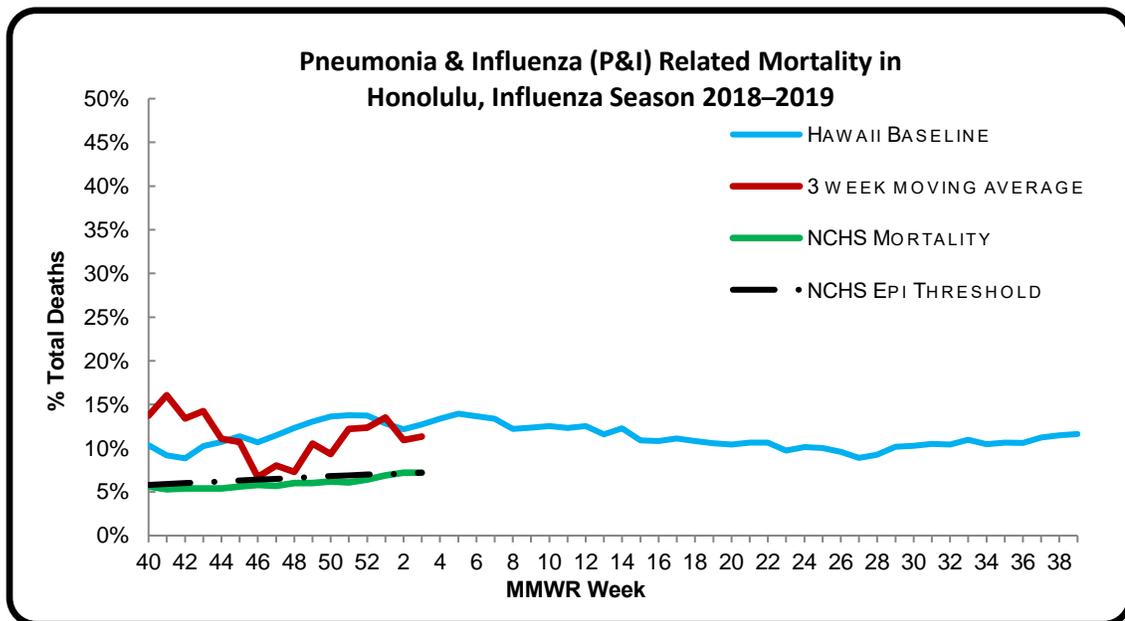
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 3 of the current influenza season:

- 11.7% of all deaths that occurred in Honolulu during week 3 were related to pneumonia or influenza. For the current season (season to date: 11.7%), there have been 1,340 deaths from any cause, 157 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (7.2%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (7.2%) (i.e., inside the 95% confidence interval) for week 3.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 3. Two deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during weeks 51 and 2 (weeks ending December 22, 2018 and January 12, 2019, respectively). One death was associated with an influenza A virus

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

for which no subtyping was performed and occurred during week 1 (week ending January 5, 2019). (Season total: 22).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 3.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **January 21, 2019**. Since the last update, one new laboratory-confirmed human case of influenza A(H9N2) virus infection was reported to WHO from China. The infection resulted in mild illness and the individual was hospitalized. Exposure to live poultry was not reported.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

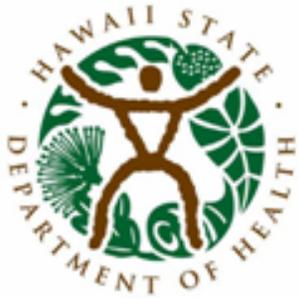
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World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

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11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
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22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
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26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
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30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
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35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
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43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
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46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
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48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 4: JANUARY 20, 2019–JANUARY 26, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 4

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	5.4%	Higher than the previous week. Comparable to Hawaii’s historical baseline, higher than the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 5 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	30.9%	Higher than the previous week. This number means that many, if not all, of the 69.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	14.7%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	13.3%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	2	

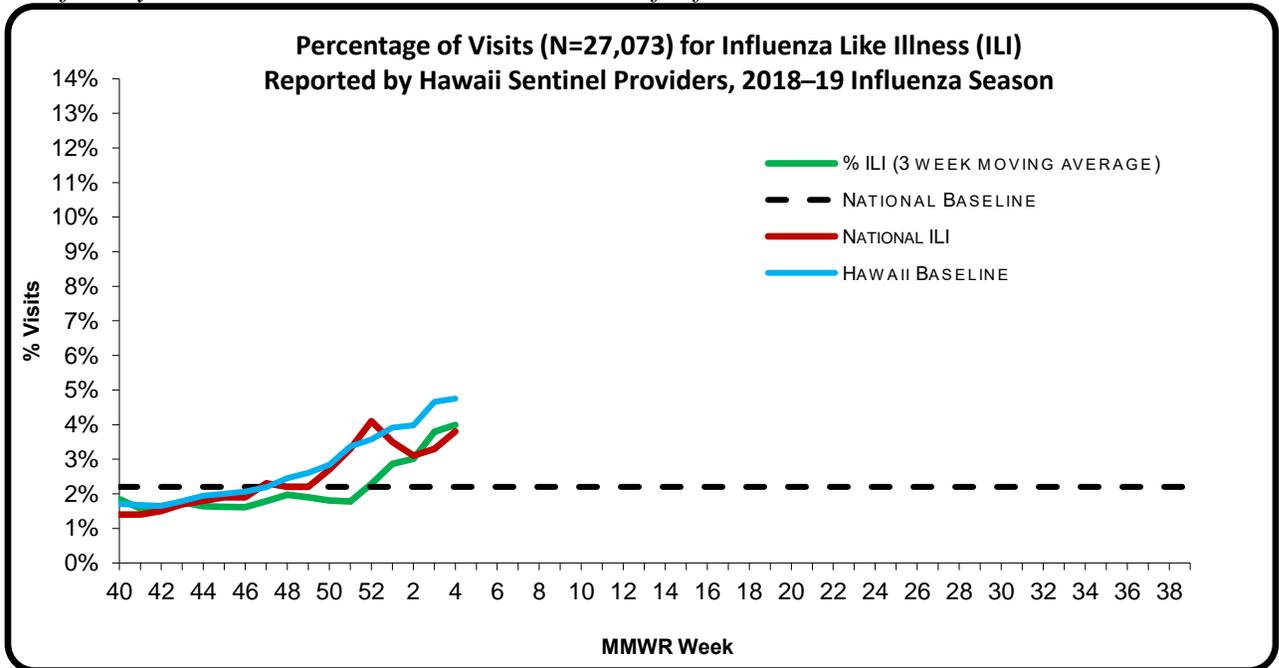
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 4 of the current influenza season:

- **5.4%** (season to date: **2.1%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and higher than the national ILI rate (3.8%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 4. This cluster occurred at a long-term care facility on Oahu. This cluster included cases of influenza A.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

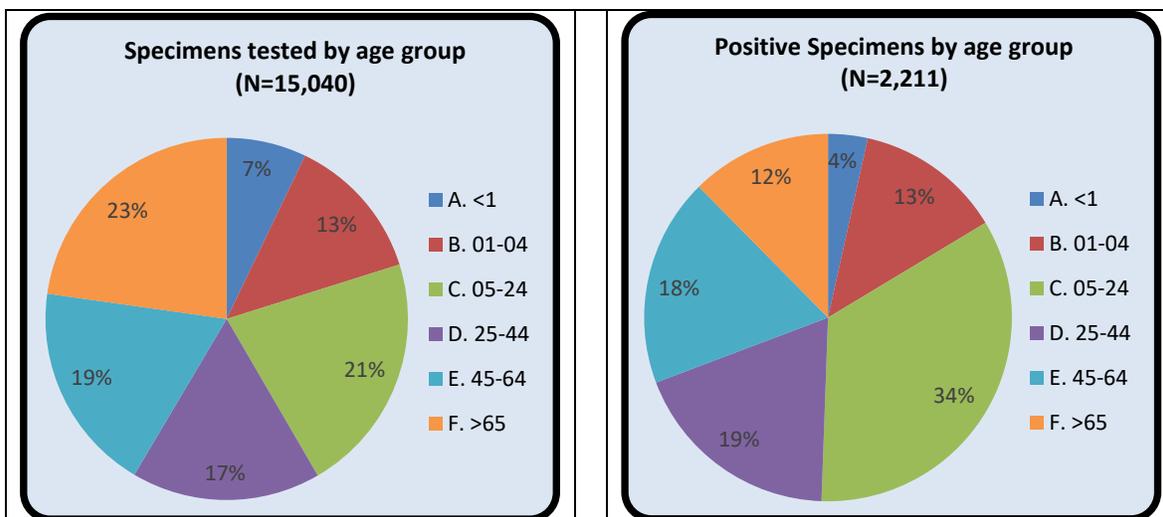
A. INFLUENZA:

- The following reflects laboratory findings for week 4 of the 2018–19 influenza season:
 - A total of **1,662** specimens have been tested statewide for influenza viruses (positive: 513 [30.9%]). (Season to date: 15,040 tested [14.7% positive])
 - 1,115 (67.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 547 (32.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,149 (69.1%) were negative.

Influenza type	Current week 4 (%)	Season to date (%)
Influenza A (H1) ⁷	6 (1.2)	128 (5.8)
Influenza A (H3)	0 (0.0)	36 (1.6)
Influenza A no subtyping	499 (97.3)	1,937 (87.6)
Influenza B (Yamagata)	0 (0.0)	15 (0.7)
Influenza B (Victoria)	0 (0.0)	2 (0.1)
Influenza B no genotyping	8 (1.6)	93 (4.2)

1. AGE DISTRIBUTION

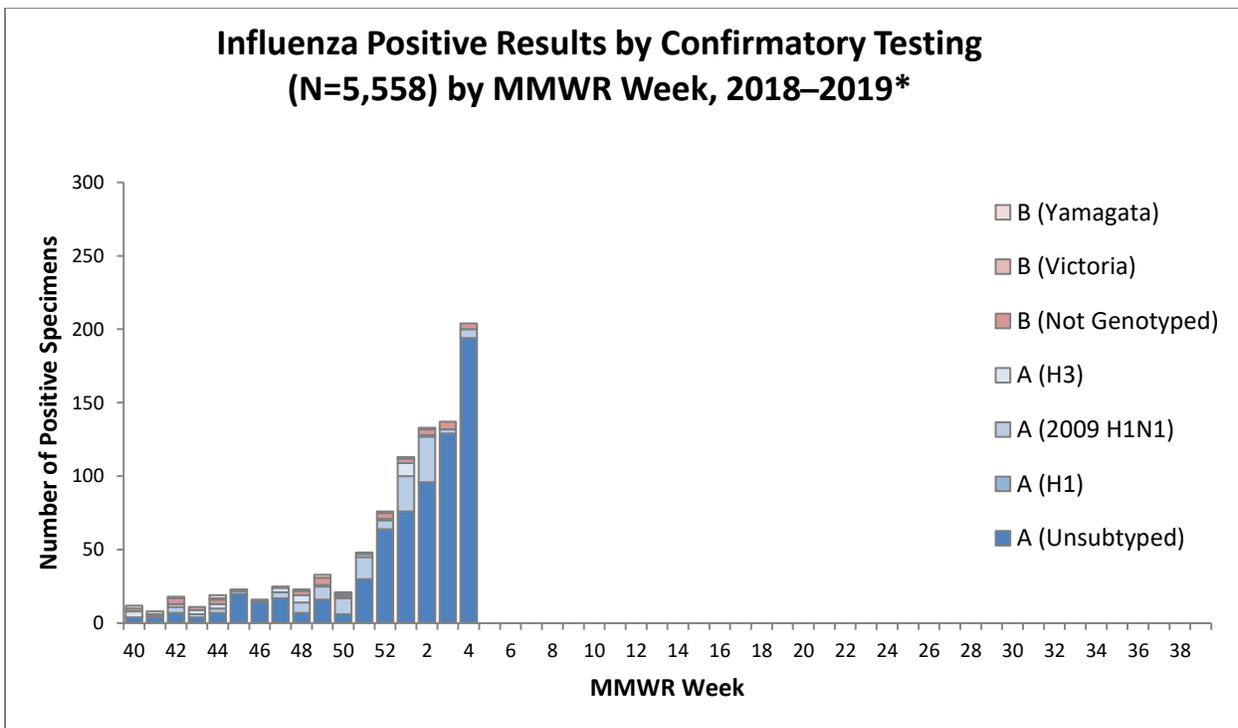
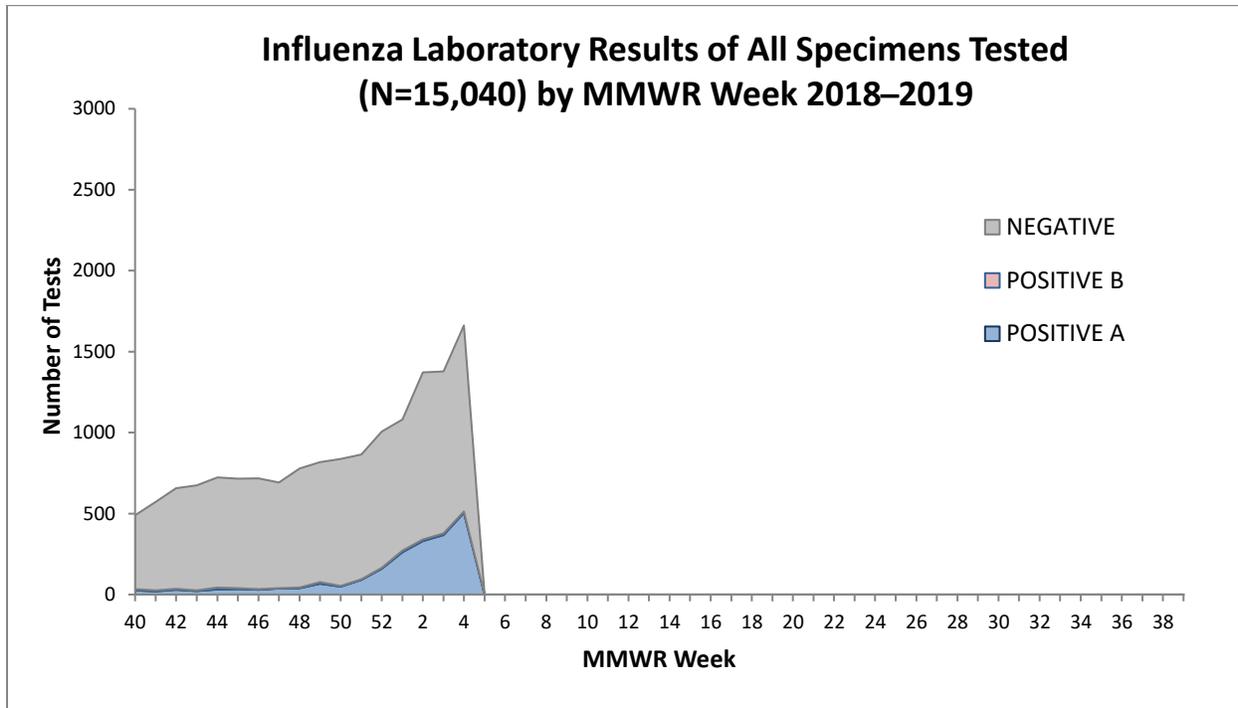
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



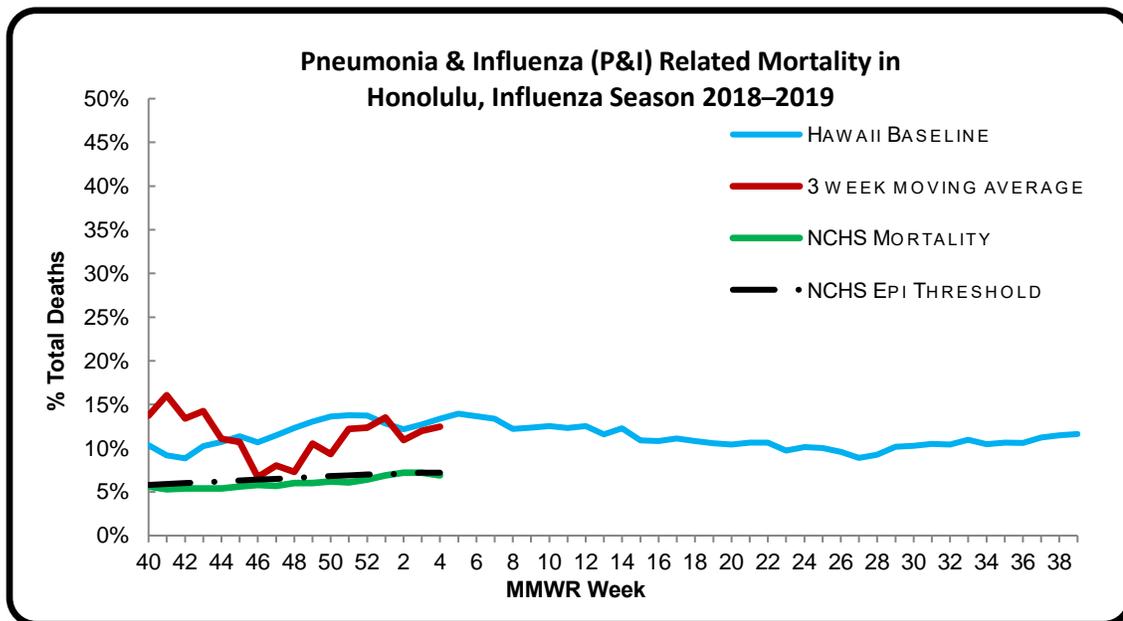
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 4 of the current influenza season:

- 13.3% of all deaths that occurred in Honolulu during week 4 were related to pneumonia or influenza. For the current season (season to date: 11.8%), there have been 1,423 deaths from any cause, 168 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (6.9%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (7.2%) (i.e., inside the 95% confidence interval) for week 4.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 4. Both deaths were associated with an influenza A virus for which no subtyping was performed and occurred during week 3 (week ending January 19, 2019). (Season total: 24).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

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- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
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B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **January 21, 2019**.

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days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

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For more information regarding local and national influenza surveillance programs, visit the following sites.

HDOH/DOCD Influenza Surveillance Report

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11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
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33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
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43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
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49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 5: JANUARY 27, 2019–FEBRUARY 2, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 5

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	5.0%	Higher than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 6 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	33.0%	Higher than the previous week. This number means that many, if not all, of the 67.0% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	16.7%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	16.7%	Comparable to Hawaii’s historical baseline, higher than the national epidemic threshold and higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	4	

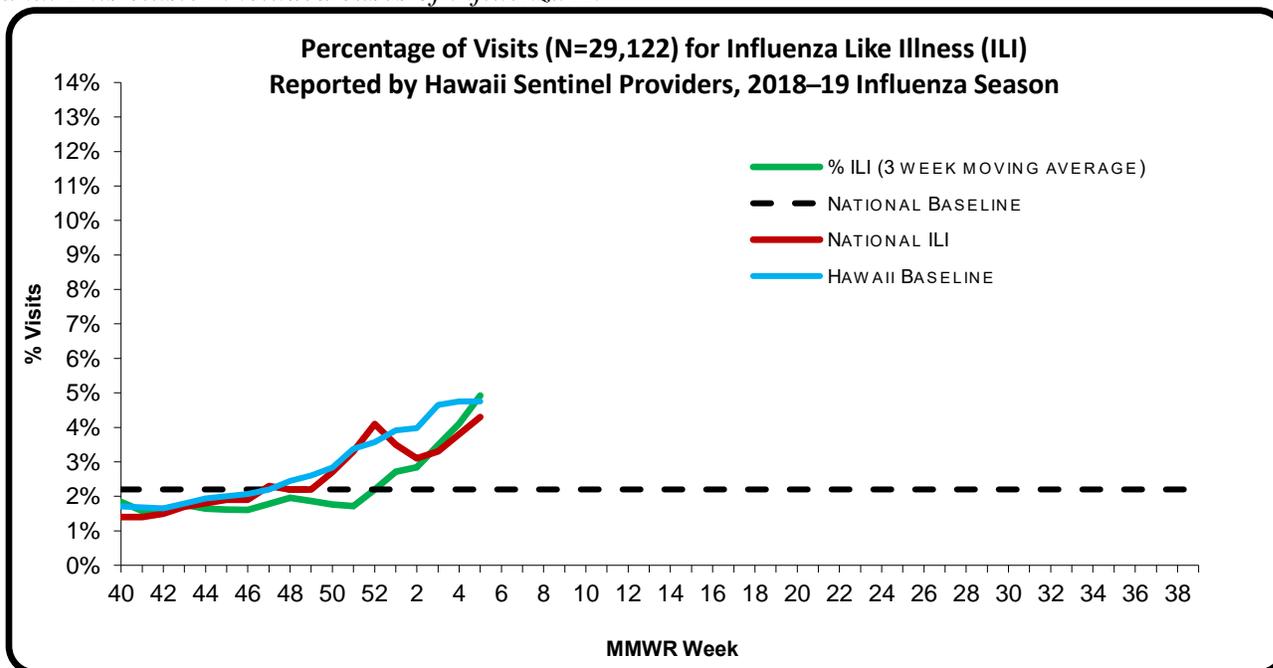
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 5** of the current influenza season:

- **5.0%** (season to date: **2.2%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (**4.3%**) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 5. This cluster occurred at a school on Oahu. This cluster included cases of influenza A.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

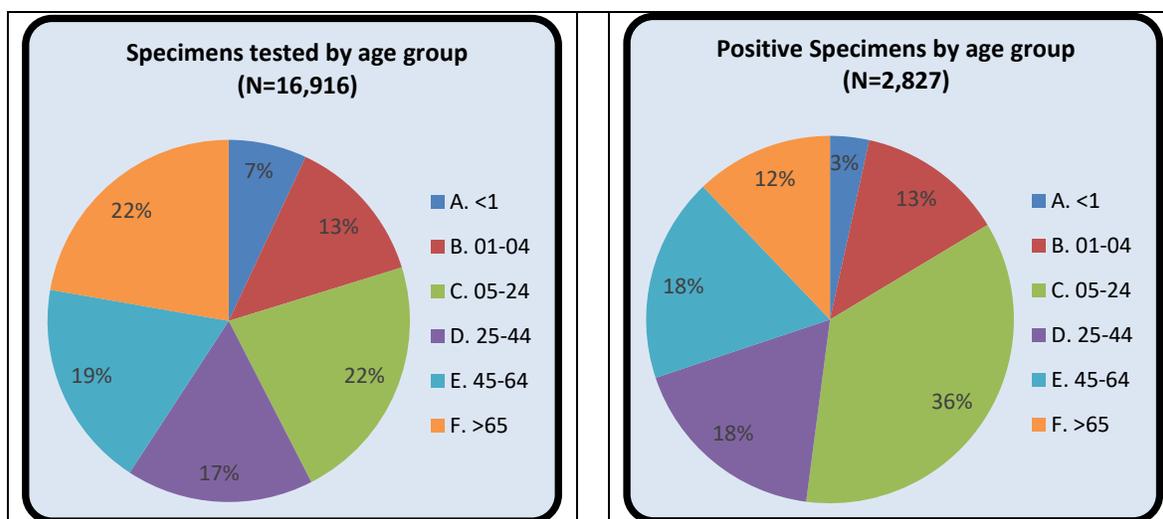
A. INFLUENZA:

- The following reflects laboratory findings for week 5 of the 2018–19 influenza season:
 - A total of **1,866** specimens have been tested statewide for influenza viruses (positive: 616 [33.0%]). (Season to date: 16,916 tested [16.7% positive])
 - 1,257 (67.4%) were screened only by rapid antigen tests with no confirmatory testing
 - 609 (32.6%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,250 (67.0%) were negative.

Influenza type	Current week 5 (%)	Season to date (%)
Influenza A (H1) ⁷	15 (2.4)	188 (6.7)
Influenza A (H3)	3 (0.5)	46 (1.6)
Influenza A no subtyping	590 (95.8)	2,475 (87.6)
Influenza B (Yamagata)	0 (0.0)	15 (0.5)
Influenza B (Victoria)	0 (0.0)	2 (0.1)
Influenza B no genotyping	8 (1.3)	101 (3.6)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

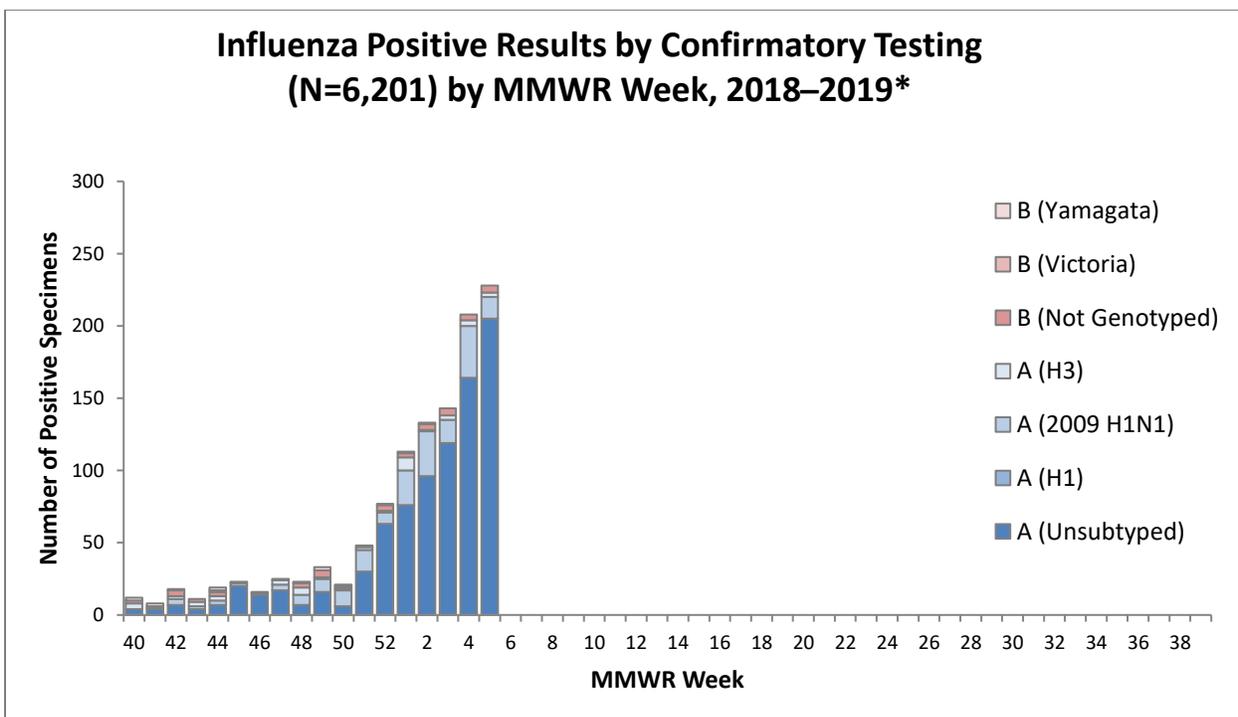
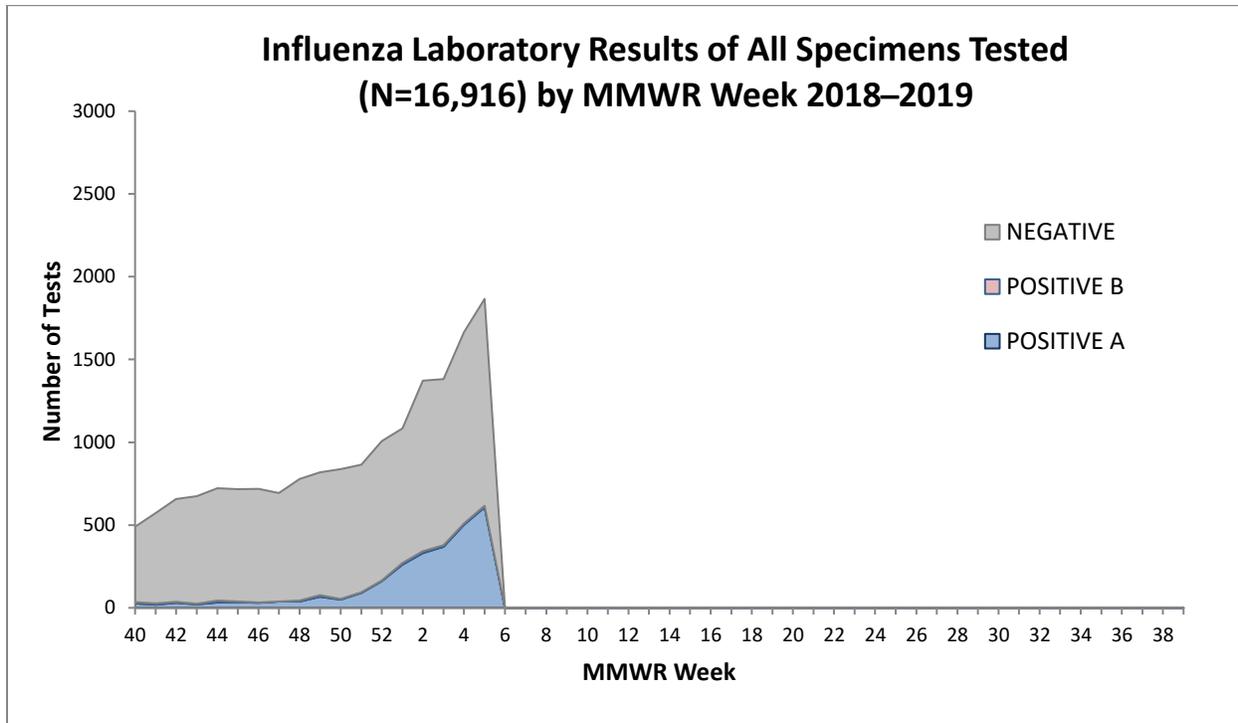


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



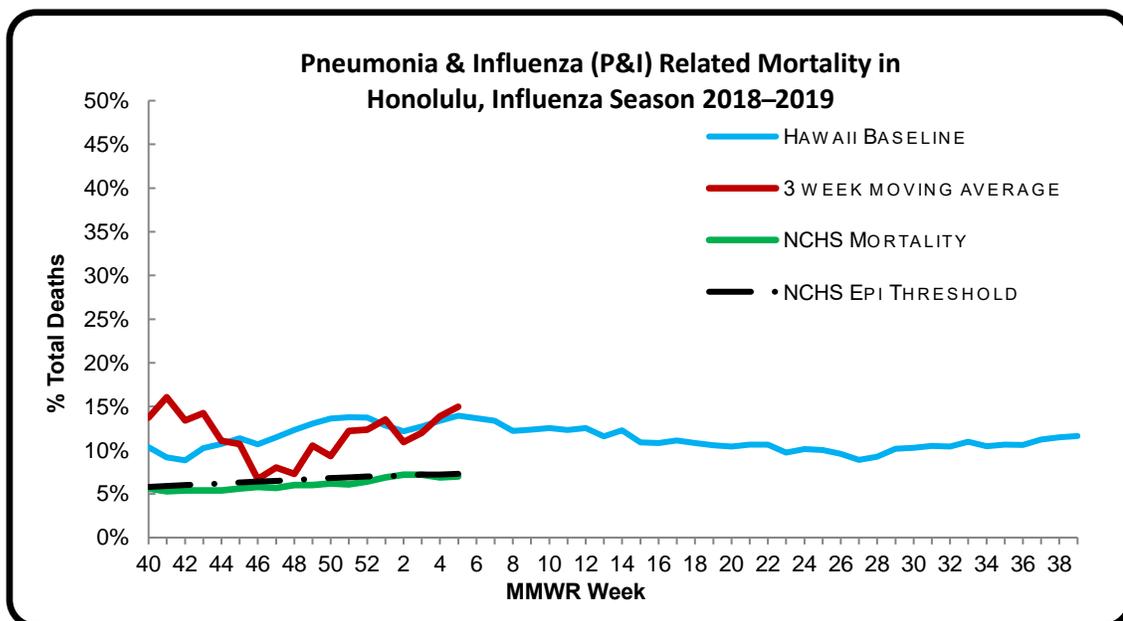
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 5 of the current influenza season:

- 16.7% of all deaths that occurred in Honolulu during week 5 were related to pneumonia or influenza. For the current season (season to date: 12.1%), there have been 1,513 deaths from any cause, 183 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was higher than the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (7.0%) (i.e., outside the 95% confidence interval) and higher than the national epidemic threshold (7.3%) (i.e., outside the 95% confidence interval) for week 5.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, four influenza-associated pediatric deaths were reported to CDC during week 5. Two deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during weeks 4 and 5 (weeks ending January

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

26 and February 2, 2019, respectively). Two deaths were associated with an influenza A virus for which no subtyping was performed and occurred during weeks 4 and 5. (Season total: 28).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 5.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **January 21, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

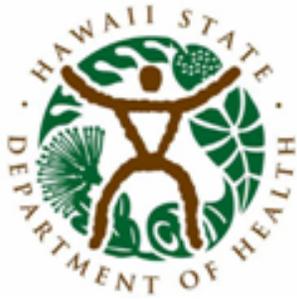
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
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38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
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40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
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44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
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47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
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49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 6: FEBRUARY 3, 2019–FEBRUARY 9, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 6

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	4.0%	Lower than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	4	There have been 10 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	30.4%	Lower than the previous week. This number means that many, if not all, of the 69.6% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	18.2%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	12.1%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	6	

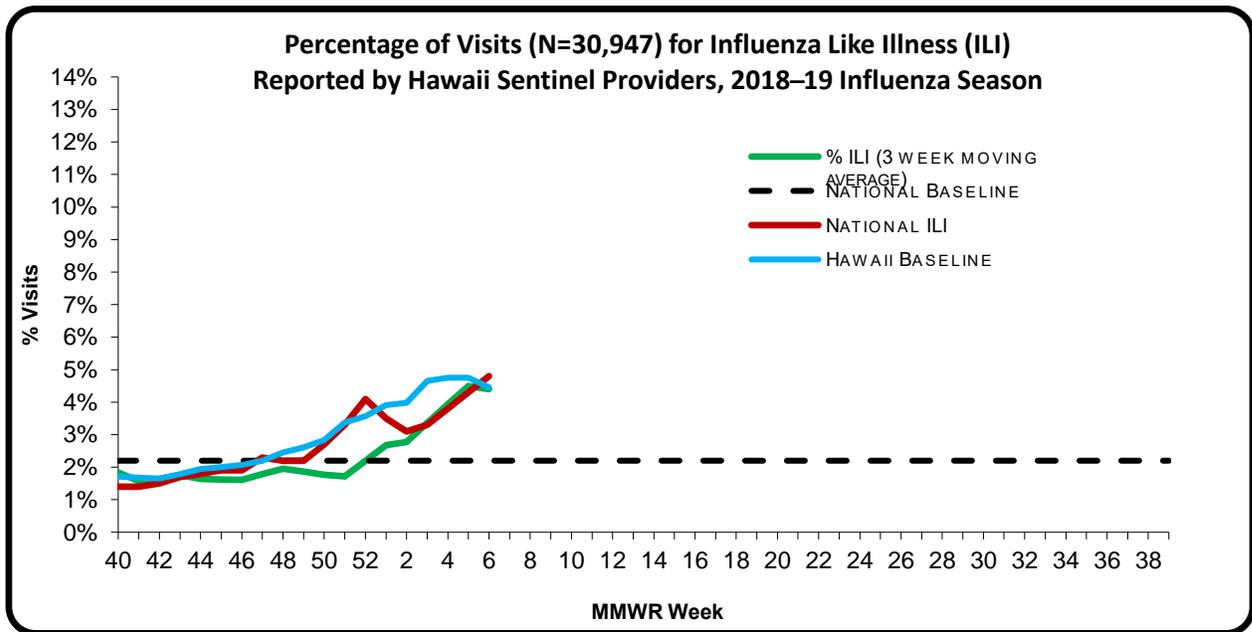
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 6** of the current influenza season:

- **4.0%** (season to date: **2.3%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (**4.8%**) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: Four new clusters were reported to HDOH during week 6. Two clusters occurred at schools on Oahu. Two clusters occurred at long-term care facilities on Oahu. These clusters included cases of influenza A.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

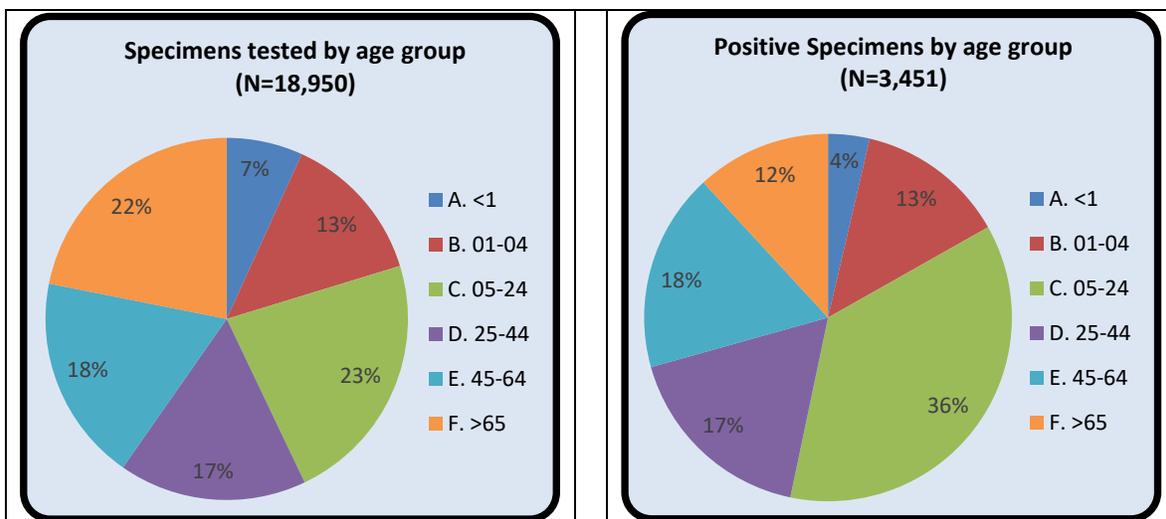
A. INFLUENZA:

- The following reflects laboratory findings for week 6 of the 2018–19 influenza season:
 - A total of **2,025** specimens have been tested statewide for influenza viruses (positive: 615 [30.4%]). (Season to date: 18,950 tested [18.2% positive])
 - 1,402 (69.2%) were screened only by rapid antigen tests with no confirmatory testing
 - 623 (30.8%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,410 (69.6%) were negative.

Influenza type	Current week 6 (%)	Season to date (%)
Influenza A (H1) ⁷	18 (2.9)	236 (6.8)
Influenza A (H3)	4 (0.7)	54 (1.6)
Influenza A no subtyping	584 (95.0)	3,034 (87.9)
Influenza B (Yamagata)	0 (0.0)	15 (0.4)
Influenza B (Victoria)	0 (0.0)	2 (0.1)
Influenza B no genotyping	9 (1.5)	110 (3.2)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

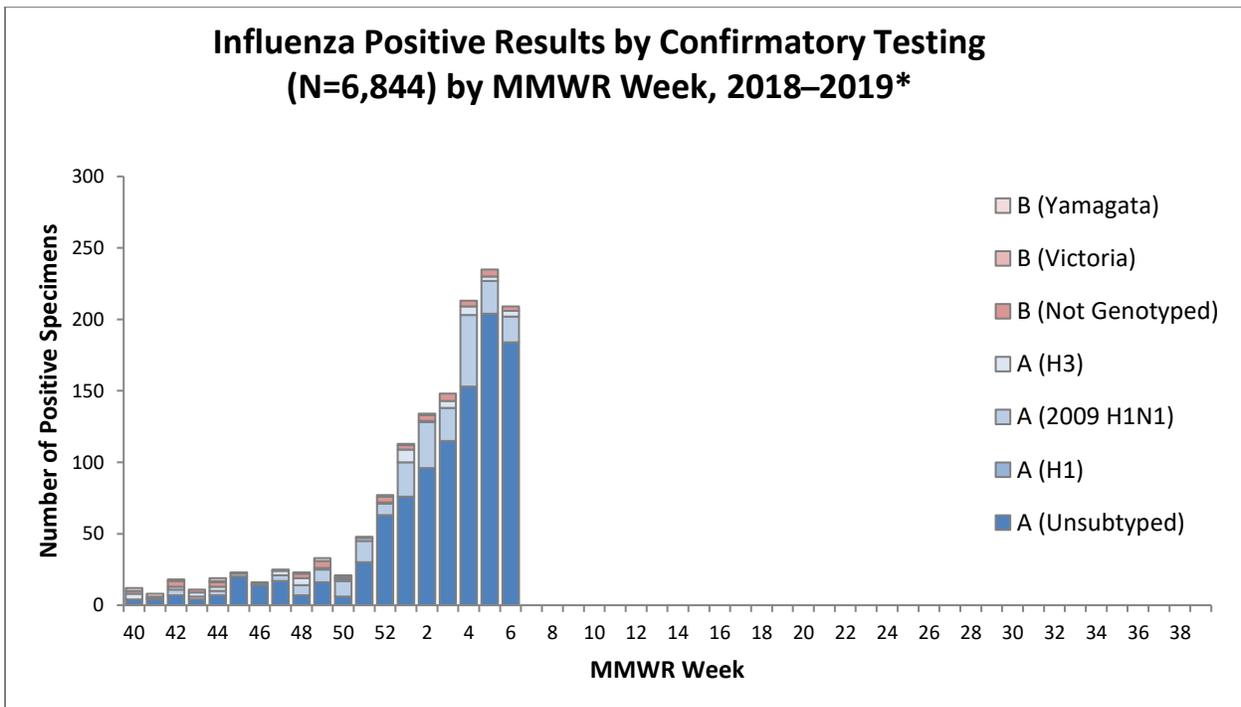
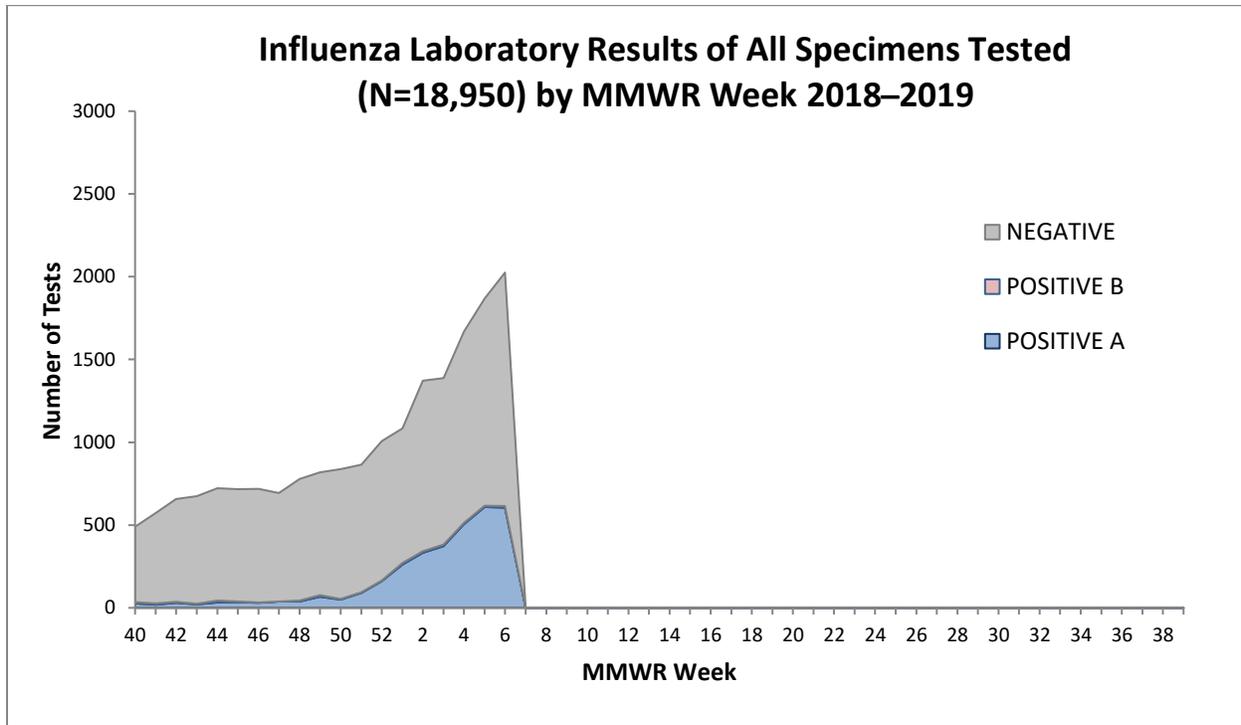


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



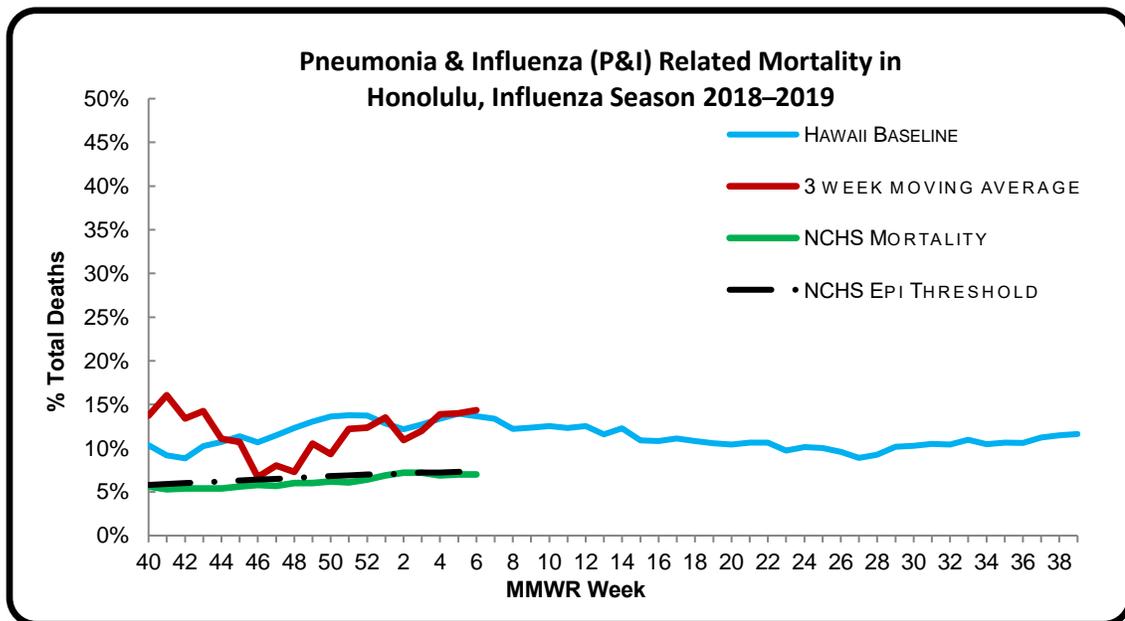
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 6 of the current influenza season:

- 12.1% of all deaths that occurred in Honolulu during week 6 were related to pneumonia or influenza. For the current season (season to date: 12.1%), there have been 1,596 deaths from any cause, 193 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (7.0%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (7.3%) (i.e., inside the 95% confidence interval) for week 6.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, six influenza-associated pediatric deaths were reported to CDC during week 6. Two deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during weeks 5 and 6 (weeks ending February 2 and February 9, 2019, respectively). Four deaths were associated with an influenza A virus for which no

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

subtyping was performed and occurred during weeks 4, 5, and 6 (weeks ending January 26, February 2, and February 9, 2019, respectively). (Season total: 34).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 6.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **January 21, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 7: FEBRUARY 10, 2019–FEBRUARY 16, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 7

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	5.8%	Higher than the previous week. Higher than Hawaii’s historical baseline, comparable to the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 10 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	32.2%	Higher than the previous week. This number means that many, if not all, of the 67.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	19.6%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	13.8%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	7	

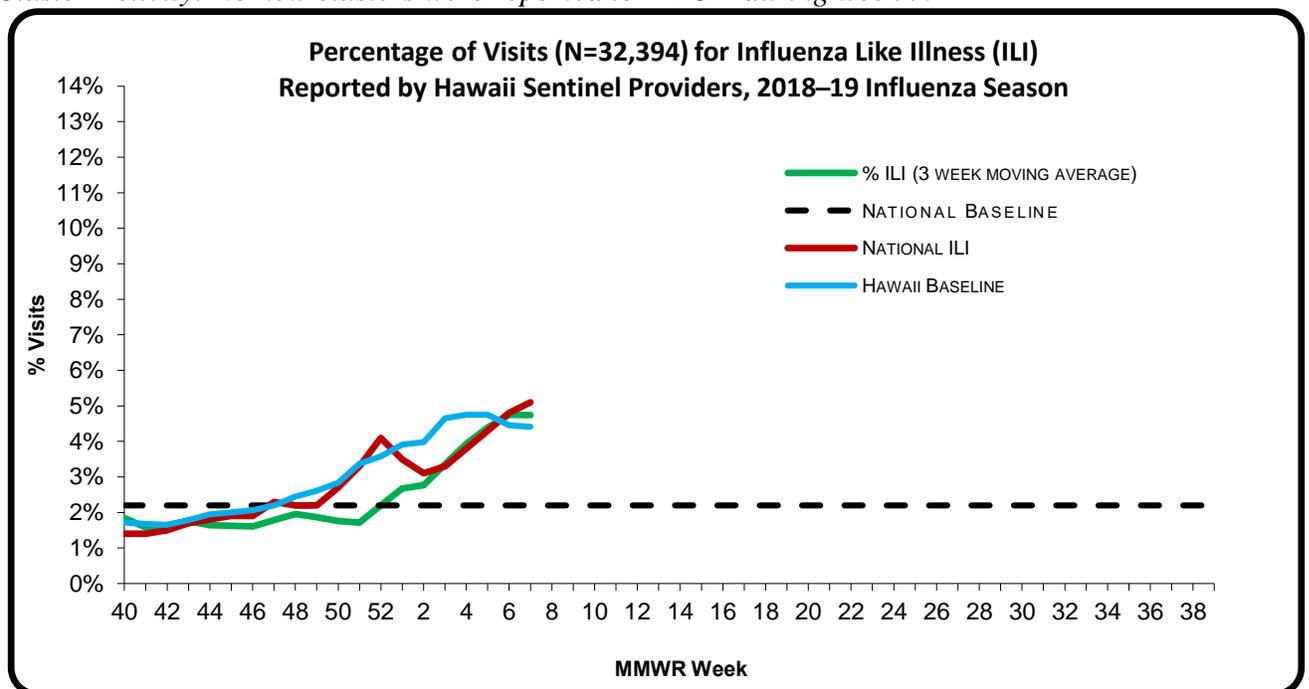
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 7 of the current influenza season:

- 5.8% (season to date: 2.4%) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (5.1%) (i.e., inside the 95% confidence interval).
- Geographic Spread: Sporadic Activity⁵
- ILI Cluster Activity: No new clusters were reported to HDOH during week 7.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

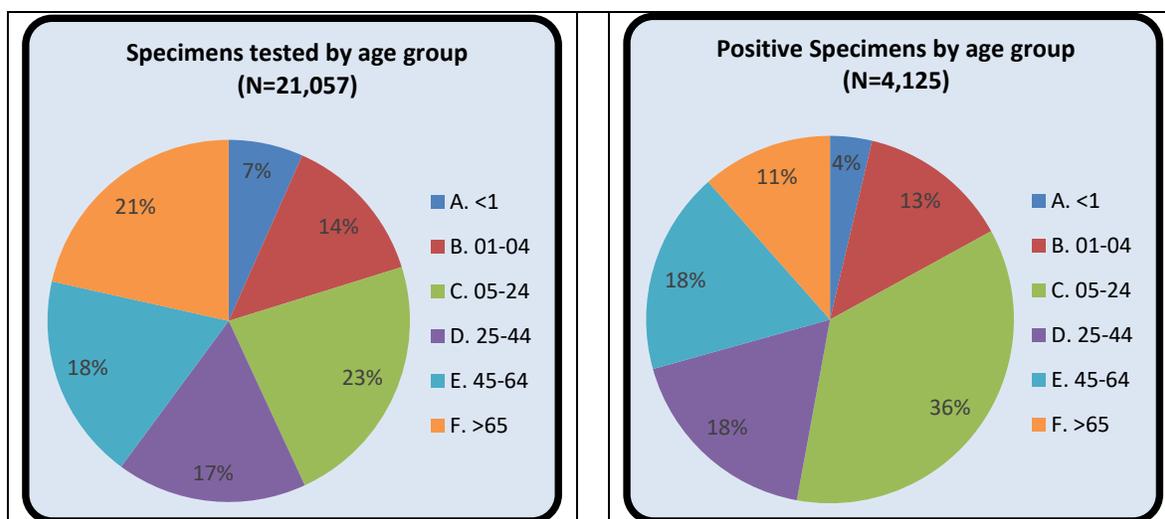
A. INFLUENZA:

- The following reflects laboratory findings for week 7 of the 2018–19 influenza season:
 - A total of **2,085** specimens have been tested statewide for influenza viruses (positive: 672 [32.2%]). (Season to date: 21,057 tested [19.6% positive])
 - 1,479 (70.9%) were screened only by rapid antigen tests with no confirmatory testing
 - 606 (29.1%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,413 (67.8%) were negative.

Influenza type	Current week 7 (%)	Season to date (%)
Influenza A (H1) ⁷	12 (1.8)	312 (7.6)
Influenza A (H3)	2 (0.3)	78 (1.9)
Influenza A no subtyping	649 (96.6)	3,599 (87.2)
Influenza B (Yamagata)	0 (0.0)	15 (0.4)
Influenza B (Victoria)	0 (0.0)	2 (0.1)
Influenza B no genotyping	9 (1.3)	119 (2.9)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

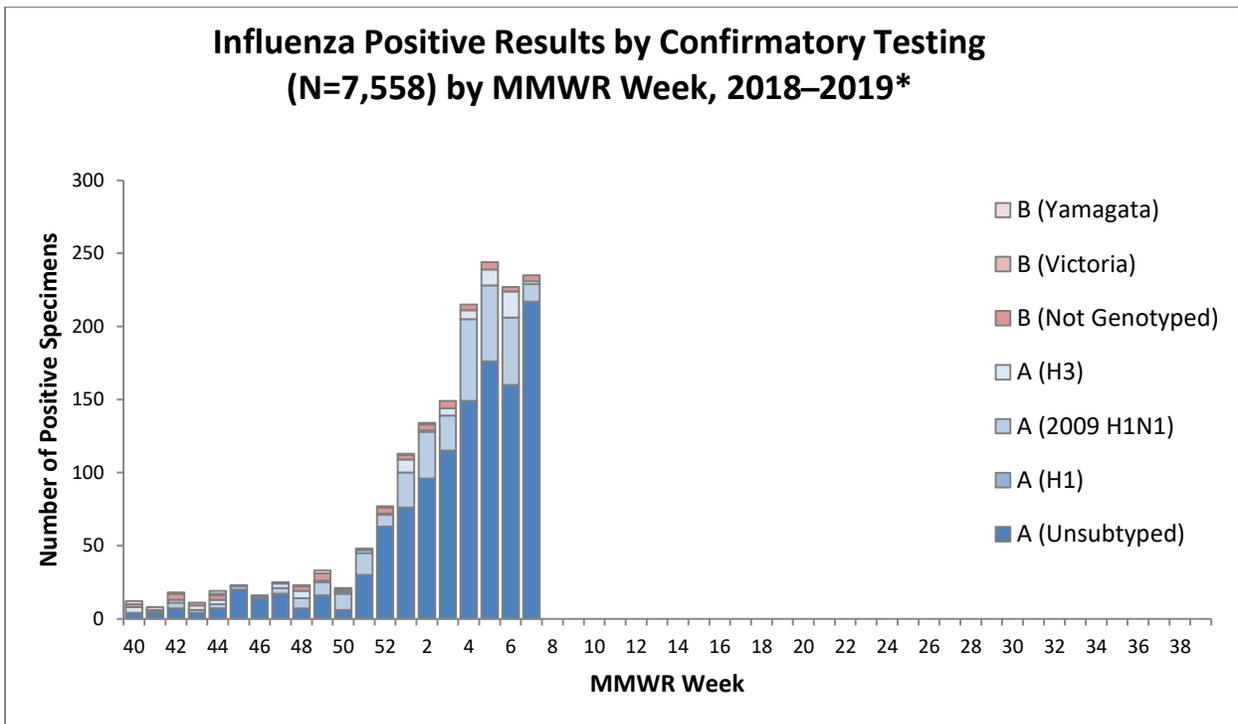
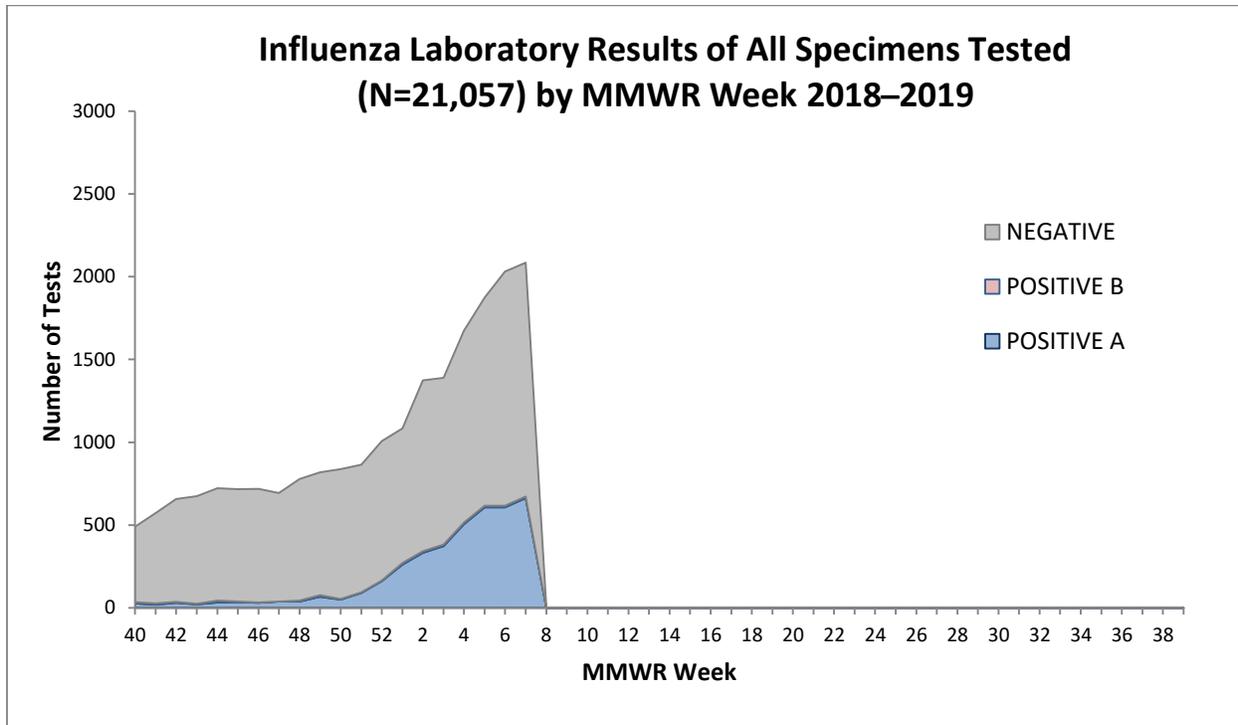


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



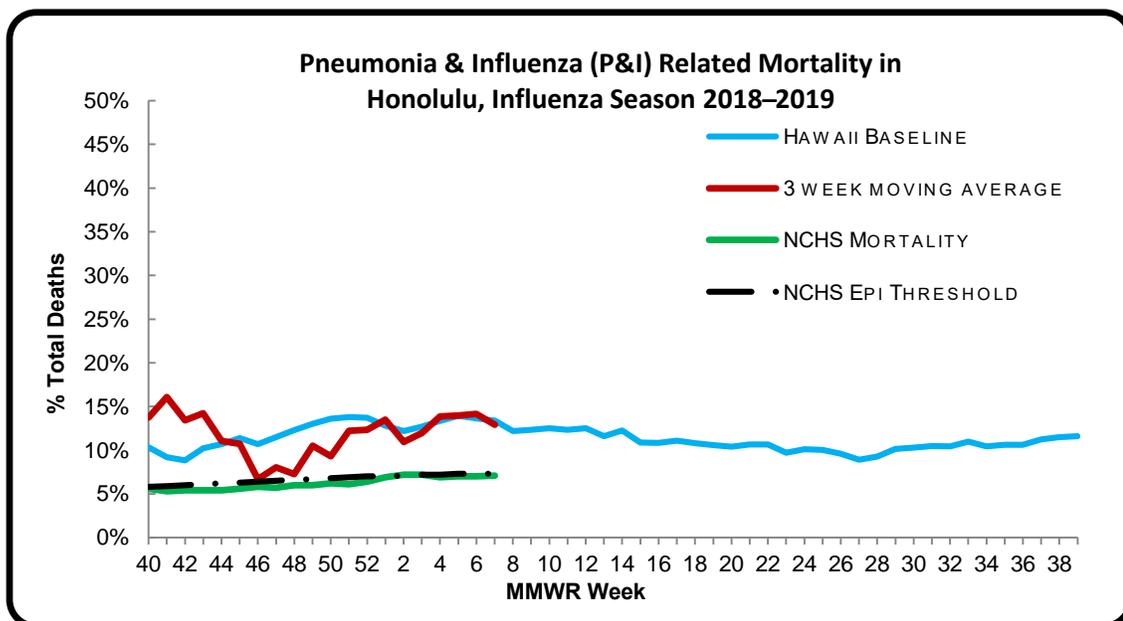
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 7 of the current influenza season:

- 13.8% of all deaths that occurred in Honolulu during week 7 were related to pneumonia or influenza. For the current season (season to date: 12.2%), there have been 1,676 deaths from any cause, 204 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (7.1%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (7.3%) (i.e., inside the 95% confidence interval) for week 7.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, seven influenza-associated pediatric deaths were reported to CDC during week 7. Four deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during weeks 2, 6, and 7 (weeks ending January 12, February 9, and February 16, 2019, respectively). Two deaths were associated with an influenza A virus for which no subtyping was performed and occurred during weeks 5 and 6 (weeks ending February 2 and February 9, 2019, respectively).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

9, 2019, respectively). One death was associated with an influenza B virus and occurred during week 52 (week ending December 29, 2018). (Season total: 41).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 7.*
- *One new laboratory-confirmed human case of influenza A(H3N2)v virus infection was reported to WHO from Australia. This case was a 15-year-old girl who developed mild illness. The case was not hospitalized and had recovered. The case had participated in an agricultural event (including contact with live animals) the day prior to illness onset and had exposure to animals at school and home. No further cases were detected surrounding this event.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **February 12, 2019**. Since the last update, two new laboratory-confirmed human cases of influenza A(H9N2) virus infection were reported to WHO from China. One case was in a 2-year-old boy and the second was in an 8-year-old girl. Both cases reported mild illness with no clear histories of exposure to live poultry.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

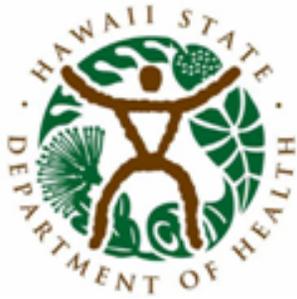
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 8: FEBRUARY 17, 2019–FEBRUARY 23, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 8

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	6.3%	Higher than the previous week. Higher than Hawaii’s historical baseline, comparable to the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 11 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	34.7%	Higher than the previous week. This number means that many, if not all, of the 65.3% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	21.0%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	6.8%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	15	

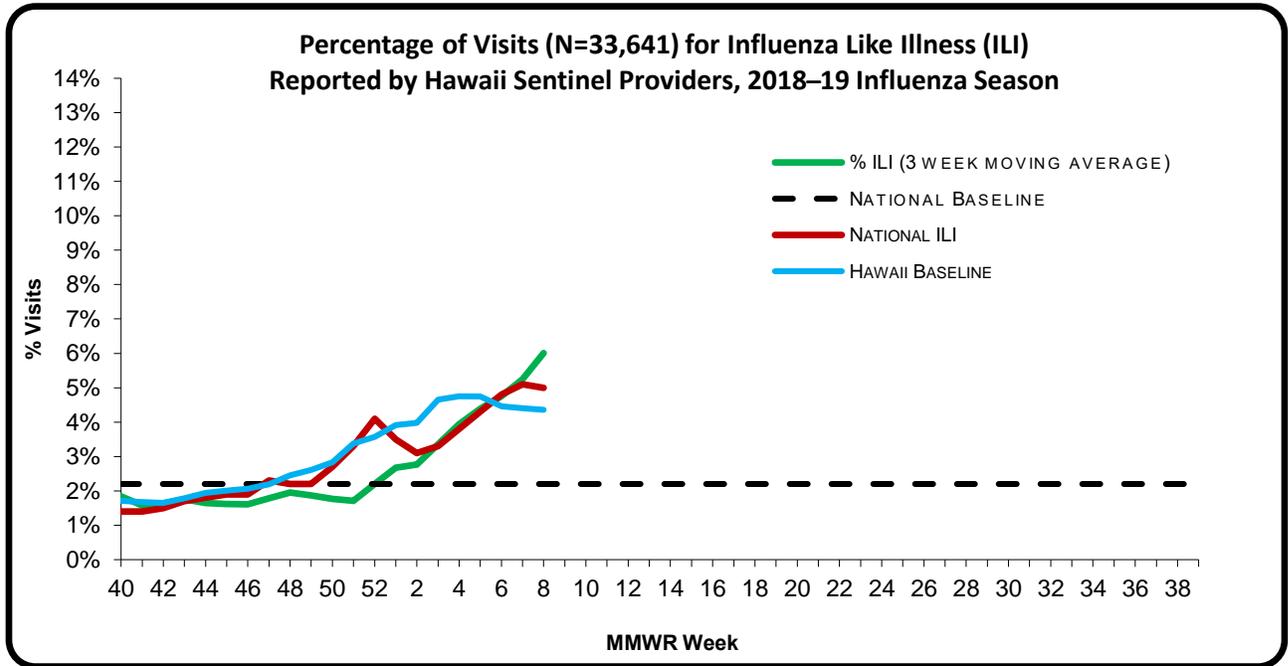
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 8** of the current influenza season:

- **6.3%** (season to date: **2.5%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (5.0%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 8. This cluster occurred at a school on Oahu.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

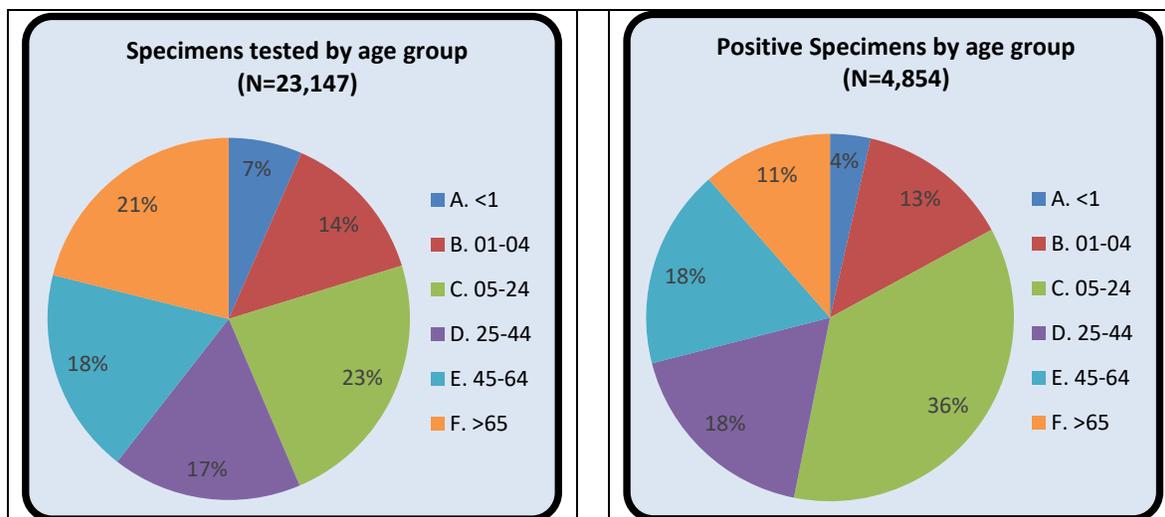
A. INFLUENZA:

- The following reflects laboratory findings for week 8 of the 2018–19 influenza season:
 - A total of **2,076** specimens have been tested statewide for influenza viruses (positive: 721 [34.7%]). (Season to date: 23,147 tested [21.0% positive])
 - 1,436 (69.2%) were screened only by rapid antigen tests with no confirmatory testing
 - 640 (30.8%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,355 (65.3%) were negative.

Influenza type	Current week 8 (%)	Season to date (%)
Influenza A (H1) ⁷	16 (2.2)	357 (7.4)
Influenza A (H3)	3 (0.4)	94 (1.9)
Influenza A no subtyping	690 (95.7)	4,255 (87.7)
Influenza B (Yamagata)	0 (0.0)	16 (0.3)
Influenza B (Victoria)	0 (0.0)	4 (0.1)
Influenza B no genotyping	12 (1.7)	128 (2.6)

1. AGE DISTRIBUTION

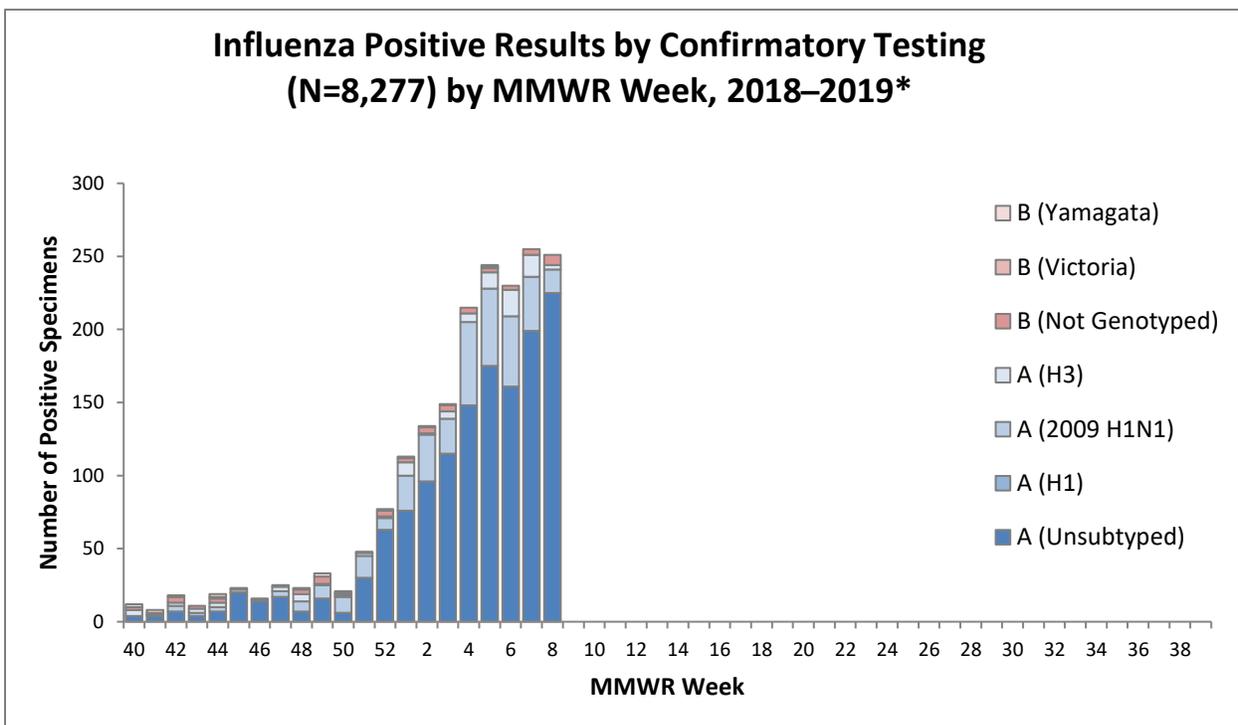
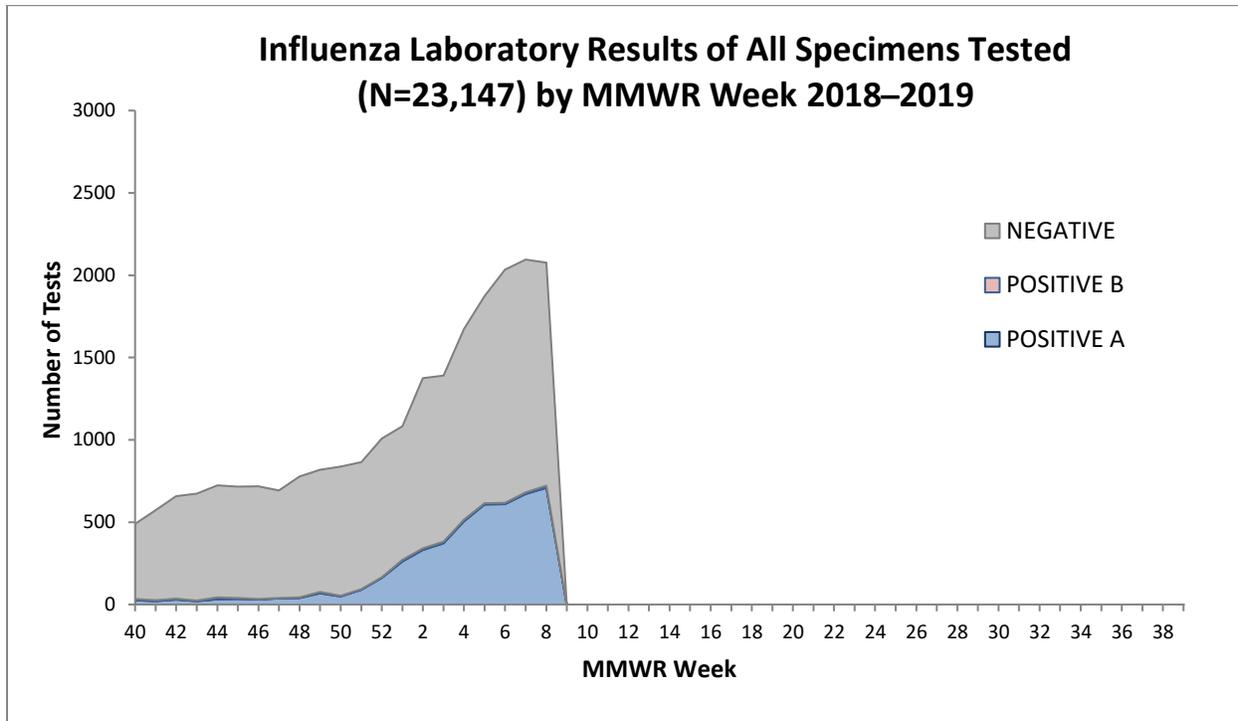
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



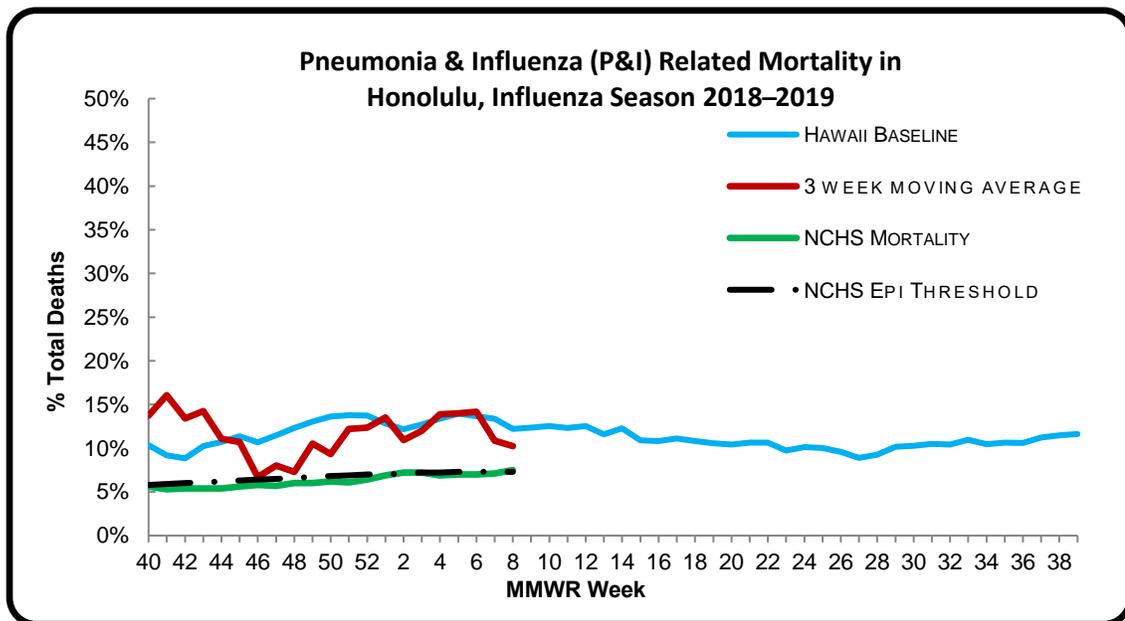
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For **week 8** of the current influenza season:

- *6.8% of all deaths that occurred in Honolulu during week 8 were related to pneumonia or influenza. For the current season (season to date: 11.9%), there have been 1,750 deaths from any cause, 209 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Honolulu P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (7.5%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (7.3%) (i.e., inside the 95% confidence interval) for week 8.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, 15 influenza-associated pediatric deaths were reported to CDC during week 8. Eight deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during weeks 5, 6, 7, and 8 (weeks ending February 2, February 9, February 16, and February 23, 2019, respectively). One death was associated with an

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

influenza A(H3) virus and occurred during week 6. Six deaths were associated with an influenza A virus for which no subtyping was performed and occurred during weeks 5, 6, 7, and 8. (Season total: 56).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 8.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **February 12, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

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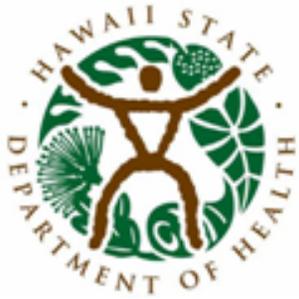
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APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 9: FEBRUARY 24, 2019–MARCH 2, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 9

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	6.6%	Higher than the previous week. Higher than Hawaii’s historical baseline, higher than the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	3	There have been 14 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	33.9%	Lower than the previous week. This number means that many, if not all, of the 66.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.2%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	10.9%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	9	

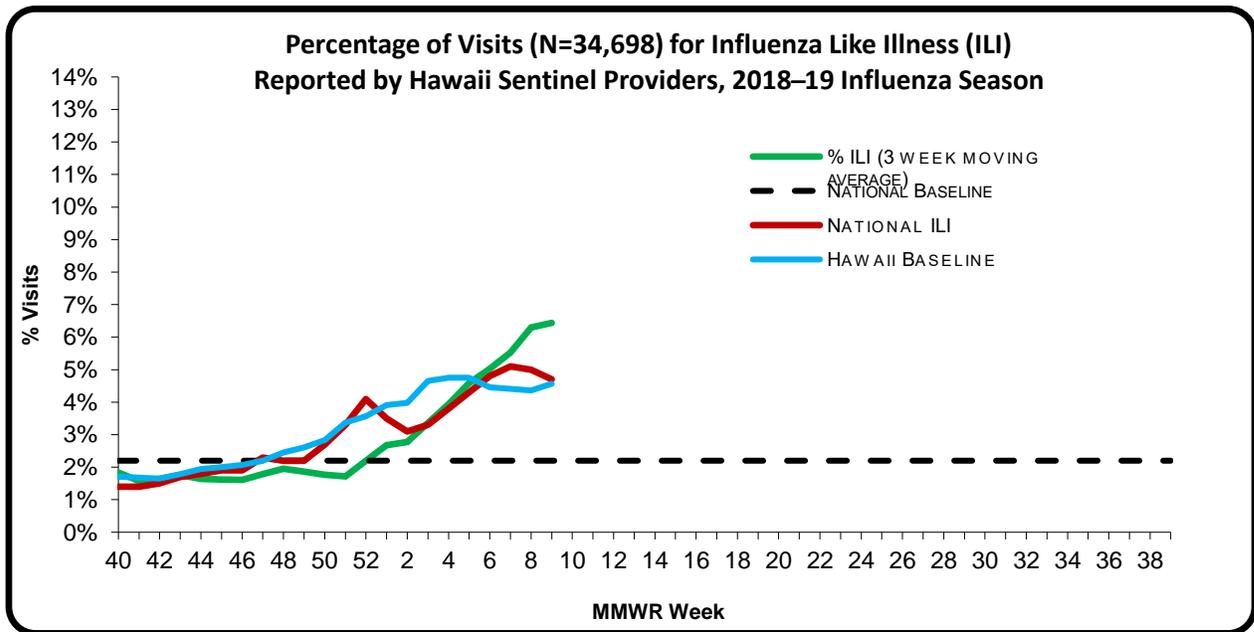
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 9** of the current influenza season:

- **6.6%** (season to date: **2.7%**) of the outpatient visits recorded by Hawaii sentinel providers were for **ILI**.
- **ILI** visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s **ILI** outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and higher than the national **ILI** rate (4.7%) (i.e., outside the 95% confidence interval).
- **Geographic Spread: Local Activity**⁵
- **ILI Cluster Activity:** Three new clusters were reported to HDOH during week 9. One cluster occurred at a long-term care facility on Oahu. Two clusters occurred at schools on Oahu. These clusters included cases of influenza A.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

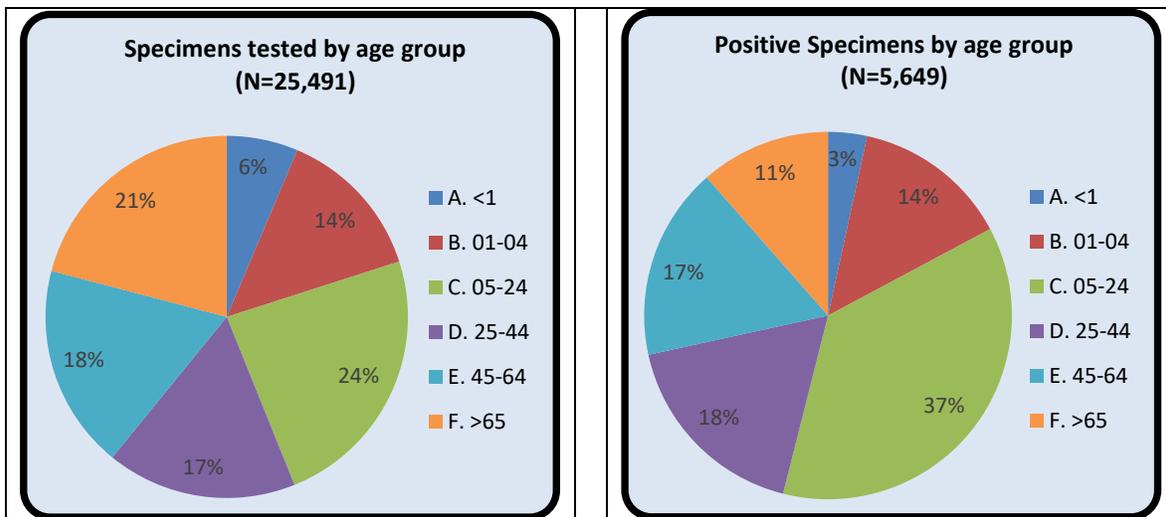
A. INFLUENZA:

- The following reflects laboratory findings for week 9 of the 2018–19 influenza season:
 - A total of **2,319** specimens have been tested statewide for influenza viruses (positive: 786 [33.9%]). (Season to date: 25,491 tested [22.2% positive])
 - 1,542 (66.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 777 (33.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,533 (66.1%) were negative.

Influenza type	Current week 9 (%)	Season to date (%)
Influenza A (H1) ⁷	54 (6.9)	466 (8.2)
Influenza A (H3)	7 (0.9)	119 (2.1)
Influenza A no subtyping	712 (90.6)	4,903 (86.8)
Influenza B (Yamagata)	0 (0.0)	16 (0.3)
Influenza B (Victoria)	0 (0.0)	6 (0.1)
Influenza B no genotyping	13 (1.7)	139 (2.5)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

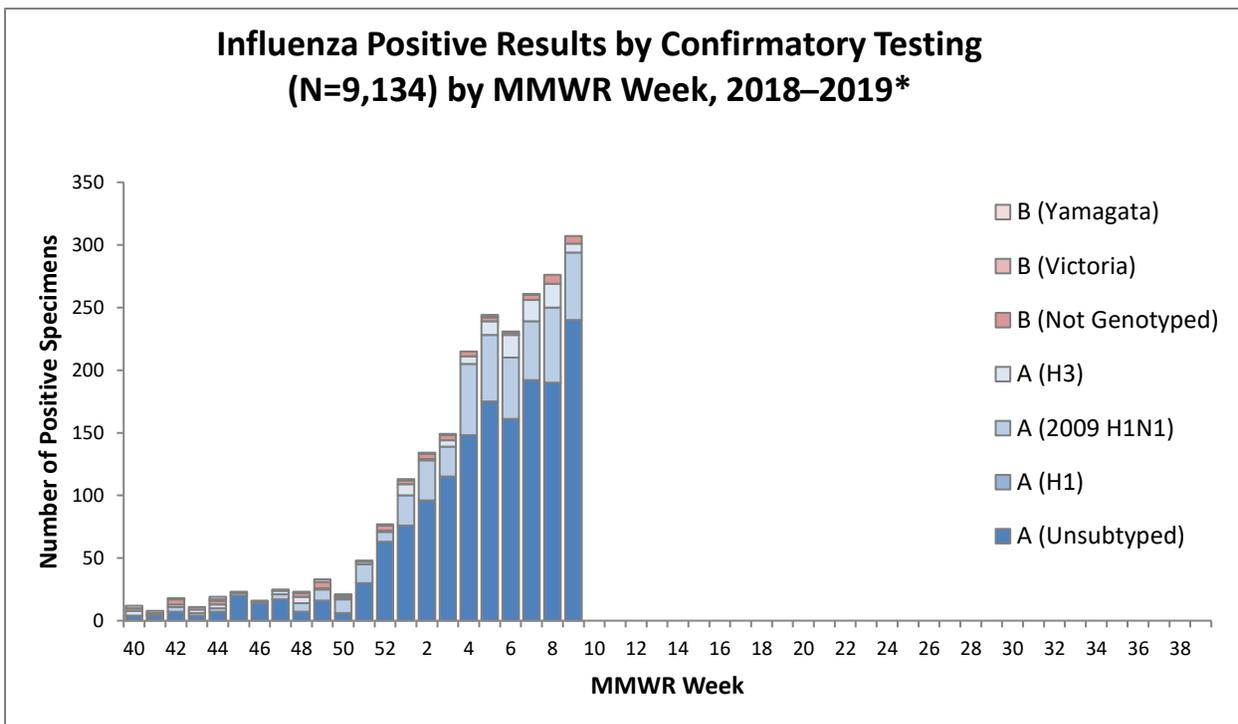
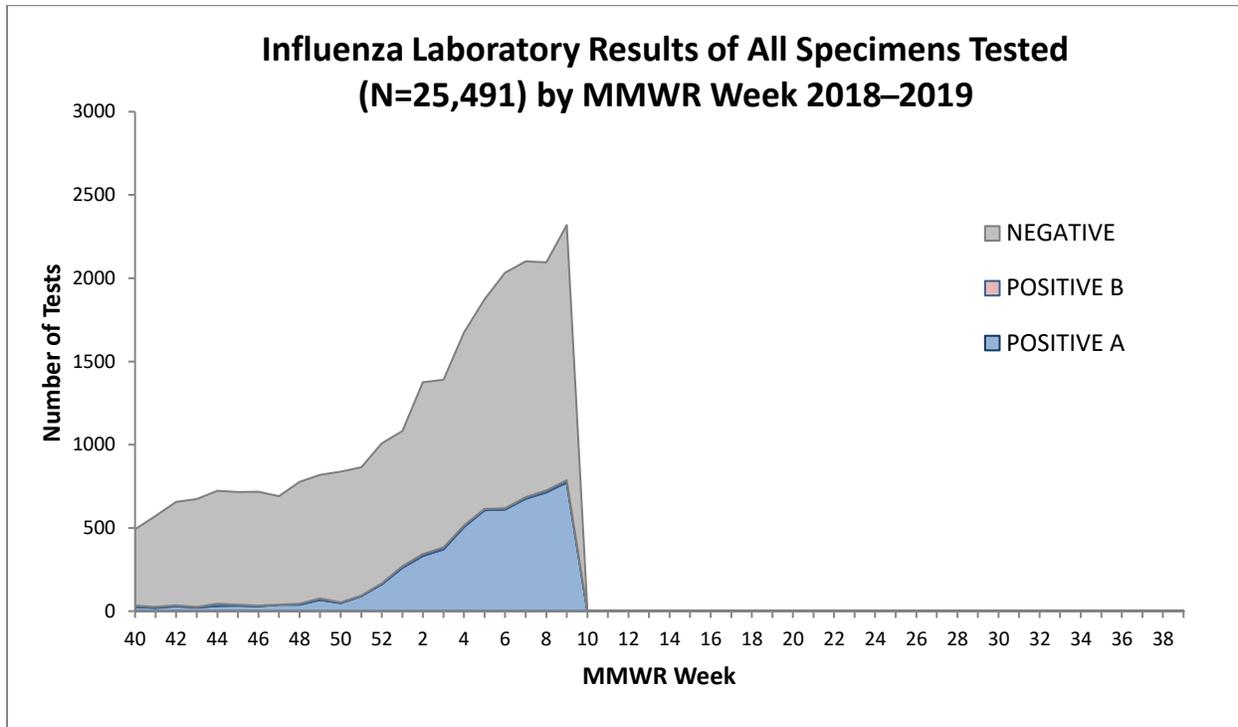


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



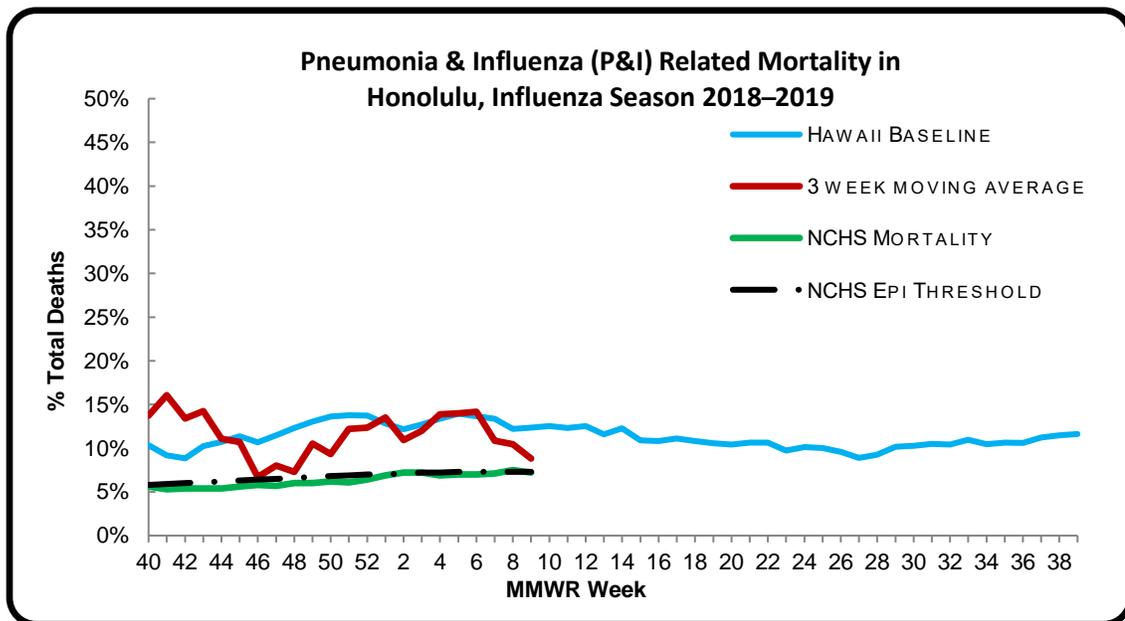
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 9 of the current influenza season:

- 10.9% of all deaths that occurred in Honolulu during week 9 were related to pneumonia or influenza. For the current season (season to date: 11.9%), there have been 1,842 deaths from any cause, 219 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (7.2%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (7.3%) (i.e., inside the 95% confidence interval) for week 9.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, nine influenza-associated pediatric deaths were reported to CDC during week 9, eight of which occurred during the 2018-2019 influenza season. Four deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during weeks 7, 8, and 9 (weeks ending February 16, February 23, and March 2, 2019, respectively). One death was associated with an influenza A(H3) virus and occurred during week 9. Two deaths

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

were associated with an influenza A virus for which no subtyping was performed and occurred during weeks 6 and 9 (weeks ending February 9 and March 2, 2019). One death was associated with an influenza B virus and occurred during week 6. (Season total: 64).

An additional death that occurred during the 2015-2016 season was reported to CDC. This death was associated with an influenza A virus for which no subtyping was performed and brings the total number of reported influenza-associated deaths during that season to 95.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 9.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **February 12, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

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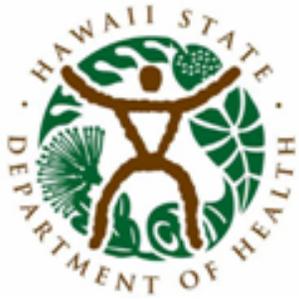
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37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 10: MARCH 3, 2019–MARCH 9, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 10

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	6.0%	Lower than the previous week. Comparable to Hawaii’s historical baseline, higher than the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	4	There have been 18 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	29.9%	Lower than the previous week. This number means that many, if not all, of the 70.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.8%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	17.7%	Comparable to Hawaii’s historical baseline, higher than the national epidemic threshold and higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	4	

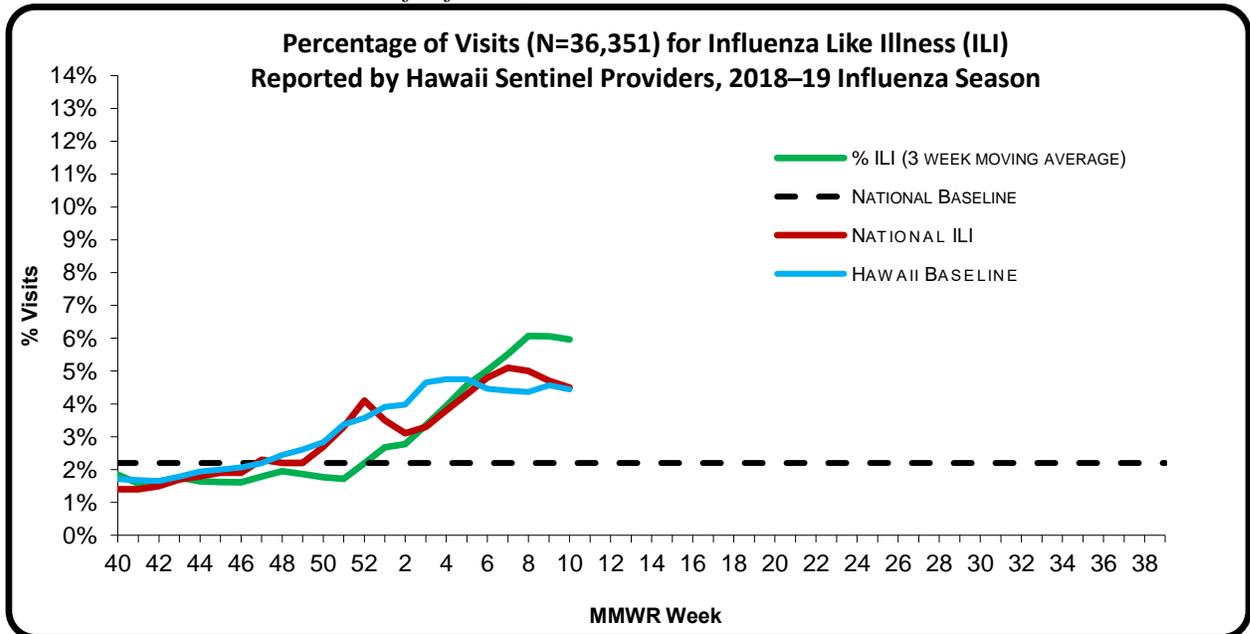
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 10 of the current influenza season:

- **6.0%** (season to date: **2.8%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and higher than the national ILI rate (4.5%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Regional Activity*⁵
- *ILI Cluster Activity: Four new clusters were reported to HDOH during week 10. One cluster occurred at a long-term care facility on Maui. Two clusters occurred at schools on Oahu. One cluster occurred at a hospital on Oahu. These clusters included cases of influenza A.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses, but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

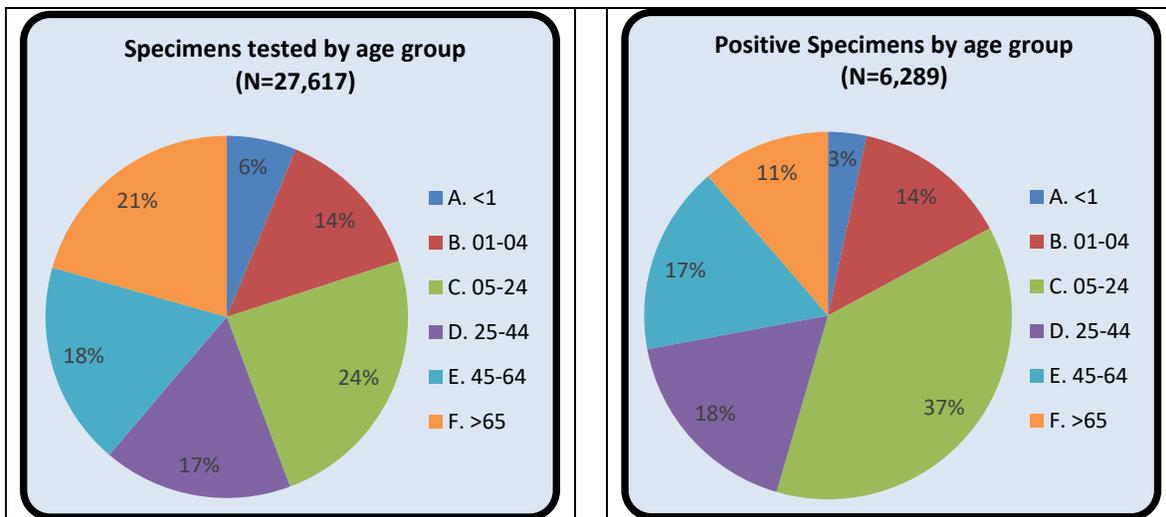
A. INFLUENZA:

- The following reflects laboratory findings for week 10 of the 2018–19 influenza season:
 - A total of **2,139** specimens have been tested statewide for influenza viruses (positive: 639 [29.9%]). (Season to date: 27,617 tested [22.8% positive])
 - 1,461 (68.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 678 (31.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,500 (70.1%) were negative.

<i>Influenza type</i>	<i>Current week 10 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	23 (3.6)	497 (7.9)
<i>Influenza A (H3)</i>	12 (1.9)	137 (2.2)
<i>Influenza A no subtyping</i>	574 (89.8)	5,464 (86.9)
<i>Influenza B (Yamagata)</i>	0 (0.0)	16 (0.3)
<i>Influenza B (Victoria)</i>	0 (0.0)	6 (0.1)
<i>Influenza B no genotyping</i>	30 (4.7)	169 (2.7)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

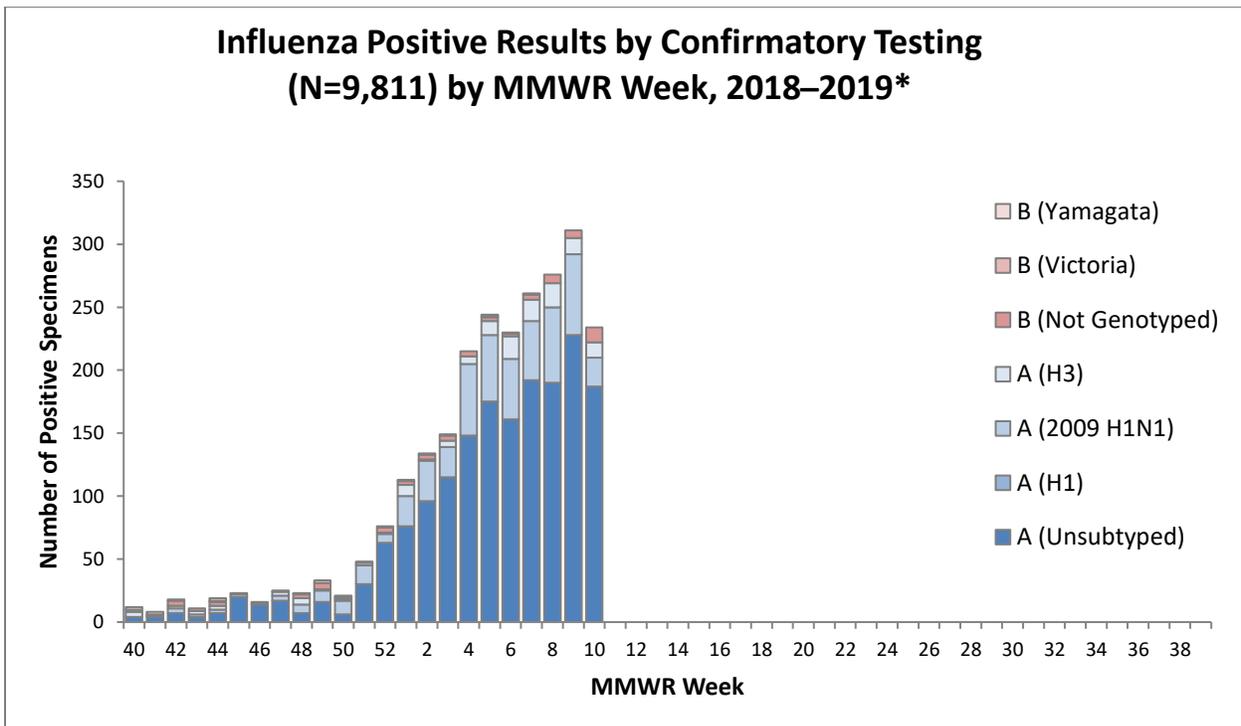
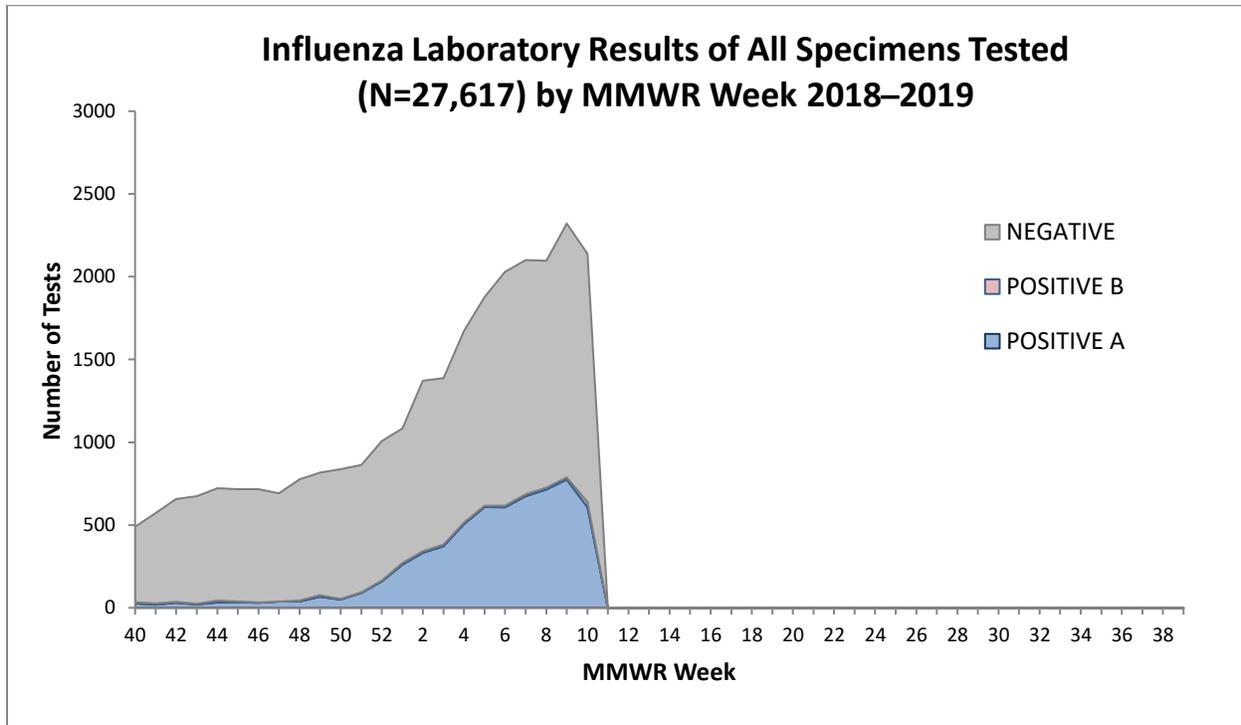


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



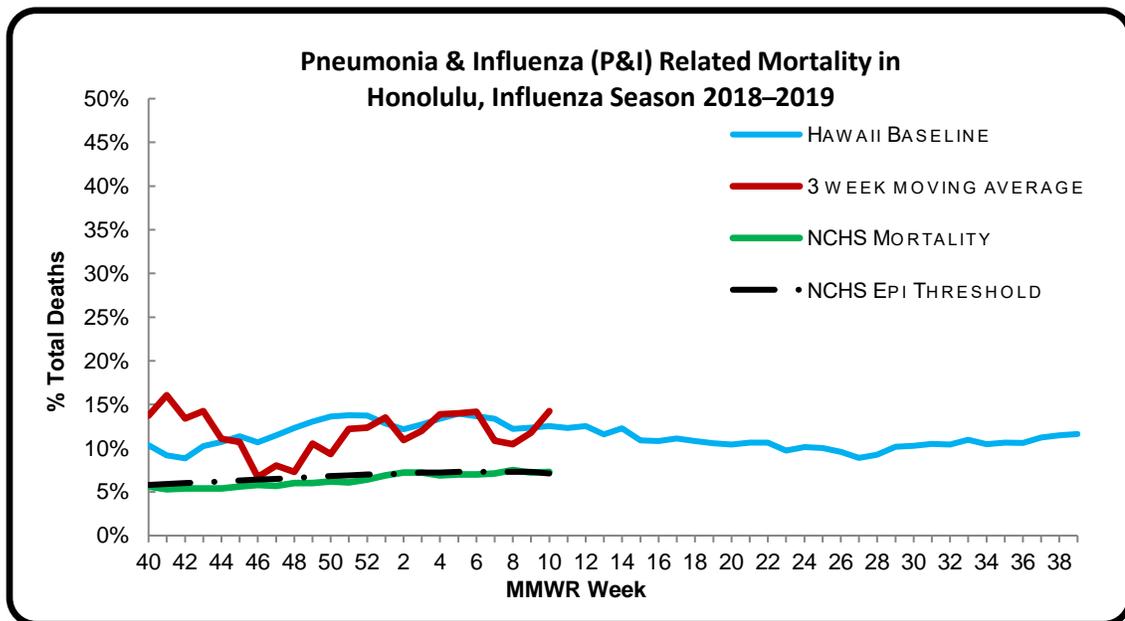
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 10 of the current influenza season:

- 17.7% of all deaths that occurred in Honolulu during week 10 were related to pneumonia or influenza. For the current season (season to date: 12.1%), there have been 1,927 deaths from any cause, 234 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was higher than the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (7.1%) (i.e., outside the 95% confidence interval) and higher than the national epidemic threshold (7.3%) (i.e., outside the 95% confidence interval) for week 10.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, four influenza-associated pediatric deaths were reported to CDC during week 10. One death was associated with an influenza A(H1N1)pdm09 virus and occurred during week 6 (week ending February 9, 2019). Two deaths were associated with an influenza A(H3) virus and occurred during weeks 9 and 10 (weeks ending

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

March 2 and March 9, 2019, respectively). One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 9. (Season total: 68).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 10.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **February 12, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

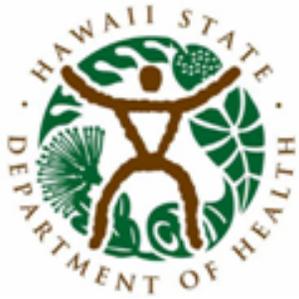
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
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17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
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27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
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51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 11: MARCH 10, 2019–MARCH 16, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 11

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	5.8%	Lower than the previous week. Comparable to Hawaii’s historical baseline, higher than the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	3	There have been 21 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	30.0%	Higher than the previous week. This number means that many, if not all, of the 70.0% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	23.3%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	15.3%	Comparable to Hawaii’s historical baseline, higher than the national epidemic threshold and higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	8	

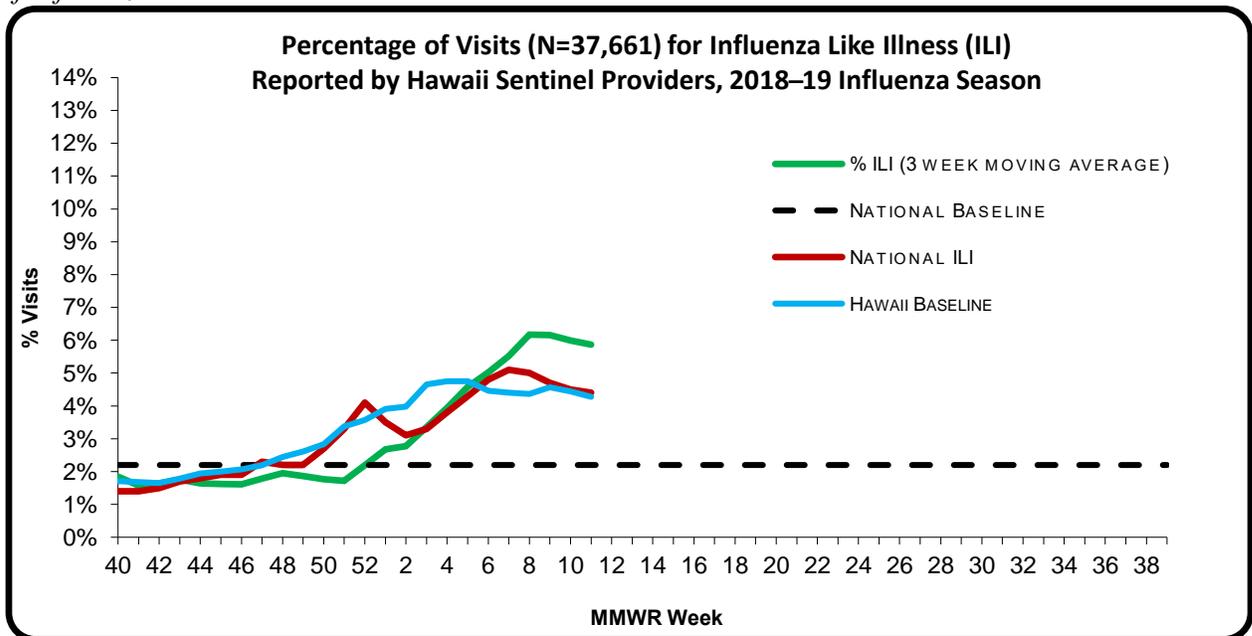
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 11** of the current influenza season:

- **5.8%** (season to date: **2.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and higher than the national ILI rate (**4.4%**) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: Three new clusters were reported to HDOH during week 11. Two clusters occurred at long-term care facilities on Oahu. One cluster occurred at a school on Maui during week 9. These clusters included cases of influenza A.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

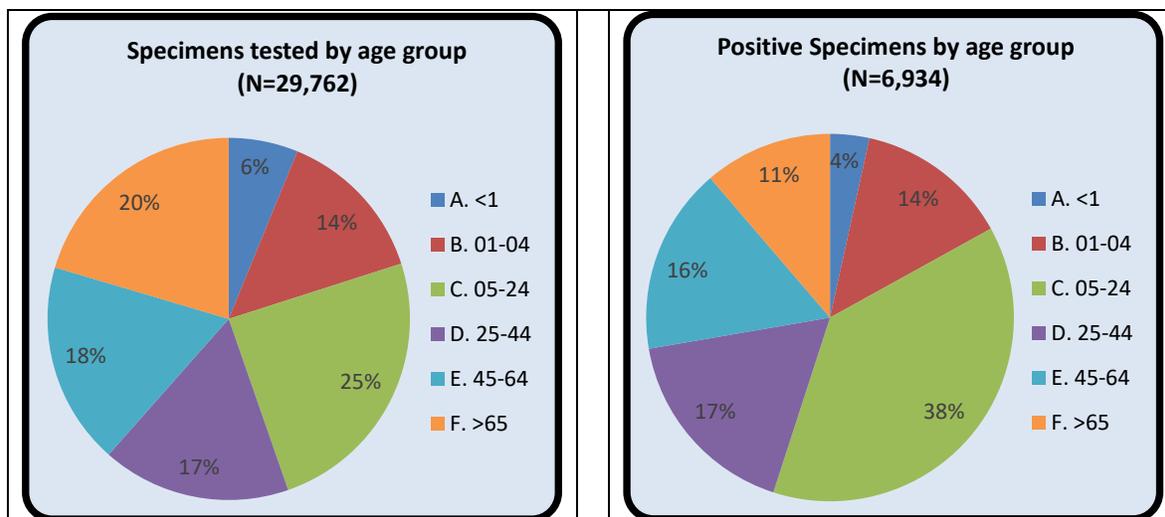
A. INFLUENZA:

- The following reflects laboratory findings for week 11 of the 2018–19 influenza season:
 - A total of **2,133** specimens have been tested statewide for influenza viruses (positive: 639 [30.0%]). (Season to date: 29,762 tested [23.3% positive])
 - 1,429 (67.0%) were screened only by rapid antigen tests with no confirmatory testing
 - 704 (33.0%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,494 (70.0%) were negative.

<i>Influenza type</i>	<i>Current week 11 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	36 (5.6)	560 (8.1)
<i>Influenza A (H3)</i>	11 (1.7)	158 (2.3)
<i>Influenza A no subtyping</i>	552 (86.4)	5,986 (86.3)
<i>Influenza B (Yamagata)</i>	1 (0.2)	17 (0.2)
<i>Influenza B (Victoria)</i>	1 (0.2)	9 (0.1)
<i>Influenza B no genotyping</i>	38 (6.0)	204 (2.9)

1. AGE DISTRIBUTION

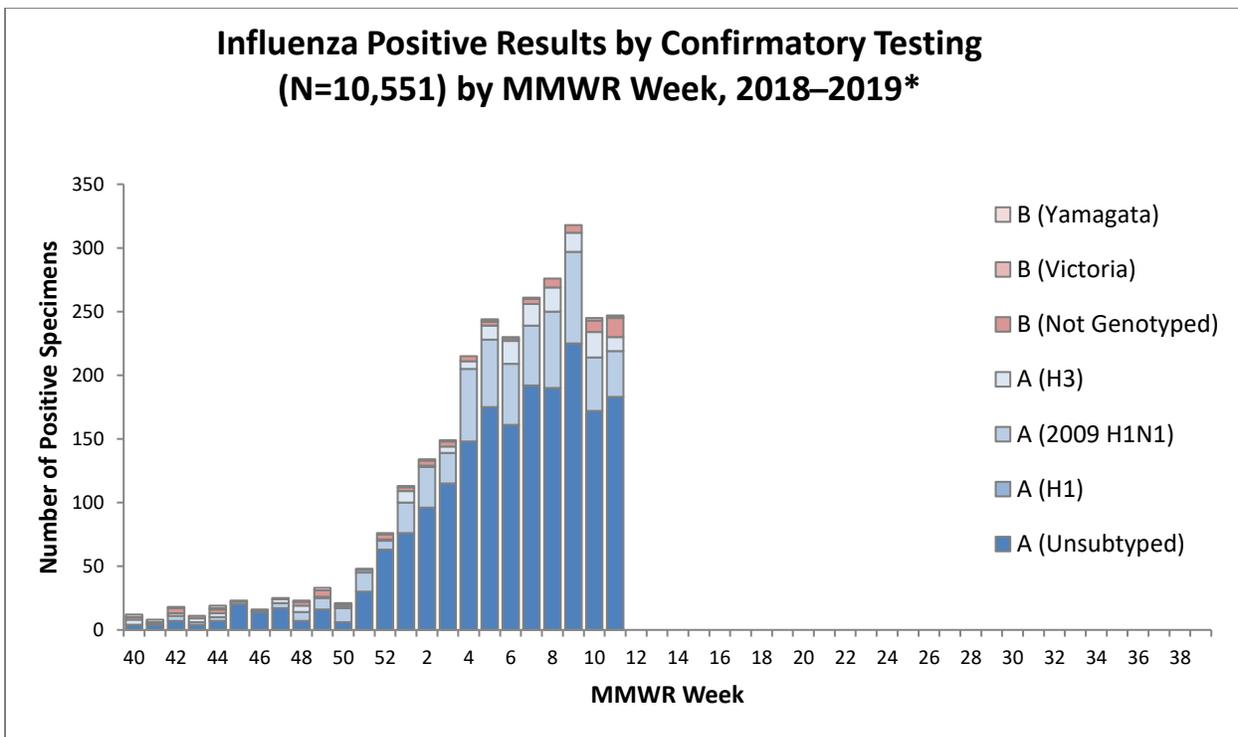
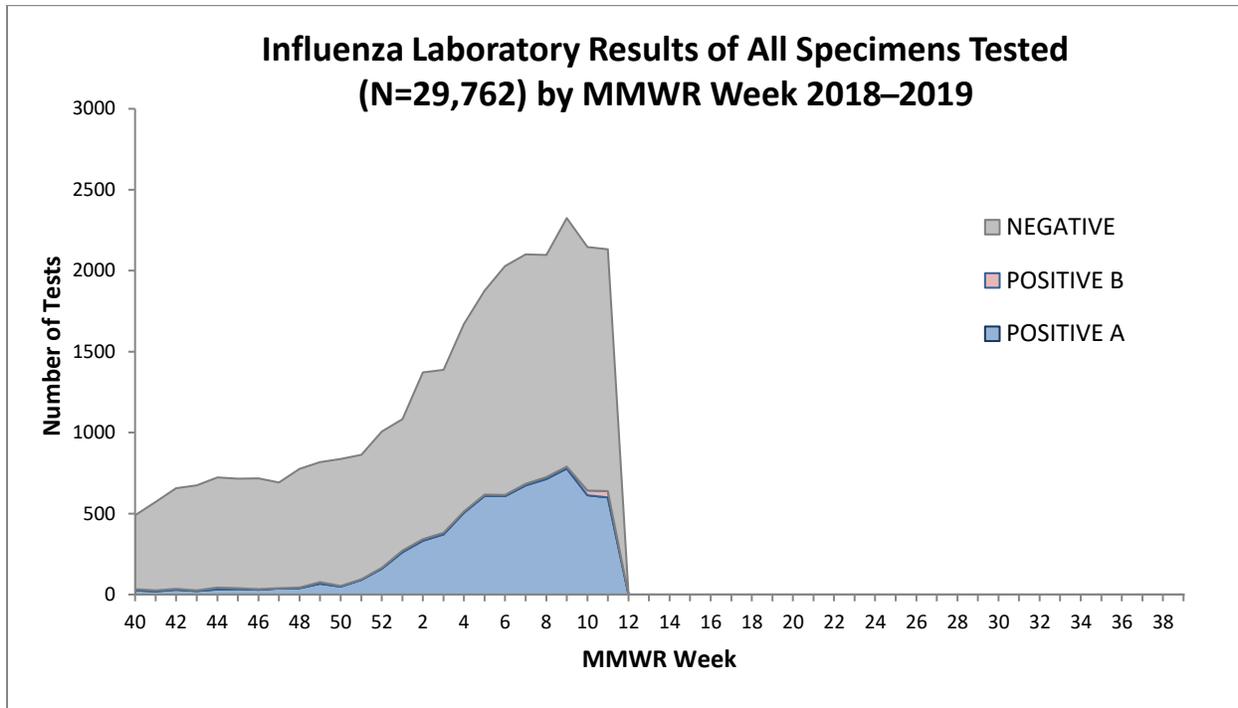
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



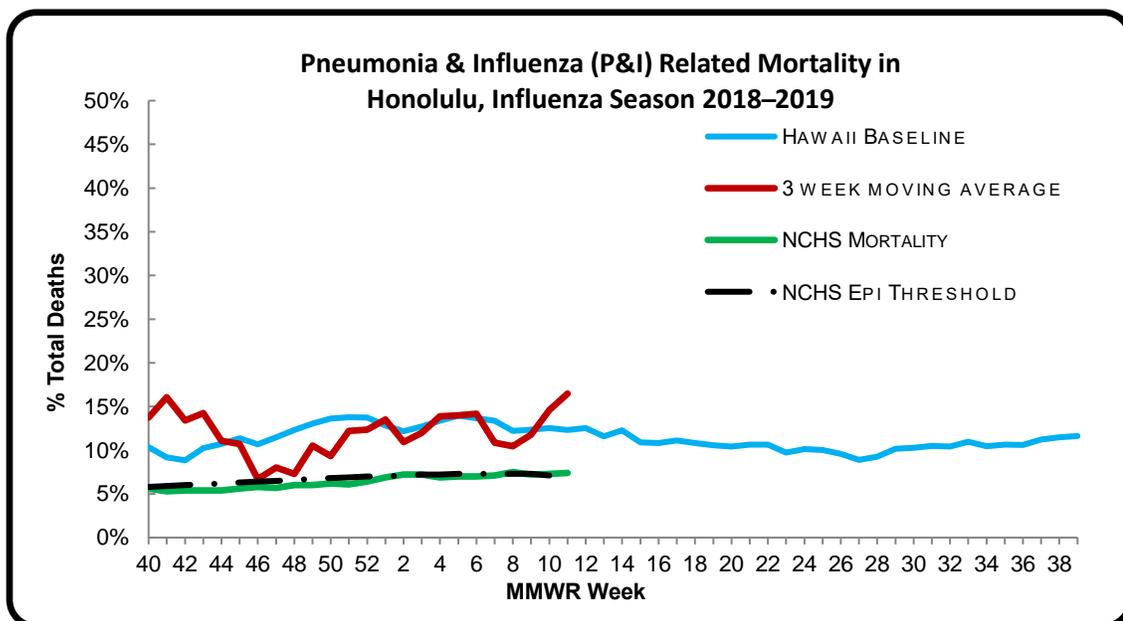
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 11 of the current influenza season:

- 15.3% of all deaths that occurred in Honolulu during week 11 were related to pneumonia or influenza. For the current season (season to date: 12.3%), there have been 2,025 deaths from any cause, 249 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was higher than the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (7.4%) (i.e., outside the 95% confidence interval) and higher than the national epidemic threshold (7.2%) (i.e., outside the 95% confidence interval) for week 11.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, eight influenza-associated pediatric deaths were reported to CDC during week 11. Two deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during week 10 (week ending March 9, 2019). Two deaths were associated with an influenza A(H3) virus and occurred during weeks 4 and 8 (weeks ending January 26 and February 23, 2019, respectively). Three deaths were associated with an influenza A virus for

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

which no subtyping was performed and occurred during weeks 10 and 11 (weeks ending March 9 and March 16, 2019, respectively). One death was associated with an influenza B virus and occurred during week 9 (week ending March 2, 2019). (Season total: 76).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 11.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **February 12, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 12: MARCH 17, 2019–MARCH 23, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 12

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.7%	Lower than the previous week. Comparable to Hawaii's historical baseline, lower than the national ILI rate, and comparable the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 22 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	24.0%	Lower than the previous week. This number means that many, if not all, of the 76.0% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	23.3%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	14.4%	Comparable to Hawaii's historical baseline, higher than the national epidemic threshold and higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	1	

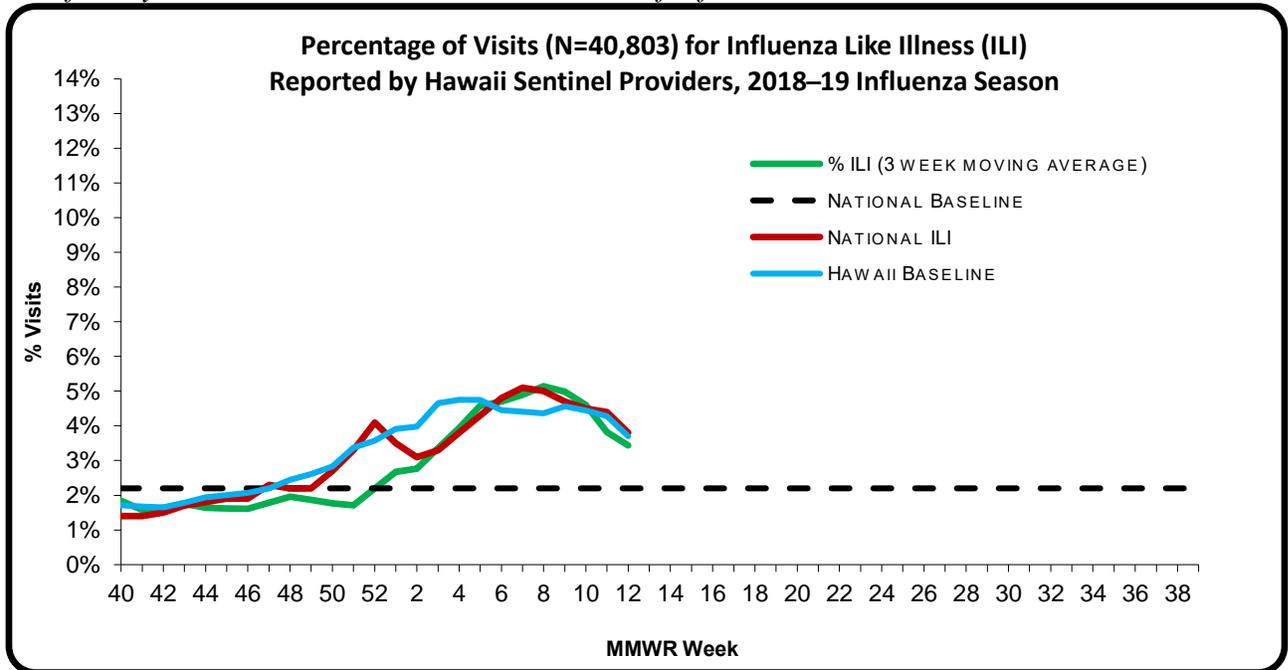
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 12 of the current influenza season:

- 2.7% (season to date: 2.8%) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and lower than the national ILI rate (3.8%) (i.e., outside the 95% confidence interval).
- Geographic Spread: Local Activity⁵
- ILI Cluster Activity: One new cluster was reported to HDOH during week 12. This cluster occurred at a long-term care facility on Oahu. This cluster included cases of influenza A.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

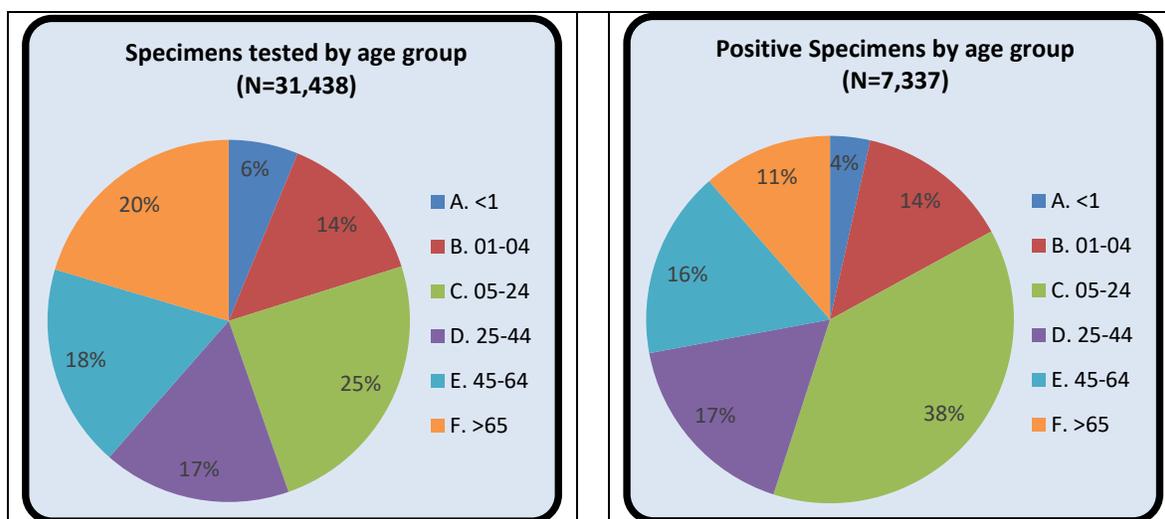
A. INFLUENZA:

- The following reflects laboratory findings for week 12 of the 2018–19 influenza season:
 - A total of **1,665** specimens have been tested statewide for influenza viruses (positive: 399 [24.0%]). (Season to date: 31,438 tested [23.3% positive])
 - 1,171 (70.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 494 (29.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,266 (76.0%) were negative.

Influenza type	Current week 12 (%)	Season to date (%)
Influenza A (H1) ⁷	15 (3.8)	607 (8.3)
Influenza A (H3)	8 (2.0)	182 (2.5)
Influenza A no subtyping	349 (87.5)	6,292 (85.8)
Influenza B (Yamagata)	0 (0.0)	17 (0.2)
Influenza B (Victoria)	0 (0.0)	9 (0.1)
Influenza B no genotyping	27 (6.8)	230 (3.1)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

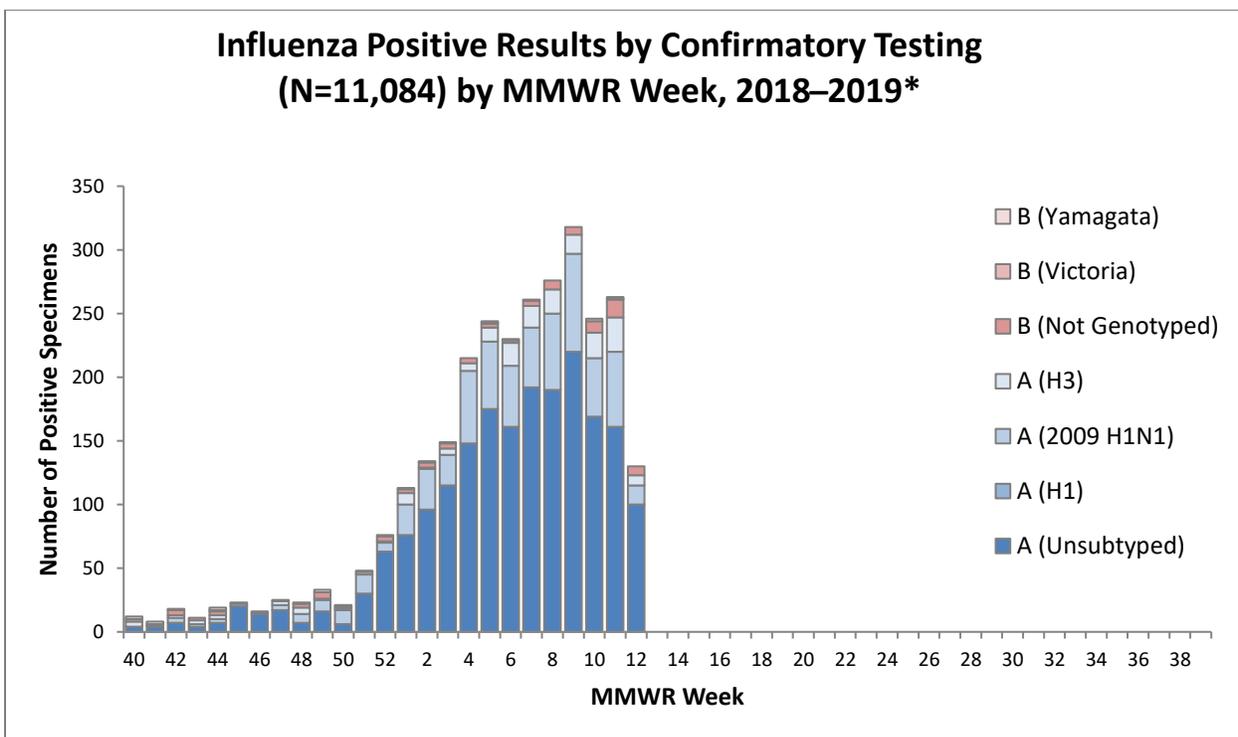
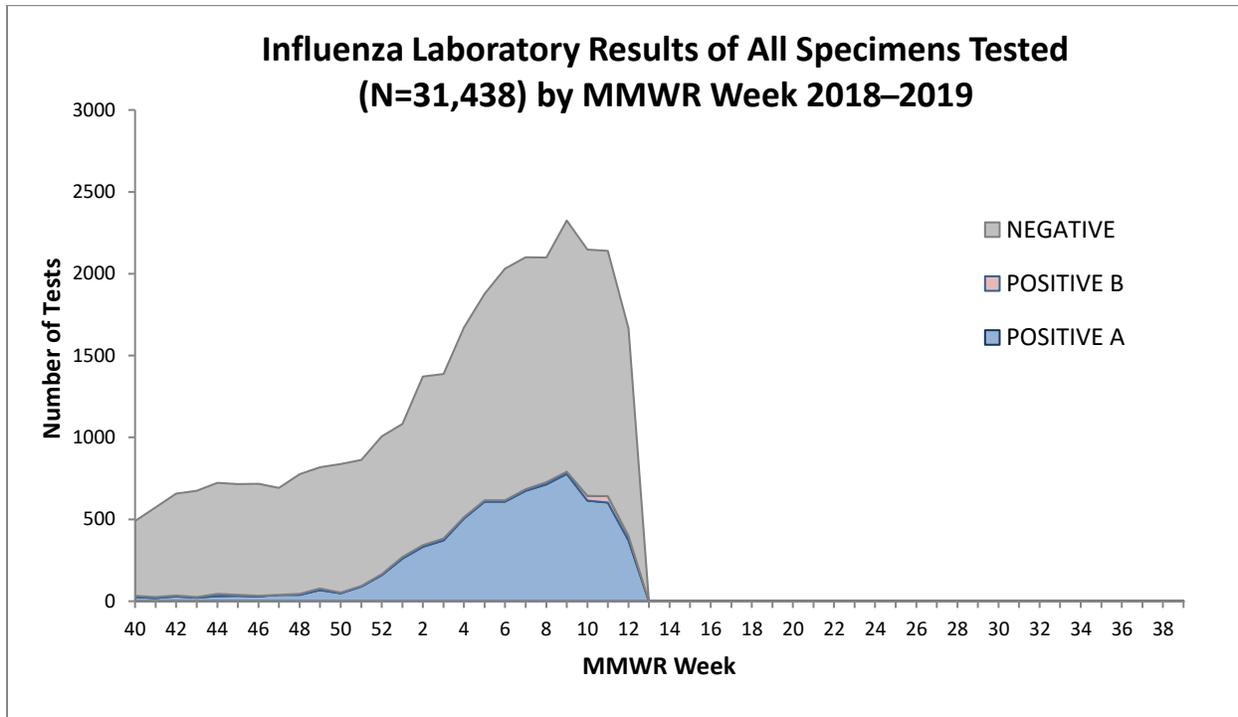


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



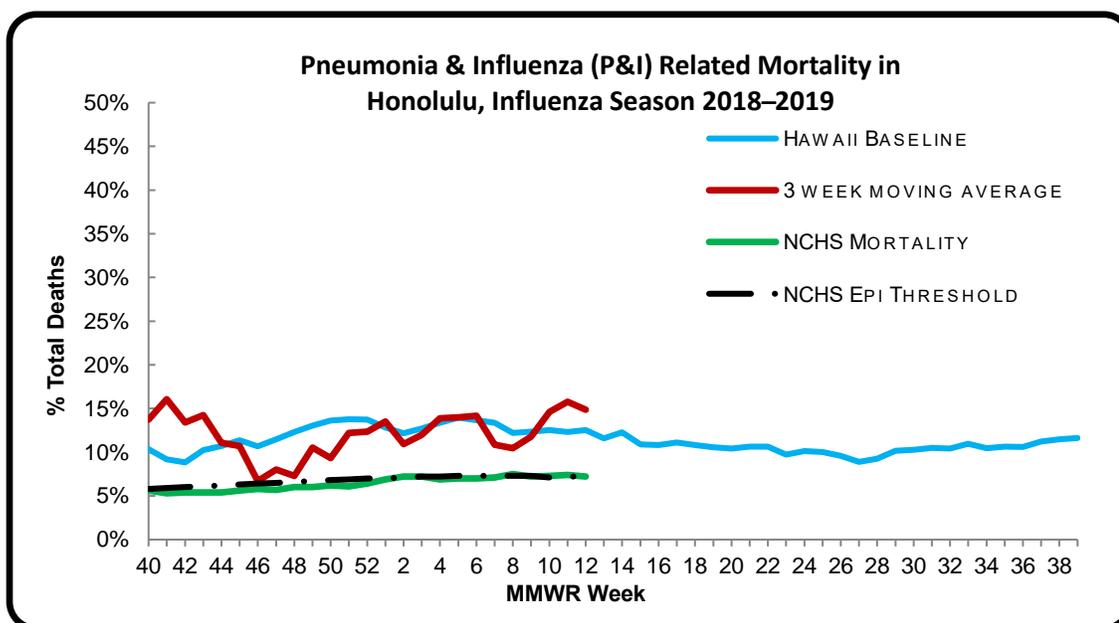
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 12 of the current influenza season:

- **14.4%** of all deaths that occurred in Honolulu during week 12 were related to pneumonia or influenza. For the current season (season to date: **12.4%**), there have been 2,129 deaths from any cause, 264 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was higher than the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (7.2%) (i.e., outside the 95% confidence interval) and higher than the national epidemic threshold (7.2%) (i.e., outside the 95% confidence interval) for week 12.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 12. This death was associated with an influenza A(H1N1)pdm09 virus and occurred during week 12 (week ending March 23, 2019). (Season total: 77).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 12.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,566 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **February 12, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

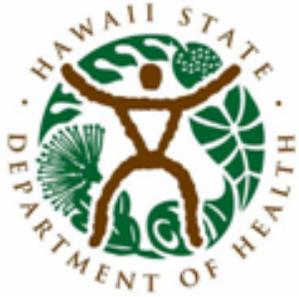
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APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
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25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
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30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 13: MARCH 24, 2019–MARCH 30, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 13

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.9%	Higher than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and comparable the national baseline.
Number of ILI clusters reported to HDOH	4	There have been 26 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	24.0%	Comparable to the previous week. This number means that many, if not all, of the 76.0% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	23.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	14.0%	Comparable to Hawaii's historical baseline, higher than the national epidemic threshold and higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	6	

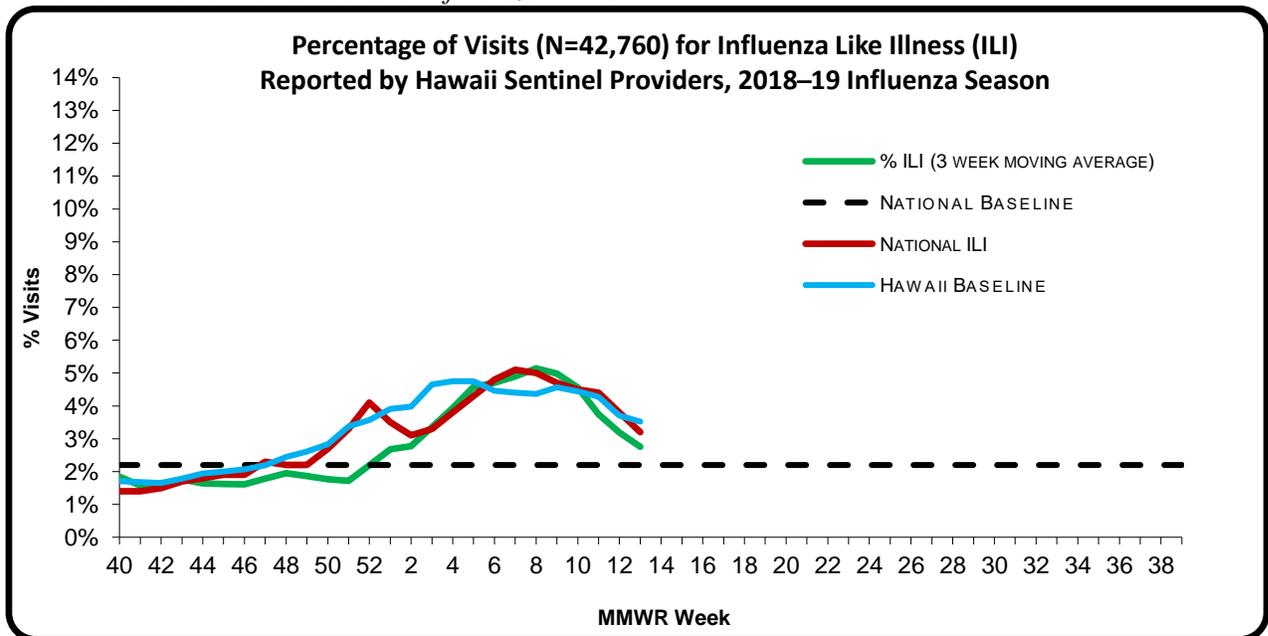
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 13** of the current influenza season:

- **2.9%** (season to date: **2.8%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (3.2%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: Four new clusters were reported to HDOH during week 13. Two clusters occurred at long-term care facilities, one occurred at a hospital, and one occurred at a correctional facility. These clusters occurred on Oahu and included cases influenza A and B.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

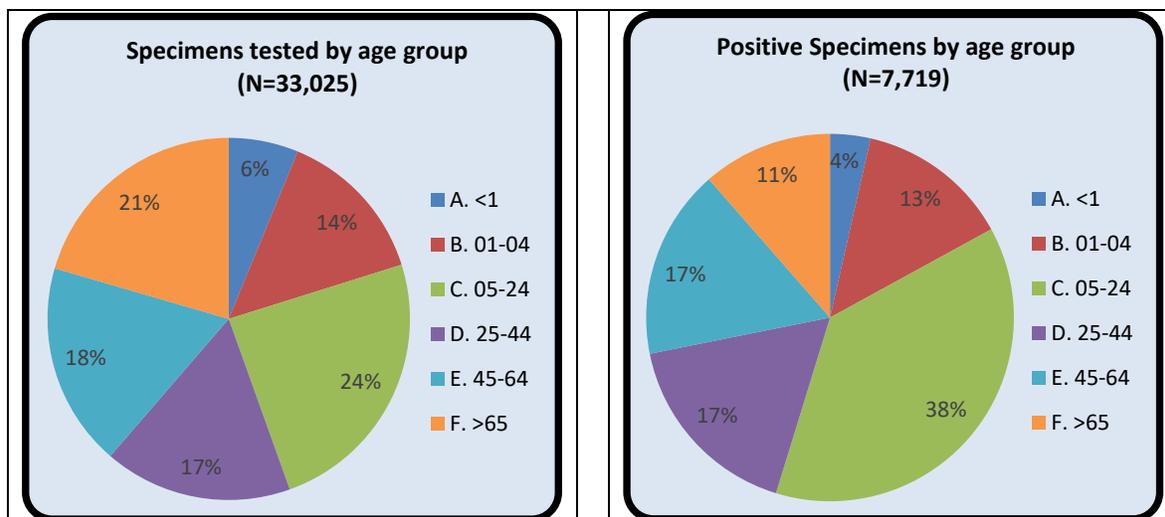
A. INFLUENZA:

- The following reflects laboratory findings for week 13 of the 2018–19 influenza season:
 - A total of **1,574** specimens have been tested statewide for influenza viruses (positive: 377 [**24.0%**]). (Season to date: 33,025 tested [**23.4%** positive])
 - 1,037 (65.9%) were screened only by rapid antigen tests with no confirmatory testing
 - 537 (34.1%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,197 (76.0%) were negative.

Influenza type	Current week 13 (%)	Season to date (%)
Influenza A (H1) ⁷	23 (6.1)	650 (8.4)
Influenza A (H3)	15 (4.0)	209 (2.7)
Influenza A no subtyping	300 (79.6)	6,565 (85.0)
Influenza B (Yamagata)	0 (0.0)	18 (0.2)
Influenza B (Victoria)	7 (1.9)	17 (0.2)
Influenza B no genotyping	32 (8.5)	260 (3.4)

1. AGE DISTRIBUTION

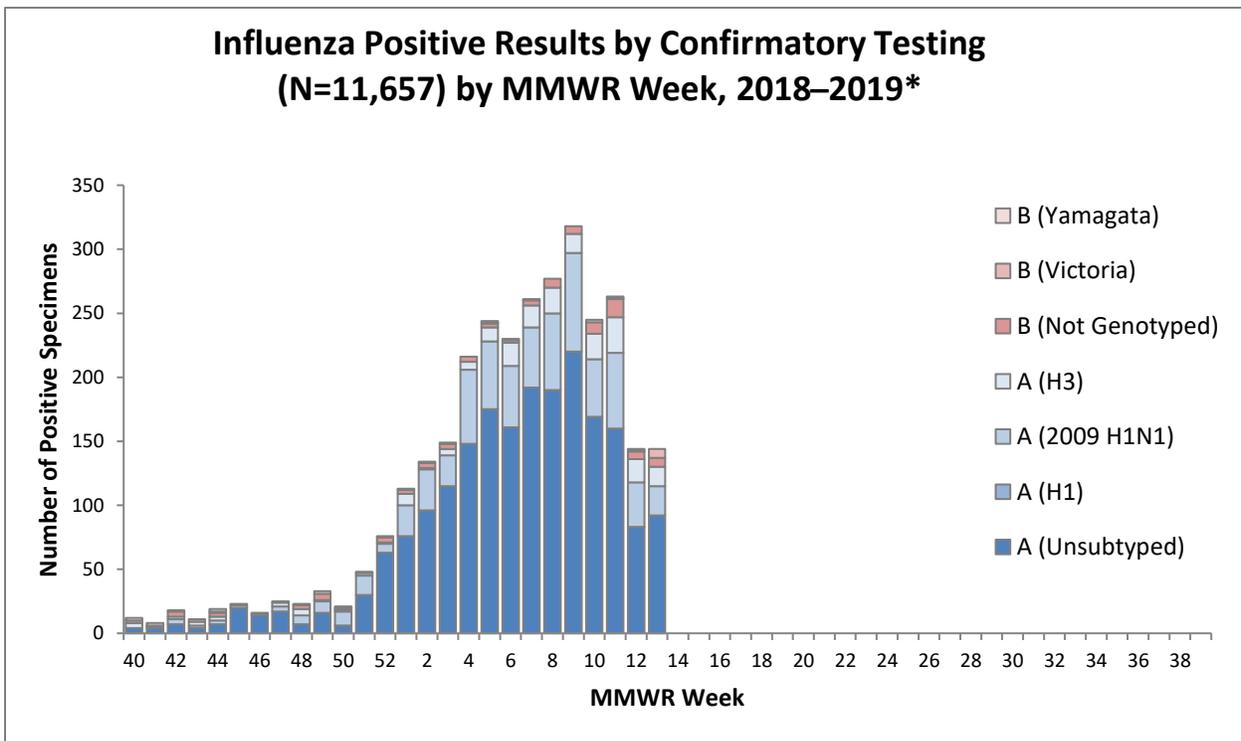
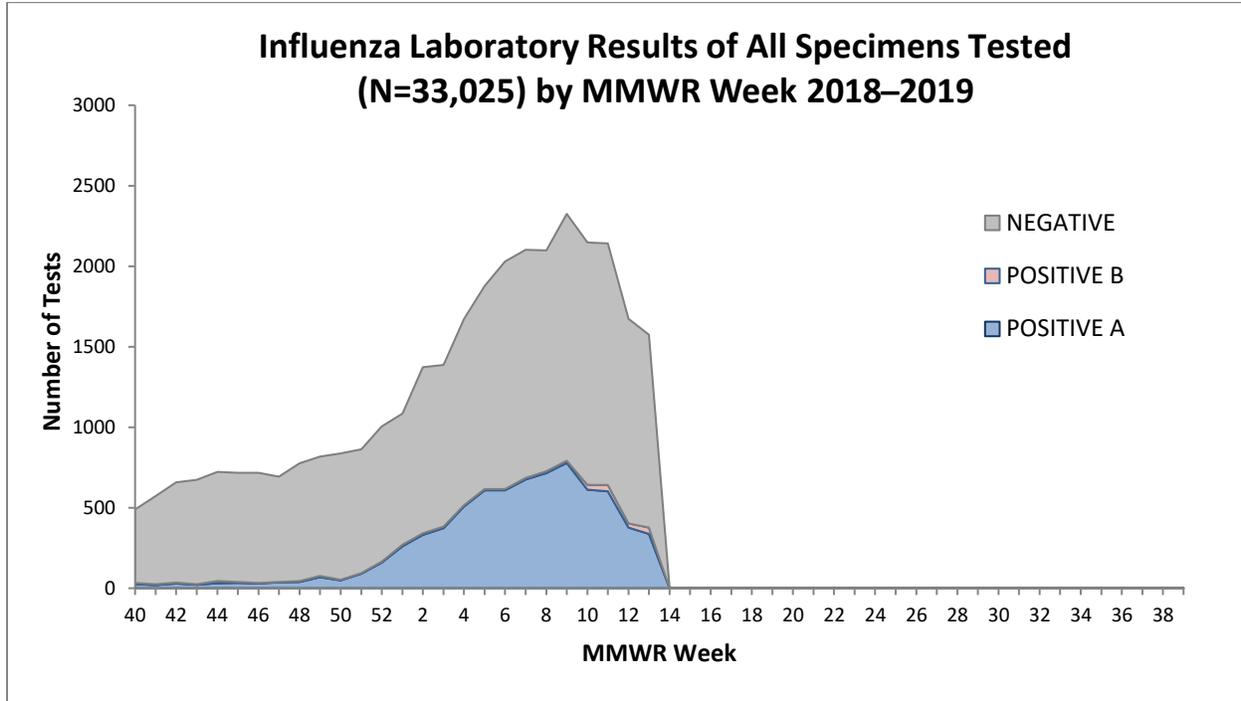
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



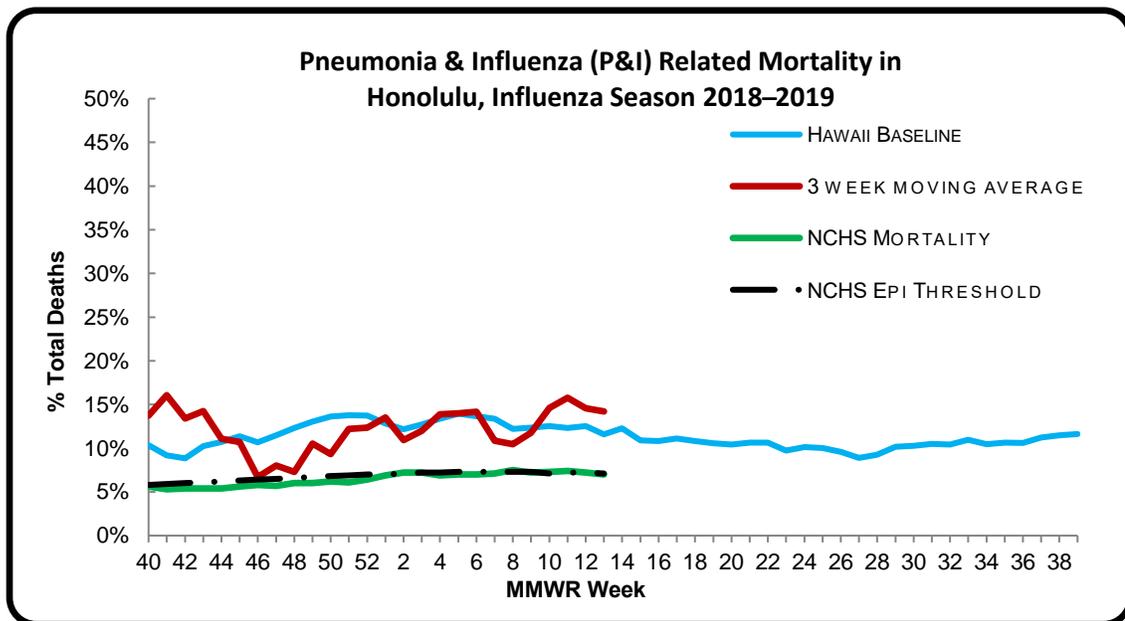
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 13 of the current influenza season:

- **14.0%** of all deaths that occurred in Honolulu during week 13 were related to pneumonia or influenza. For the current season (season to date: **12.5%**), there have been 2,236 deaths from any cause, 279 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was higher than the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (7.0%) (i.e., outside the 95% confidence interval) and higher than the national epidemic threshold (7.1%) (i.e., outside the 95% confidence interval) for week 13.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, six influenza-associated pediatric deaths were reported to CDC during week 13, five of which occurred during the 2018-2019 season. Two deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during week 12 (week ending March 23, 2019). One death was associated with an influenza A(H3) virus and occurred during week 11 (week ending March 16, 2019). One death was associated with an influenza

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

A virus for which no subtyping was performed and occurred during week 12. One death was associated with an influenza B virus and occurred during week 12. (Season total: 82).

An additional death that occurred during the 2017-2018 season was reported to CDC. This death was associated with an influenza A virus for which no subtyping was performed and brings the total reported influenza-associated deaths during that season to 186.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 13.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **April 9, 2019**. Since the last update, one new laboratory-confirmed human case of influenza A(H7N9) virus infection was reported to WHO from China. An 82-year-old male developed illness and was hospitalized with severe pneumonia. One new laboratory-confirmed human case of influenza A(H9N2) was reported to WHO from

China. A 9-year-old male developed illness and was hospitalized with severe pneumonia. The case reportedly had exposure to a live poultry market.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

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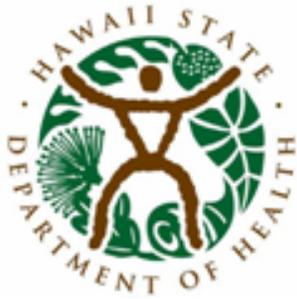
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3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
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17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 14: MARCH 31, 2019–APRIL 6, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 14

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	4.7%	Higher than the previous week. Comparable to Hawaii’s historical baseline, higher than the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	3	There have been 29 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	24.5%	Higher than the previous week. This number means that many, if not all, of the 75.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	23.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	6.7%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	4	

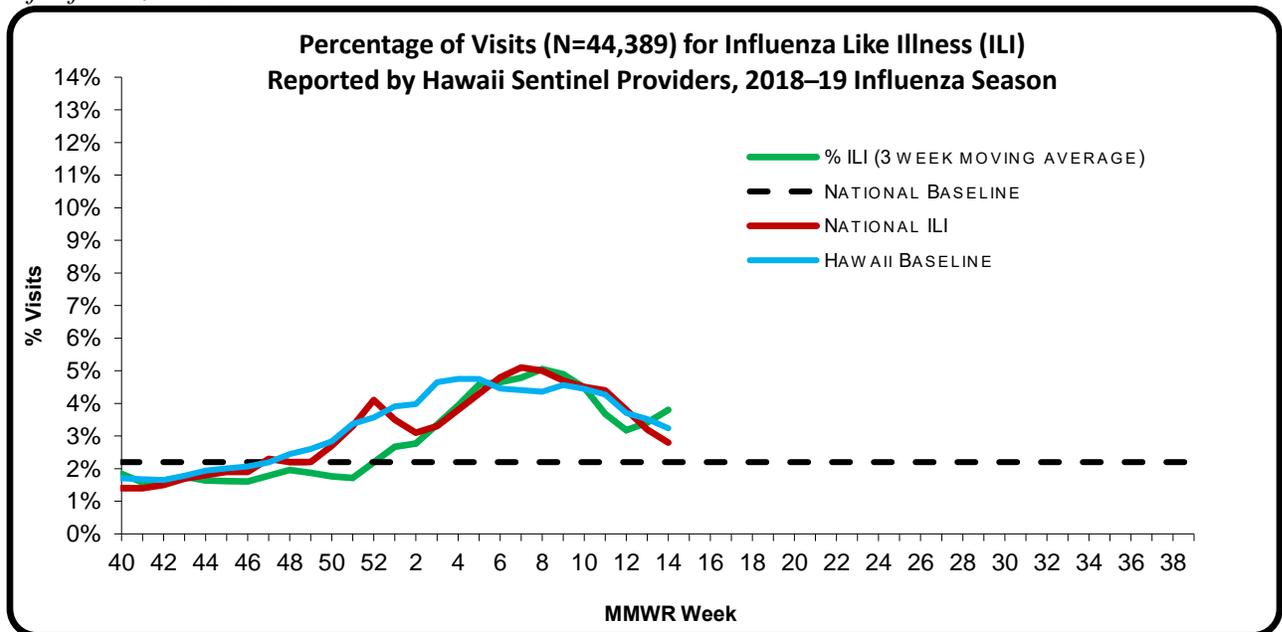
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 14** of the current influenza season:

- **4.7%** (season to date: **2.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii's ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and higher than the national ILI rate (2.8%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Regional Activity*⁵
- *ILI Cluster Activity:* Three new clusters were reported to HDOH during week 14. Two clusters occurred at schools on Oahu. One cluster occurred at a correctional facility on Hawaii Island. These clusters included cases of influenza A and B.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

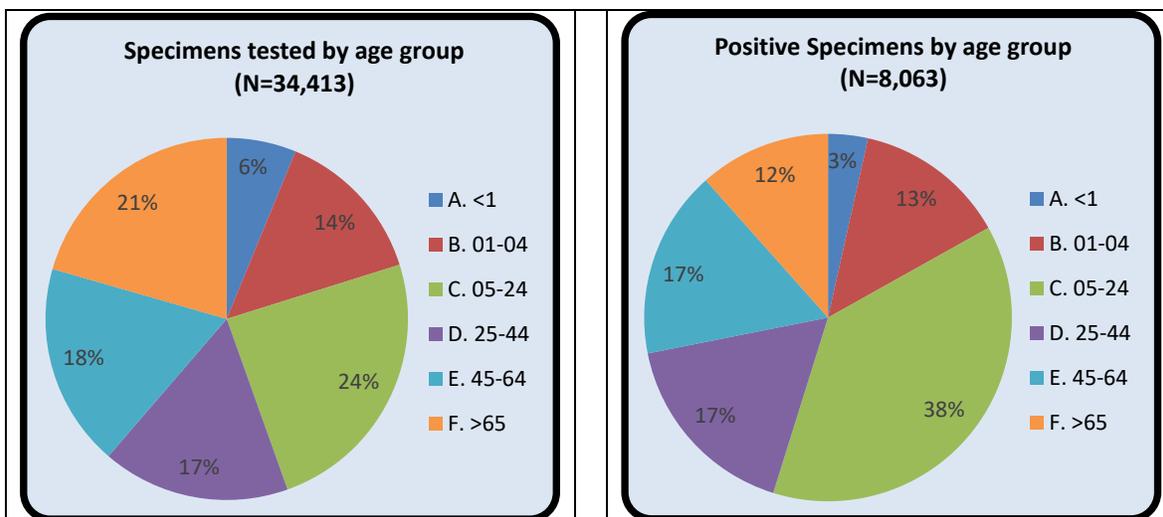
A. INFLUENZA:

- The following reflects laboratory findings for week 14 of the 2018–19 influenza season:
 - A total of **1,398** specimens have been tested statewide for influenza viruses (positive: 343 [24.5%]). (Season to date: 34,413 tested [23.4% positive])
 - 896 (64.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 502 (35.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,055 (75.5%) were negative.

Influenza type	Current week 14 (%)	Season to date (%)
Influenza A (H1) ⁷	21 (6.1)	672 (8.3)
Influenza A (H3)	26 (7.6)	235 (2.9)
Influenza A no subtyping	269 (78.4)	6,833 (84.8)
Influenza B (Yamagata)	0 (0.0)	18 (0.2)
Influenza B (Victoria)	1 (0.3)	19 (0.2)
Influenza B no genotyping	26 (7.6)	286 (3.6)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

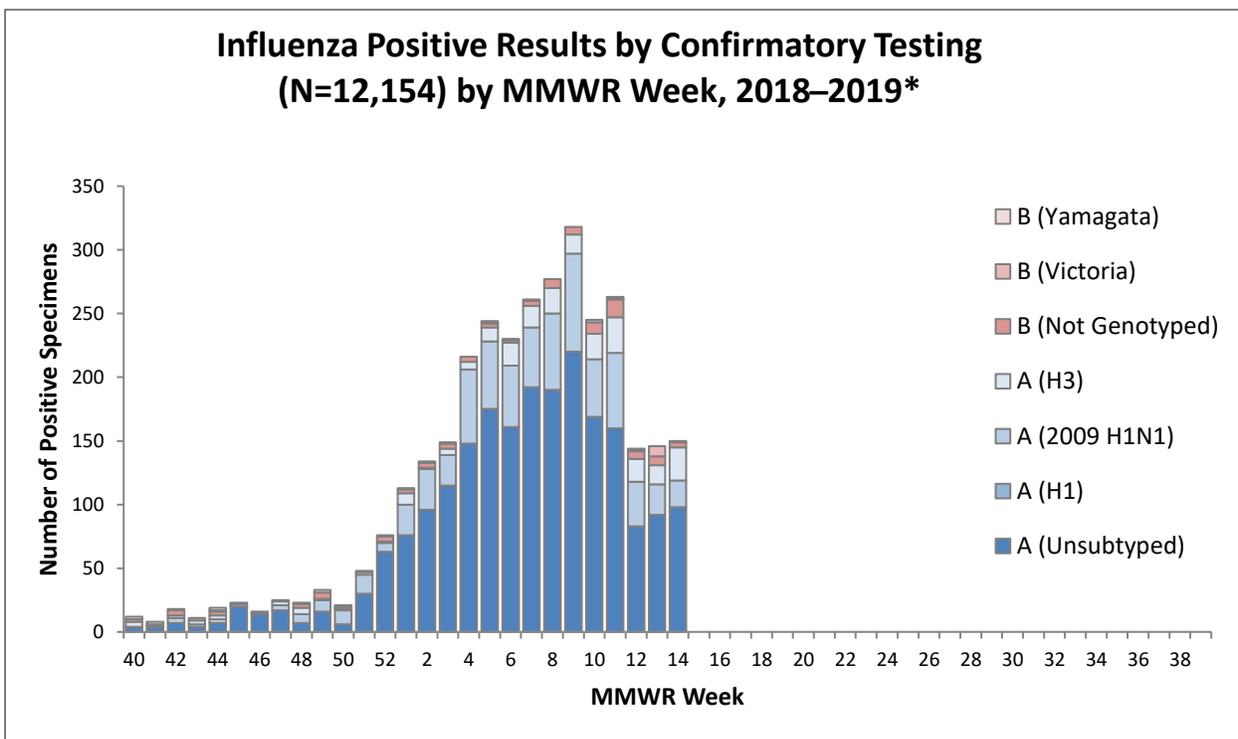
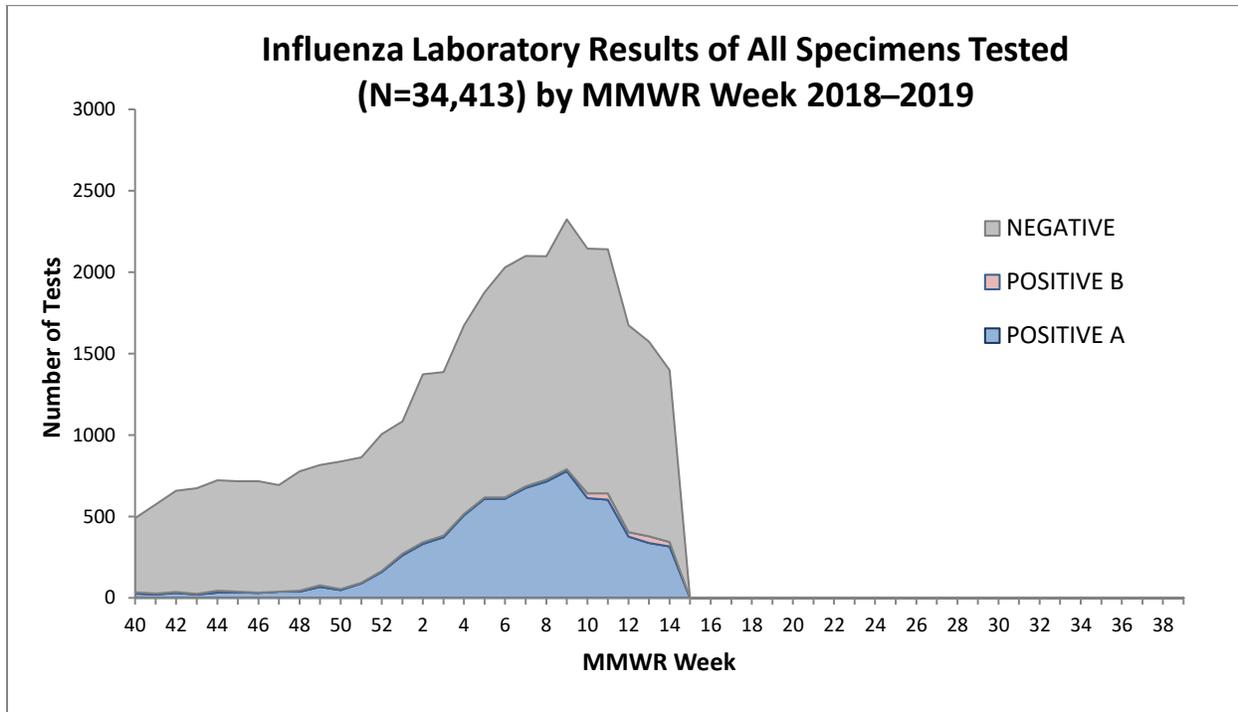


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



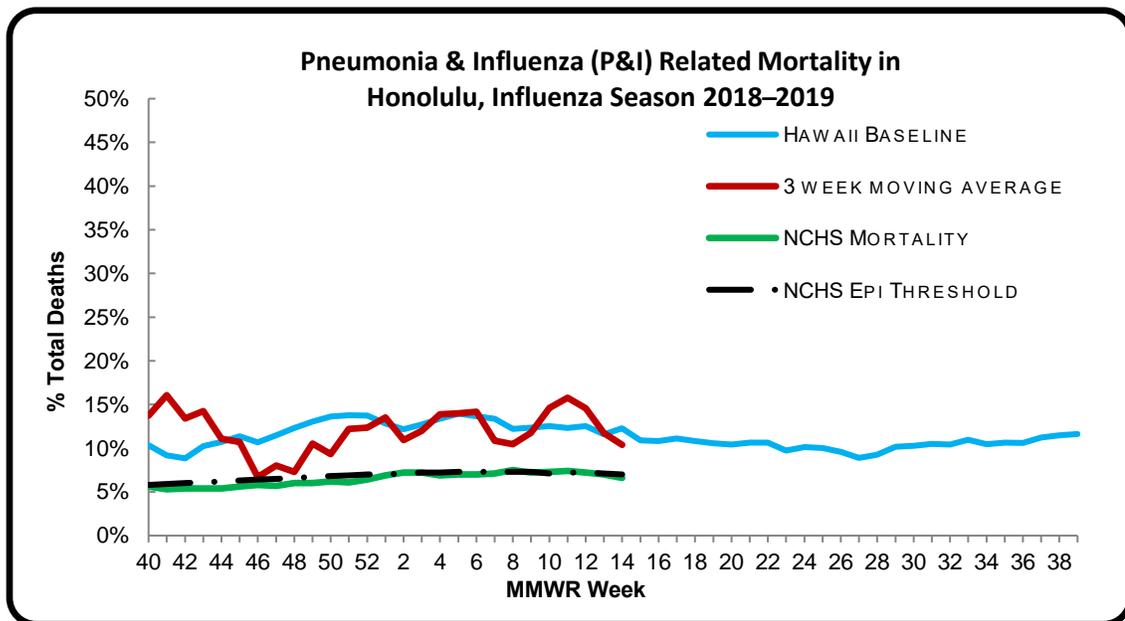
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 14 of the current influenza season:

- *6.7% of all deaths that occurred in Honolulu during week 14 were related to pneumonia or influenza. For the current season (season to date: 12.3%), there have been 2,325 deaths from any cause, 285 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Honolulu P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (6.6%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (7.0%) (i.e., inside the 95% confidence interval) for week 14.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, four influenza-associated pediatric deaths were reported to CDC during week 14. One death was associated with an influenza A(H1N1)pdm09 virus and occurred during week 12 (week ending March 23, 2019). One death was associated with an influenza A(H3) virus and occurred during week 6 (week ending February 9,

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

2019). Two deaths were associated with an influenza A virus for which no subtyping was performed and occurred during weeks 13 and 14 (weeks ending March 30 and April 6, 2019, respectively). (Season total: 86).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 14.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **April 9, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

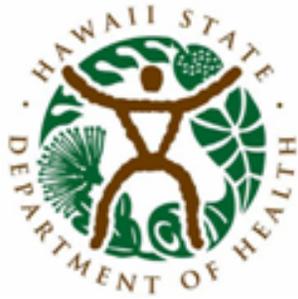
For more information regarding local and national influenza surveillance programs, visit the following sites.

<p>Centers for Disease Control and Prevention</p>	<p>General Influenza National ILI and P&I Data Vaccine Virus Selection</p>
<p>Flu.gov</p>	<p>General Influenza Information</p>
<p>HDOH Flu and Pneumonia</p>	<p>General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator</p>
<p>World Health Organization</p>	<p>General Global and Local Influenza Avian Influenza</p>

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 15: APRIL 7, 2019–APRIL 13, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 15

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	6.5%	Higher than the previous week. Higher than Hawaii's historical baseline, higher than the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 30 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	23.3%	Lower than the previous week. This number means that many, if not all, of the 76.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	23.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	7.5%	Comparable to Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	5	

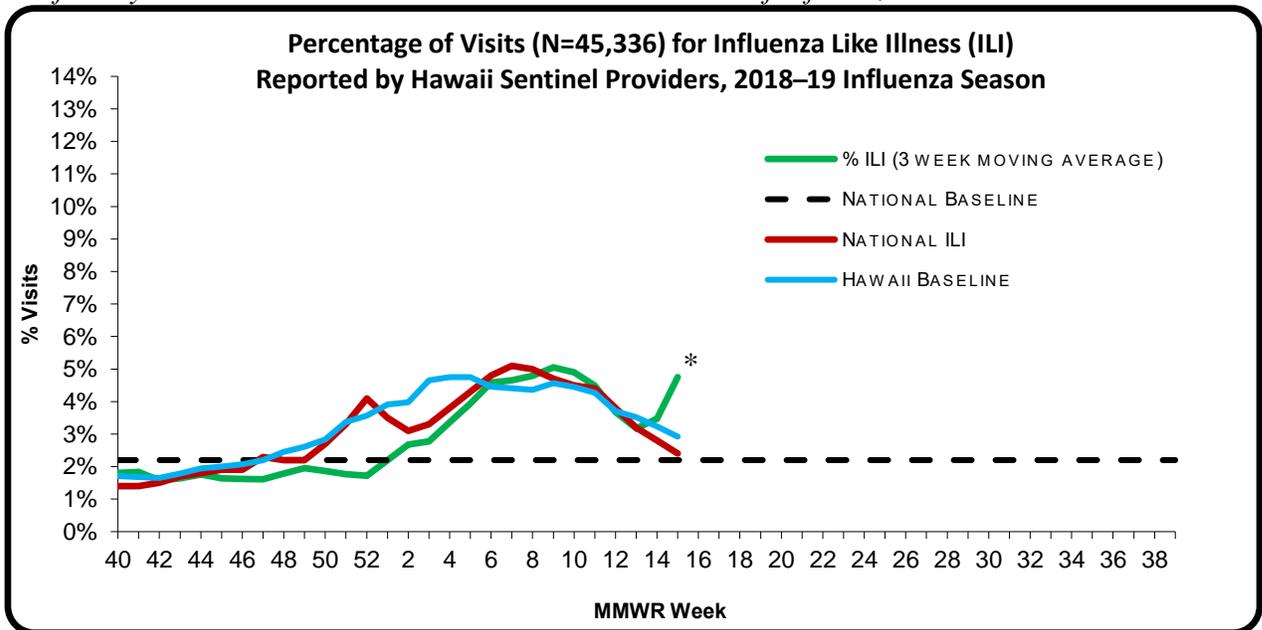
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 15 of the current influenza season:

- **6.5%** (season to date: **2.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and higher than the national ILI rate (2.4%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 15. This cluster occurred at a long-term care facility on Hawaii Island. This cluster included cases of influenza A.*



*Week 15 is missing data points and may not accurately reflect ILI activity.

² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

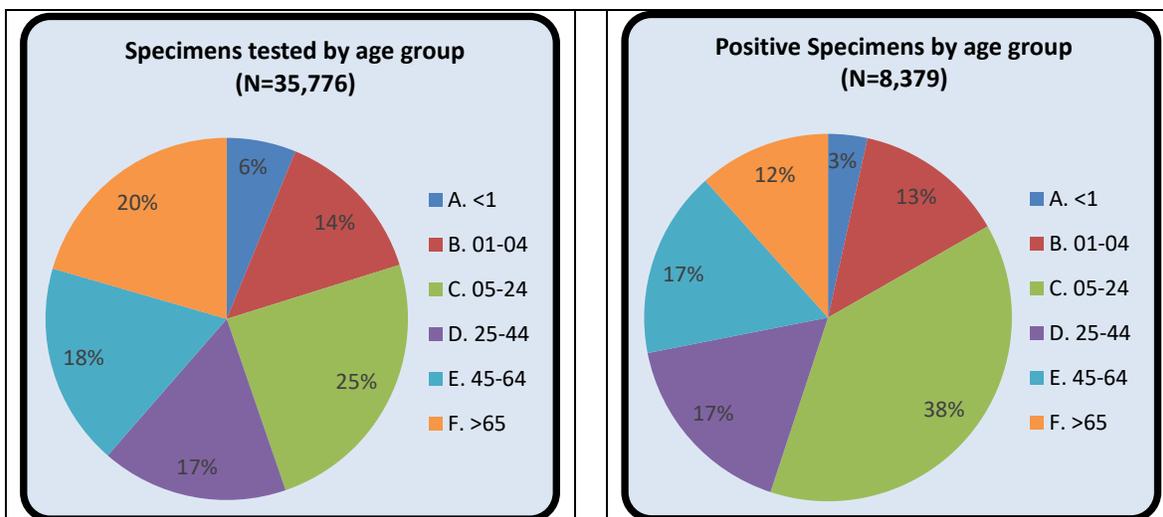
A. INFLUENZA:

- The following reflects laboratory findings for week 15 of the 2018–19 influenza season:
 - A total of 1,352 specimens have been tested statewide for influenza viruses (positive: 315 [23.3%]). (Season to date: 35,776 tested [23.4% positive])
 - 983 (72.7%) were screened only by rapid antigen tests with no confirmatory testing
 - 369 (27.3%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,037 (76.7%) were negative.

Influenza type	Current week 15 (%)	Season to date (%)
Influenza A (H1) ⁷	5 (1.6)	677 (8.1)
Influenza A (H3)	2 (0.6)	237 (2.8)
Influenza A no subtyping	279 (88.6)	7,113 (84.9)
Influenza B (Yamagata)	0 (0.0)	18 (0.2)
Influenza B (Victoria)	0 (0.0)	19 (0.2)
Influenza B no genotyping	29 (9.2)	315 (3.8)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

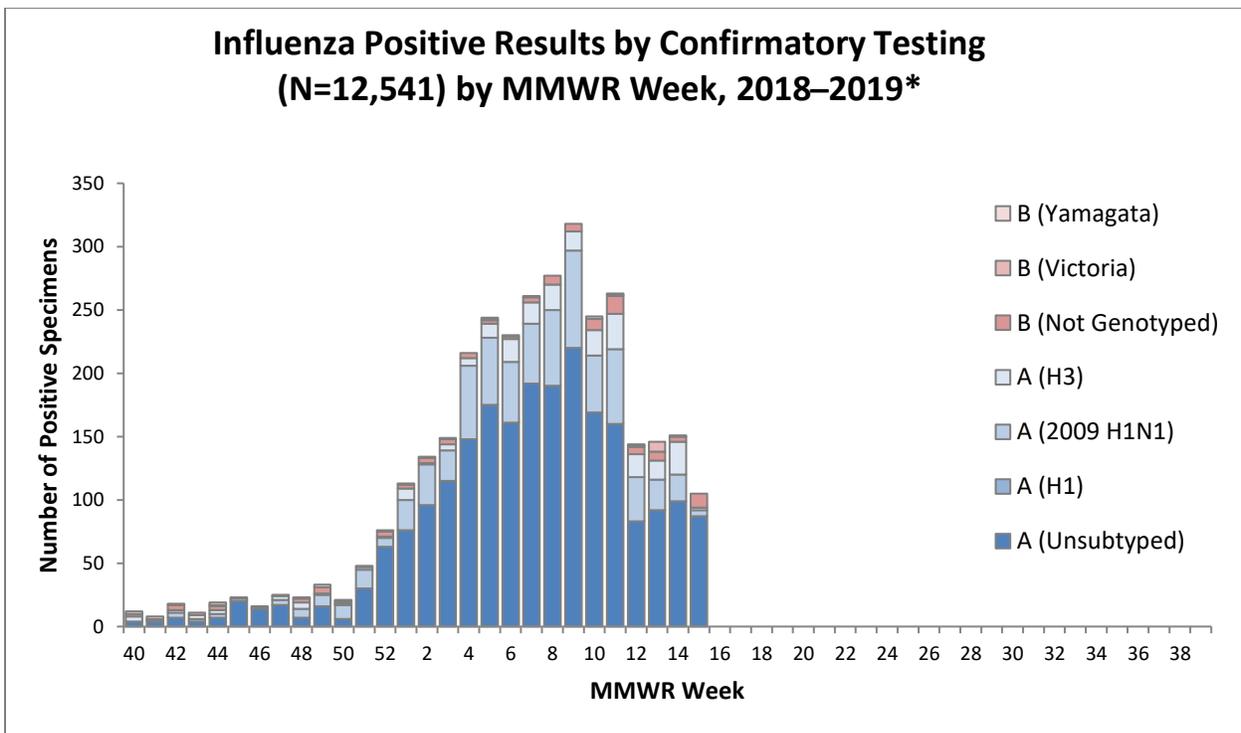
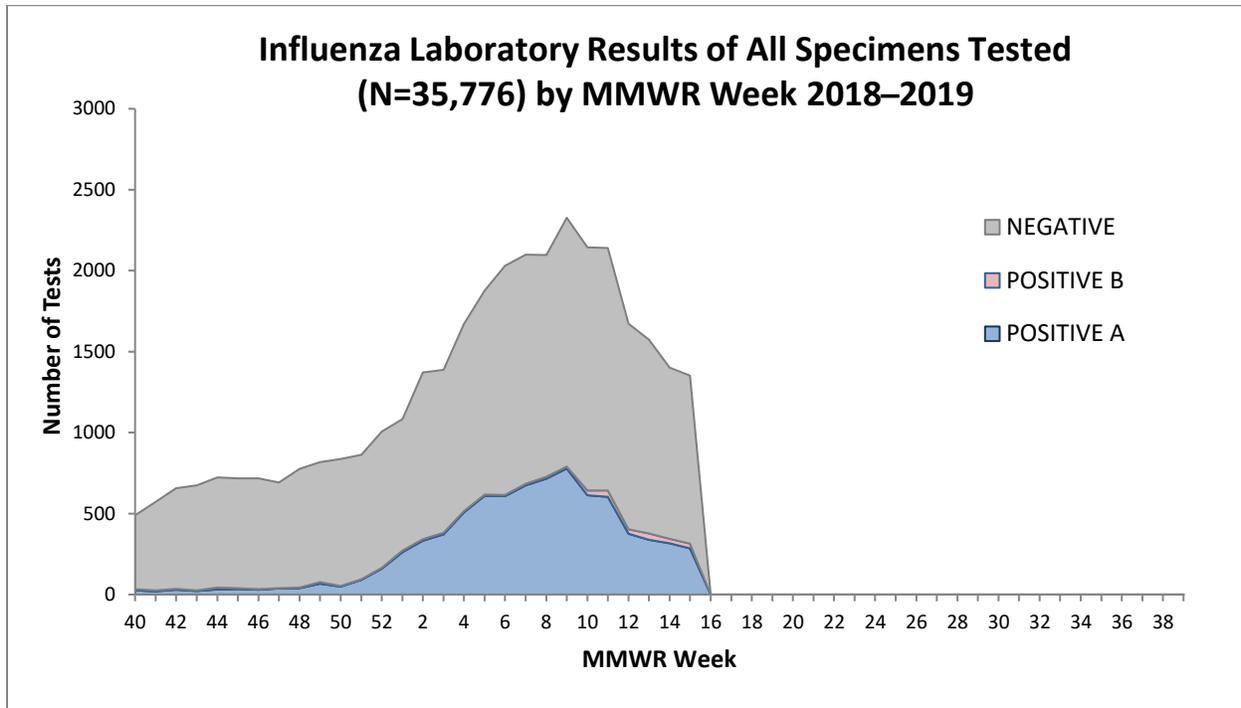


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



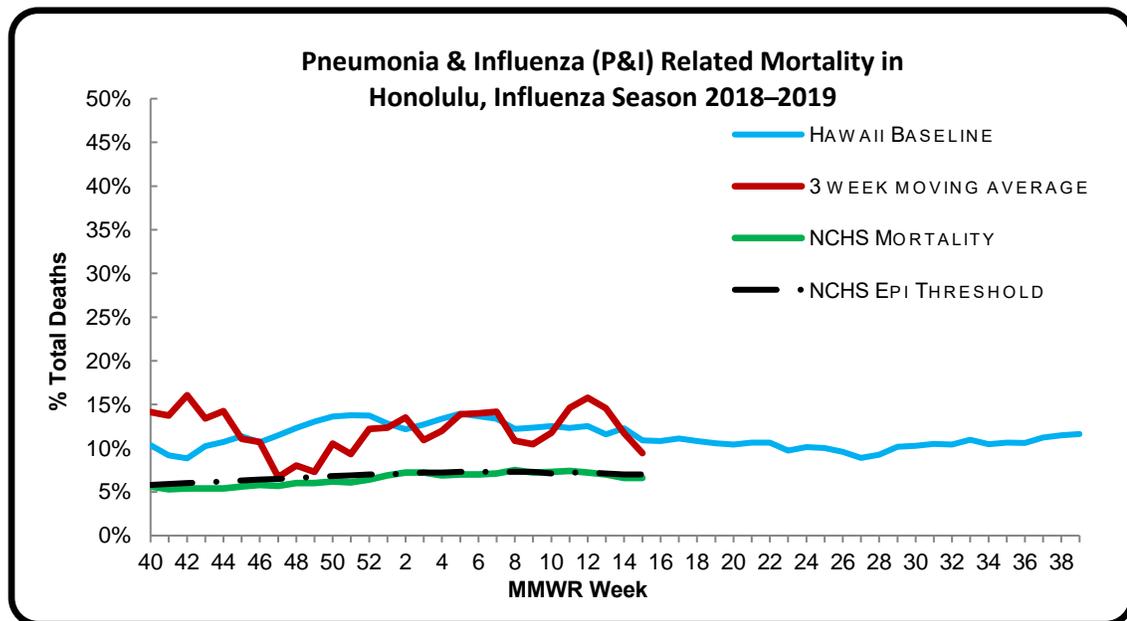
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 15 of the current influenza season:

- 7.5% of all deaths that occurred in Honolulu during week 15 were related to pneumonia or influenza. For the current season (season to date: 12.1%), there have been 2,418 deaths from any cause, 292 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (6.6%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (7.0%) (i.e., inside the 95% confidence interval) for week 15.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, five influenza-associated pediatric deaths were reported to CDC during week 15. Three deaths were associated with an influenza A(H3) virus and occurred during weeks 8, 12, and 15 (weeks ending February 23, March 23, and April 13, 2019, respectively). Two deaths were associated with an influenza A virus for which

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

no subtyping was performed and occurred during weeks 12 and 13 (weeks ending March 23 and March 30, 2019, respectively). (Season total: 91).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 15.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **April 9, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

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REPORT SNAPSHOT FOR WEEK 16

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.7%	Lower than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	2	There have been 32 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	23.5%	Higher than the previous week. This number means that many, if not all, of the 76.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	23.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	14.0%	Comparable to Hawaii's historical baseline, comparable to the national epidemic threshold and higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	5	

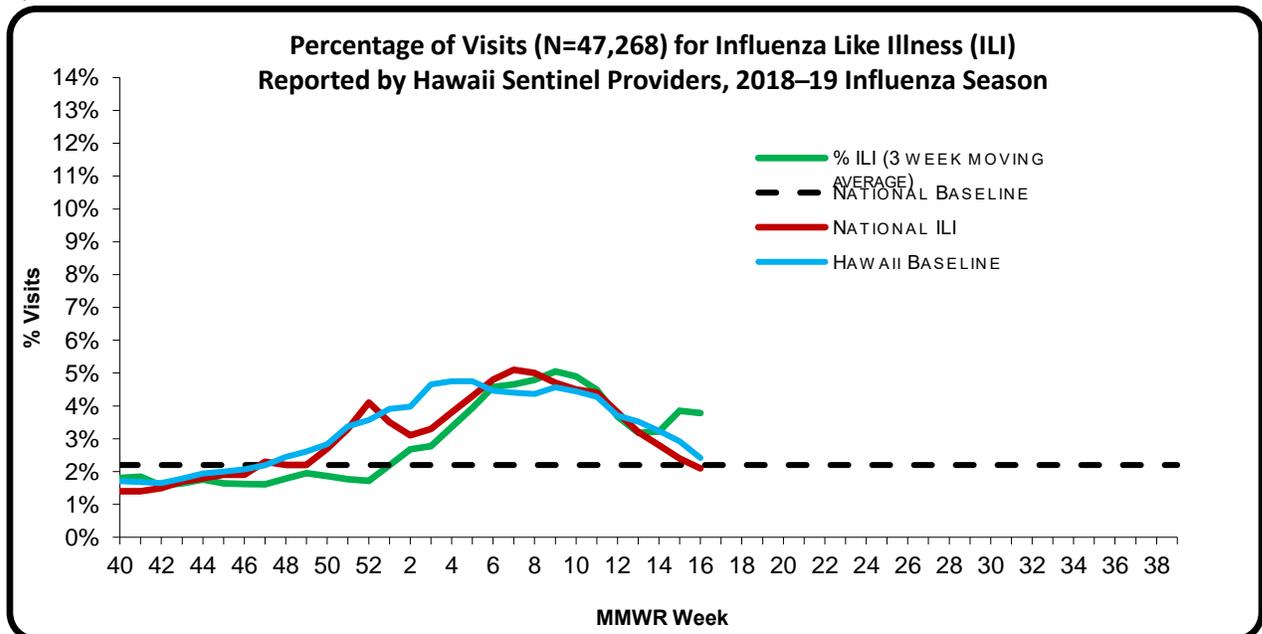
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For **week 16** of the current influenza season:

- **2.7%** (season to date: **2.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii's ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (2.1%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Regional Activity*⁵
- *ILI Cluster Activity:* Two new clusters were reported to HDOH during week 16. One cluster occurred at a school on Oahu. One cluster occurred at a long-term care facility on Hawaii Island. These clusters included cases of influenza A.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

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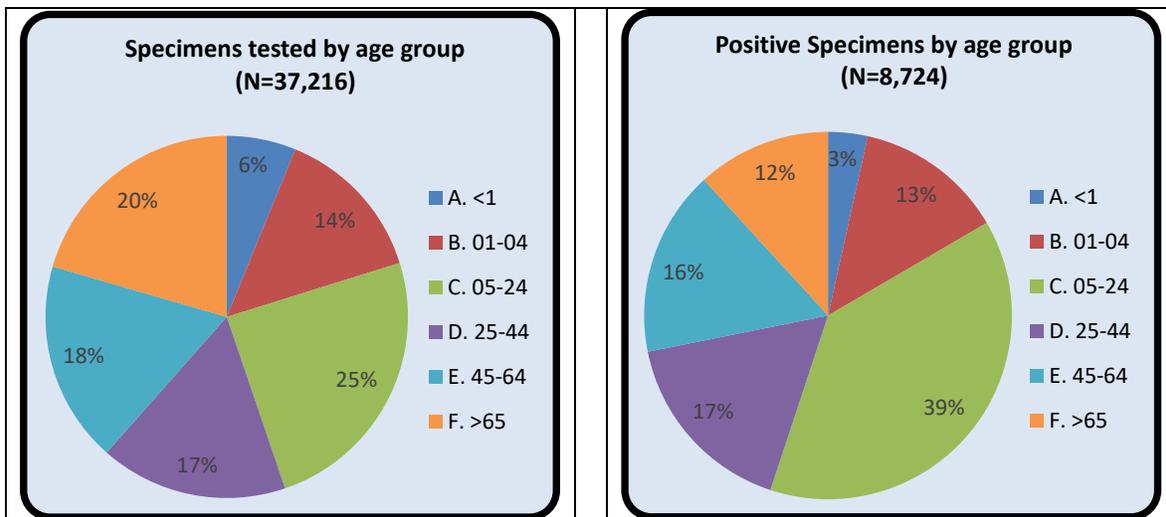
A. INFLUENZA:

- The following reflects laboratory findings for week 16 of the 2018–19 influenza season:
 - A total of **1,428** specimens have been tested statewide for influenza viruses (positive: 336 [23.5%]). (Season to date: 37,216 tested [23.4% positive])
 - 1,010 (70.7%) were screened only by rapid antigen tests with no confirmatory testing
 - 418 (29.3%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,092 (76.5%) were negative.

Influenza type	Current week 16 (%)	Season to date (%)
Influenza A (H1) ⁷	8 (2.4)	692 (7.9)
Influenza A (H3)	5 (1.5)	263 (3.0)
Influenza A no subtyping	287 (85.4)	7,380 (84.6)
Influenza B (Yamagata)	0 (0.0)	18 (0.2)
Influenza B (Victoria)	3 (0.9)	24 (0.3)
Influenza B no genotyping	33 (9.8)	347 (4.0)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

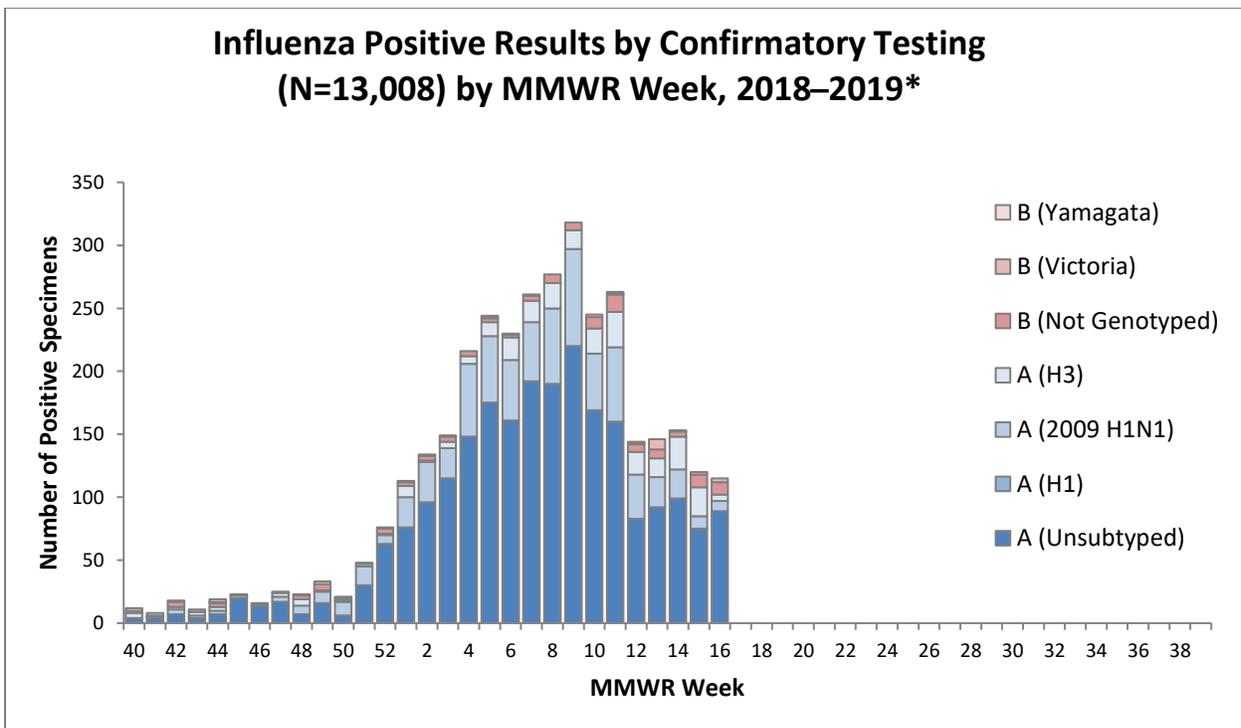
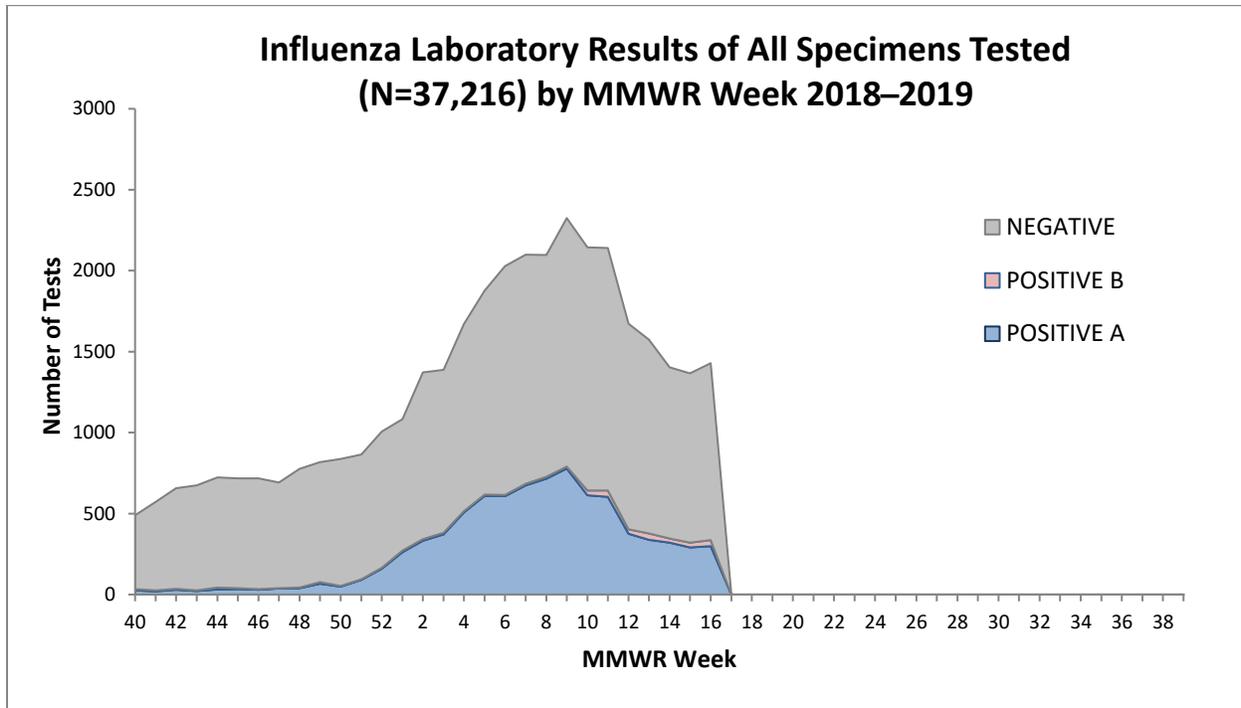


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



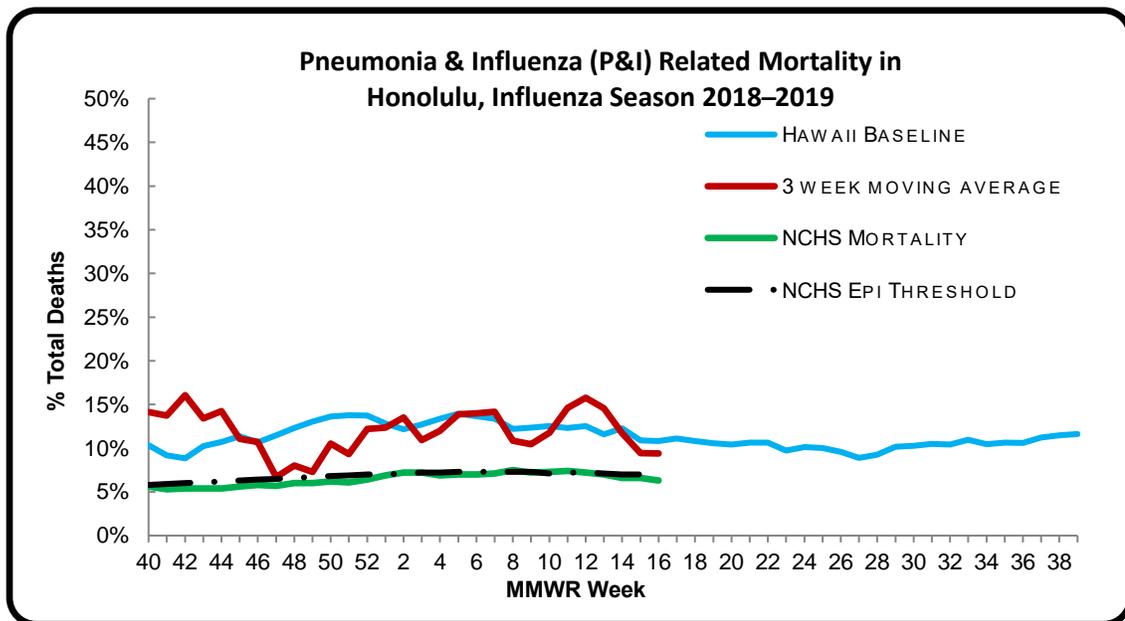
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 16 of the current influenza season:

- **14.0%** of all deaths that occurred in Honolulu during week 16 were related to pneumonia or influenza. For the current season (season to date: **12.1%**), there have been 2,504 deaths from any cause, 304 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Honolulu P&I rate was higher than the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (**6.3%**) (i.e., outside the 95% confidence interval) and comparable to the national epidemic threshold (**6.9%**) (i.e., inside the 95% confidence interval) for week 16.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, five influenza-associated pediatric deaths were reported to CDC during week 16. One death was associated with an influenza A(H3) virus and occurred during week 15 (week ending April 13, 2019). Two deaths were associated with an influenza A virus for which no typing was performed and occurred during weeks 12 and 13 (weeks ending March 23 and March 30, 2019, respectively). Two deaths were associated with an

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

influenza B virus and occurred during weeks 11 and 15 (weeks ending March 16 and April 13, 2019, respectively). (Season total: 96).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 16.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **April 9, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

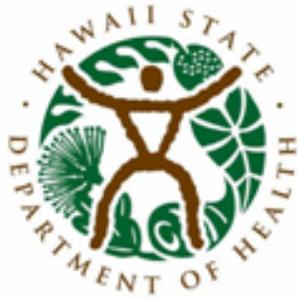
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 17: APRIL 21, 2019–APRIL 27, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 17

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.6%	Lower than the previous week. Comparable to Hawaii's historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 32 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	22.9%	Lower than the previous week. This number means that many, if not all, of the 77.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	23.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	14.0%	Comparable to Hawaii's historical baseline, comparable to the national epidemic threshold and higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	5	

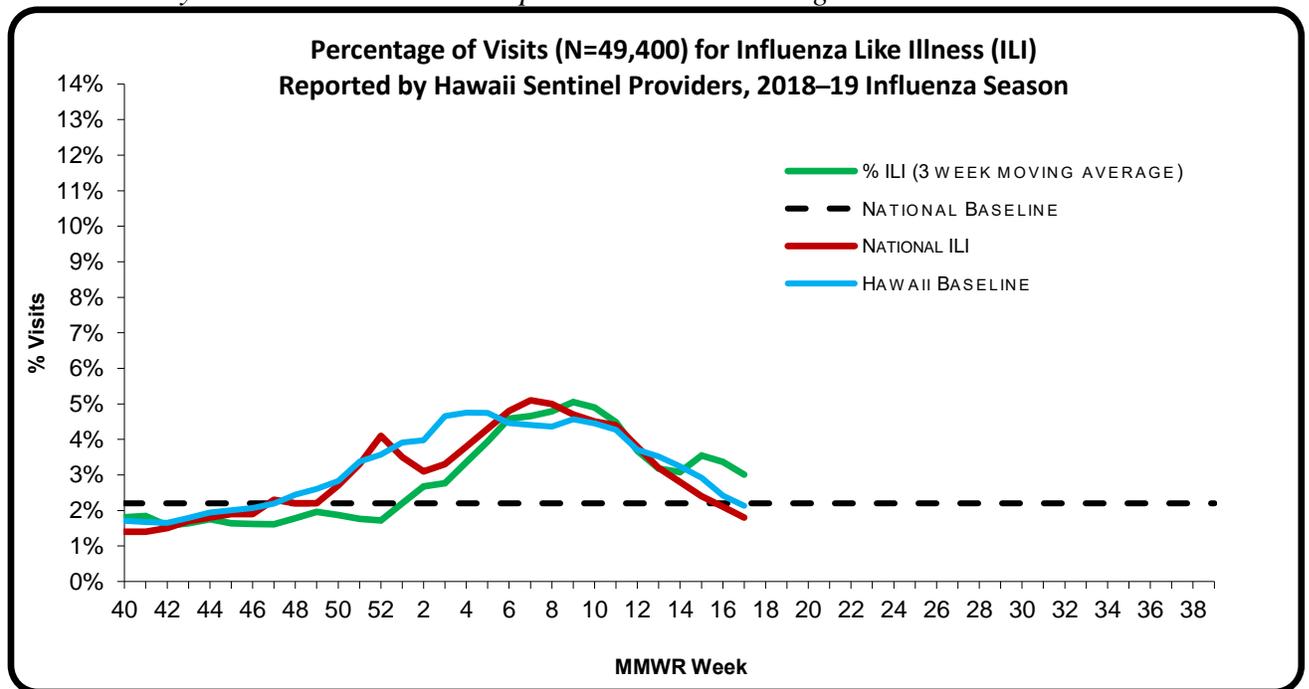
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 17** of the current influenza season:

- **2.6%** (season to date: **2.9%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii's ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (1.8%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 17.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

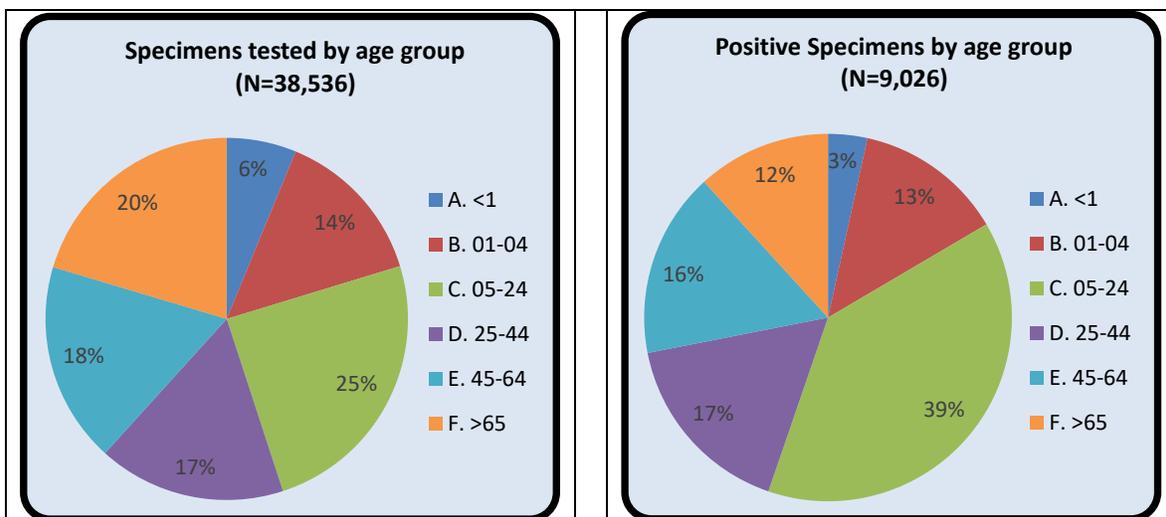
A. INFLUENZA:

- The following reflects laboratory findings for week 17 of the 2018–19 influenza season:
 - A total of **1,316** specimens have been tested statewide for influenza viruses (positive: 302 [22.9%]). (Season to date: 38,536 tested [23.4% positive])
 - 955 (72.6%) were screened only by rapid antigen tests with no confirmatory testing
 - 361 (27.4%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,014 (77.1%) were negative.

Influenza type	Current week 17 (%)	Season to date (%)
Influenza A (H1) ⁷	3 (1.0)	697 (7.7)
Influenza A (H3)	2 (0.7)	272 (3.0)
Influenza A no subtyping	263 (87.1)	7,634 (84.6)
Influenza B (Yamagata)	0 (0.0)	18 (0.2)
Influenza B (Victoria)	0 (0.0)	24 (0.3)
Influenza B no genotyping	34 (11.3)	381 (4.2)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

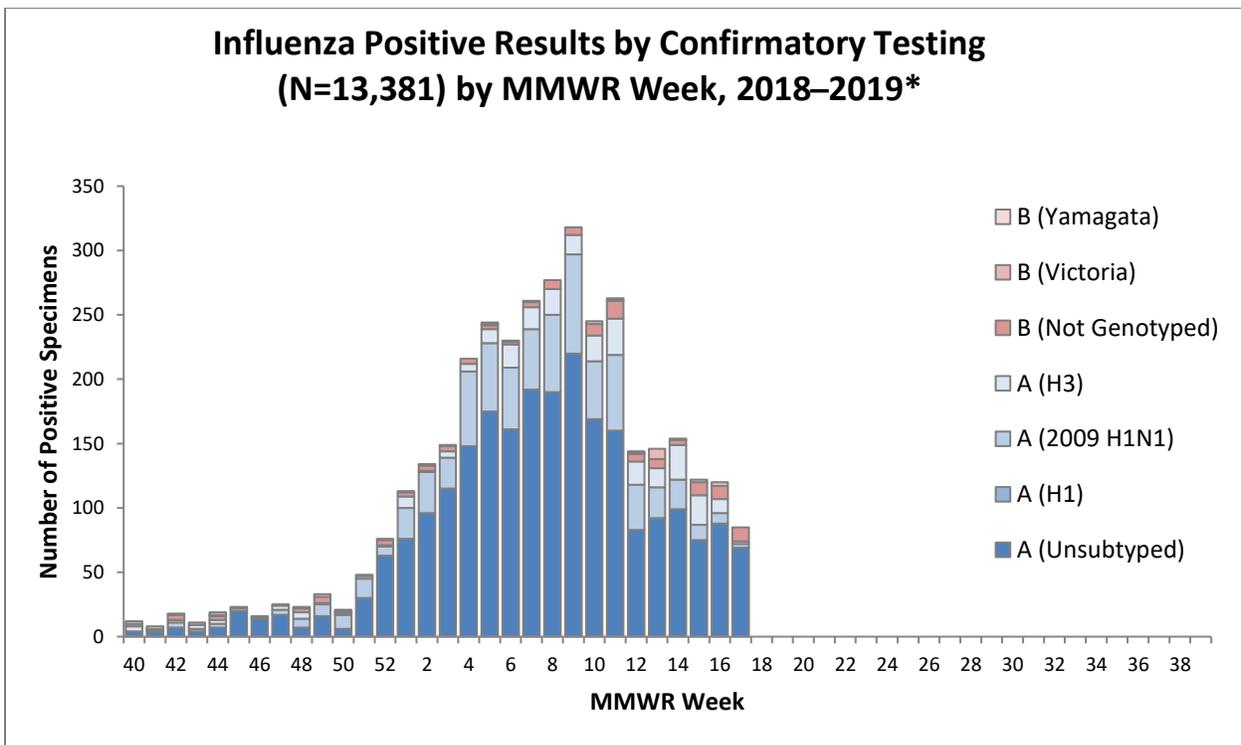
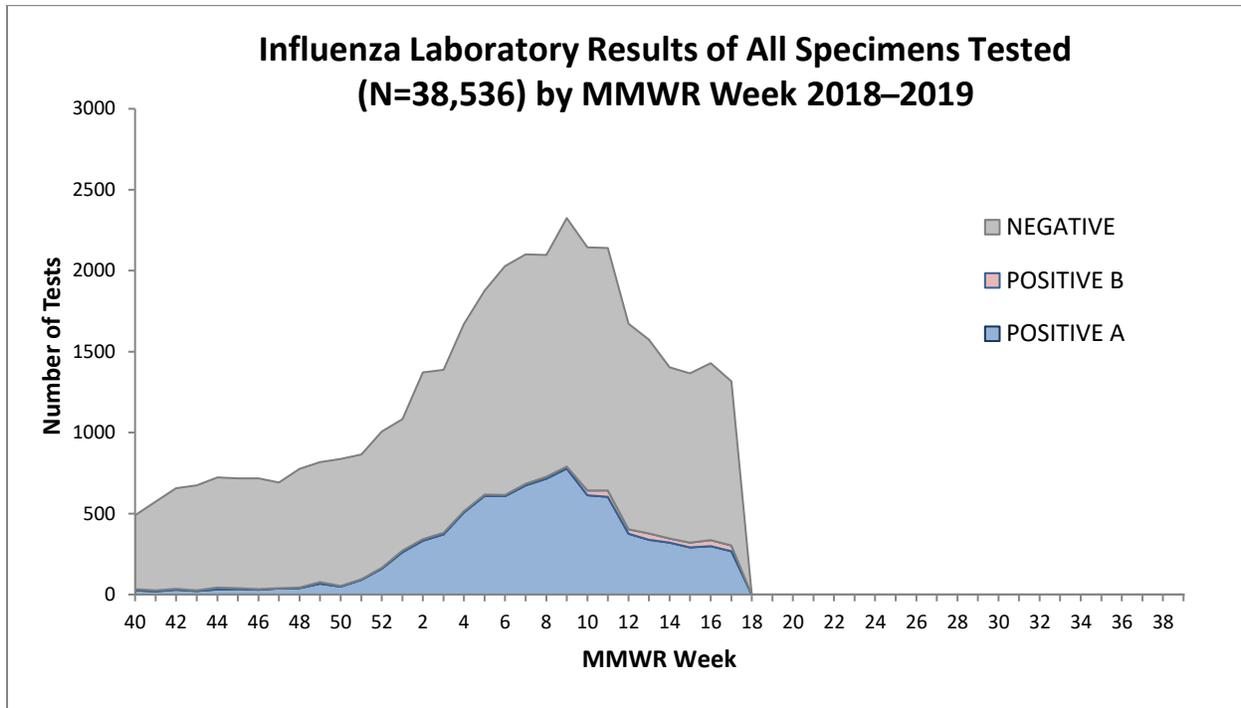


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



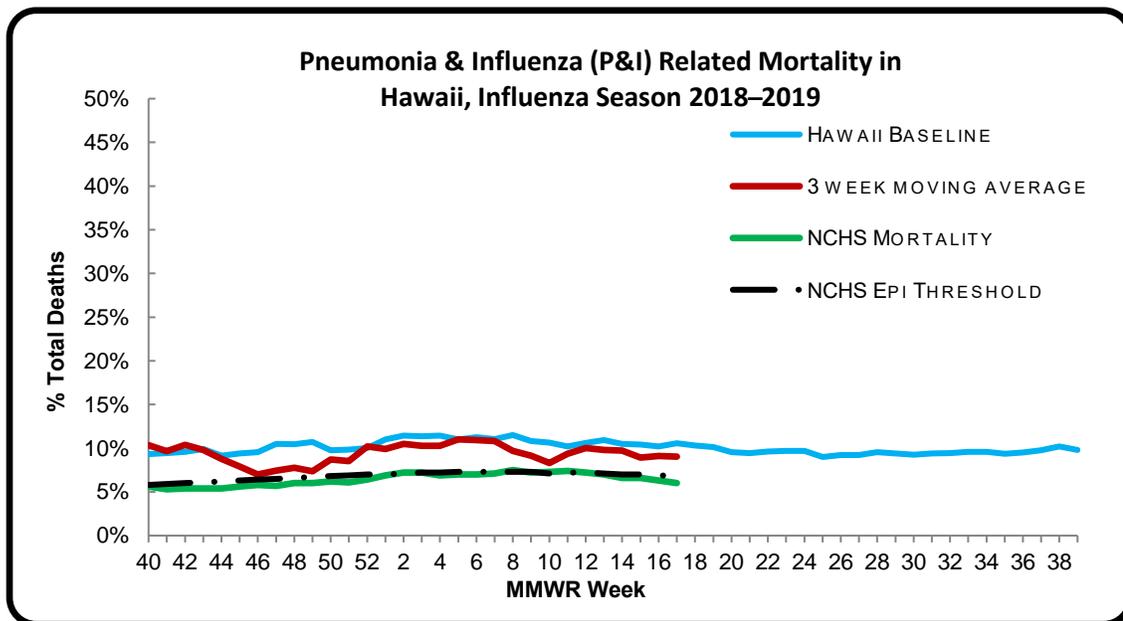
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 17 of the current influenza season:

- *11.2% of all deaths that occurred in Hawaii during week 17 were related to pneumonia or influenza. For the current season (season to date: 9.3%), there have been 7,032 deaths from any cause, 654 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Hawaii P&I rate was higher than the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (6.0%) (i.e., outside the 95% confidence interval) and higher than the national epidemic threshold (6.8%) (i.e., outside the 95% confidence interval) for week 17.*



*As of week 17, 2019 the influenza surveillance report will display P&I mortality for the state of Hawaii, not only the city of Honolulu.

INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

- Nationally, five influenza-associated pediatric deaths were reported to CDC during week 17. Three deaths were associated with an influenza A(H3) virus and occurred during weeks 6, 13, and 14 (weeks ending February 9, March 30, and April 6, 2019, respectively). Two deaths were associated with an influenza A virus for which no subtyping was performed and occurred during weeks 8 and 14 (weeks ending February 23 and April 6, 2019, respectively). (Season total: 101).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 17.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **April 9, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

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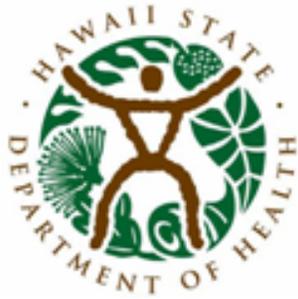
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Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 18: APRIL 28, 2019–MAY 4, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 18

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.0%	Lower than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 33 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	20.0%	Lower than the previous week. This number means that many, if not all, of the 80.0% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	23.2%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	5.5%	Lower than Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	5	

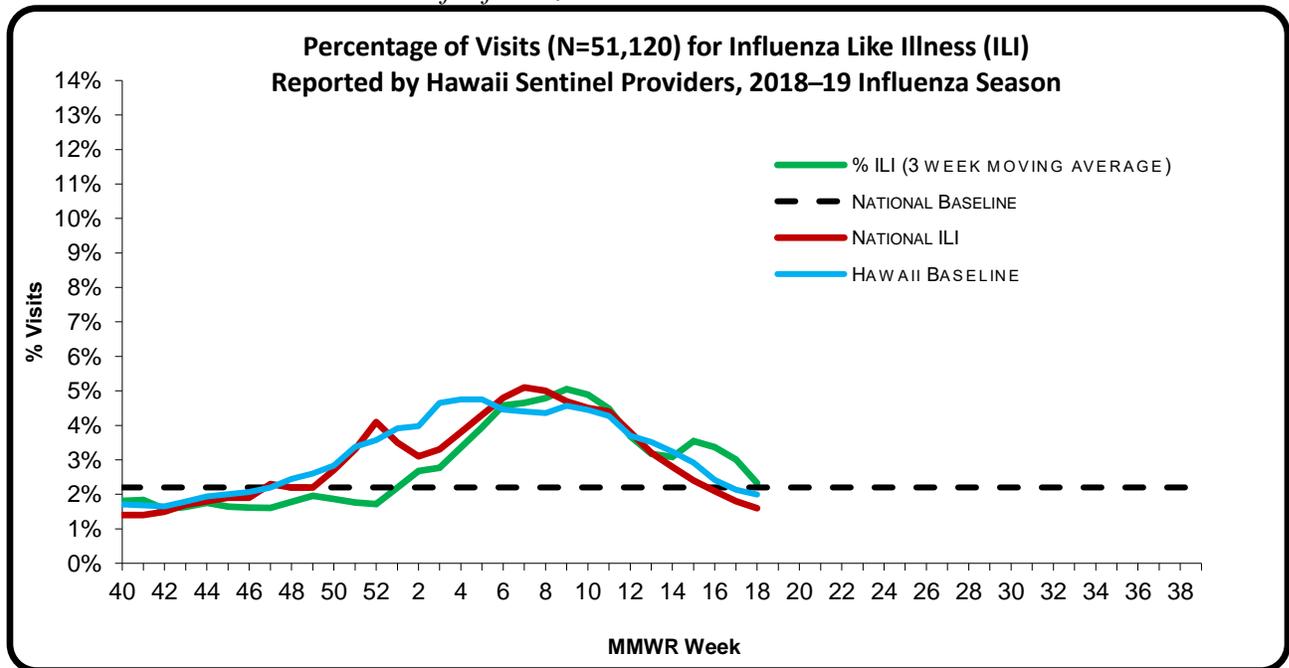
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 18 of the current influenza season:

- **2.0%** (season to date: **2.8%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii's ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (1.6%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 18. This cluster occurred at a school on Oahu. This cluster included cases of influenza A.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

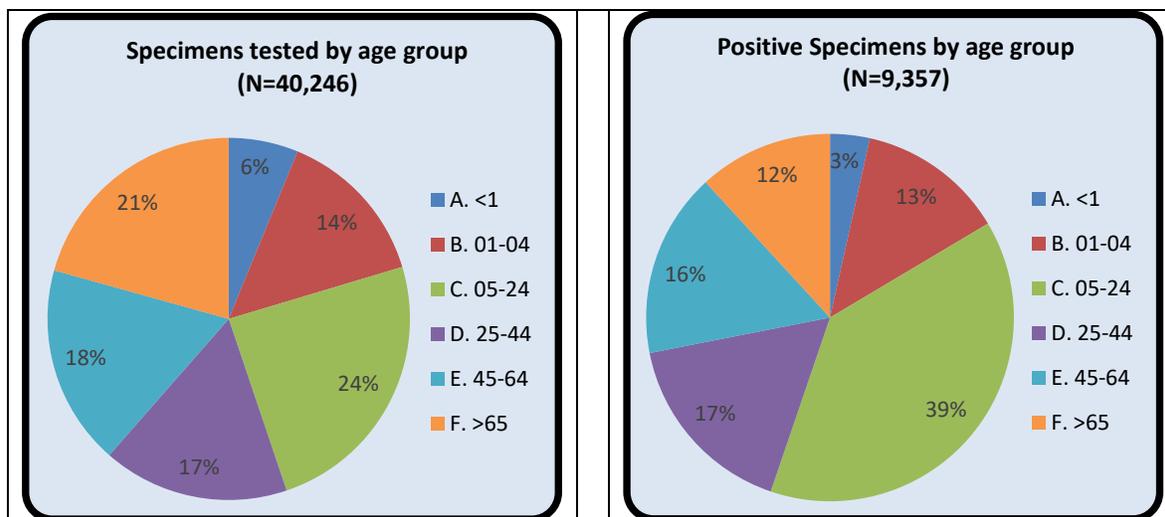
A. INFLUENZA:

- The following reflects laboratory findings for week 18 of the 2018–19 influenza season:
 - A total of **1,176** specimens have been tested statewide for influenza viruses (positive: 235 [20.0%]). (Season to date: 40,246 tested [23.2% positive])
 - 805 (68.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 371 (31.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 941 (80.0%) were negative.

Influenza type	Current week 18 (%)	Season to date (%)
Influenza A (H1) ⁷	6 (2.6)	720 (7.7)
Influenza A (H3)	14 (6.0)	320 (3.4)
Influenza A no subtyping	184 (78.3)	7,859 (84.0)
Influenza B (Yamagata)	0 (0.0)	20 (0.2)
Influenza B (Victoria)	3 (1.3)	29 (0.3)
Influenza B no genotyping	28 (11.9)	409 (4.4)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

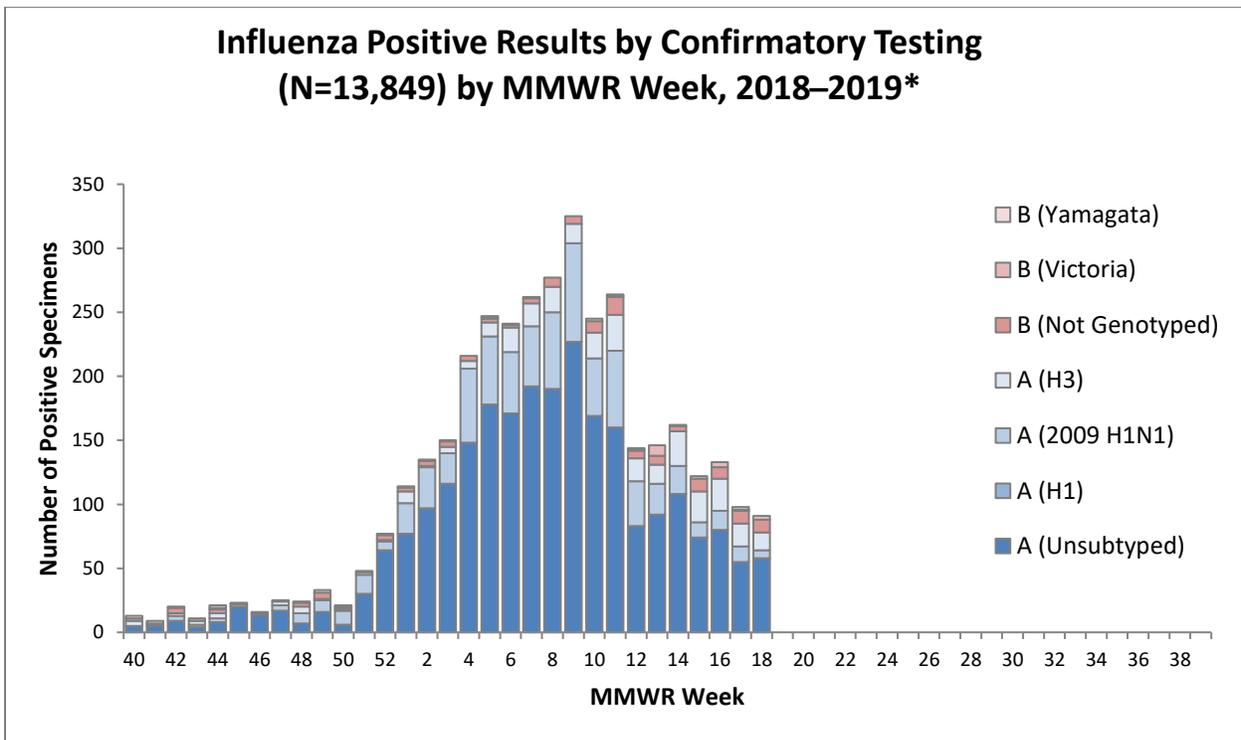
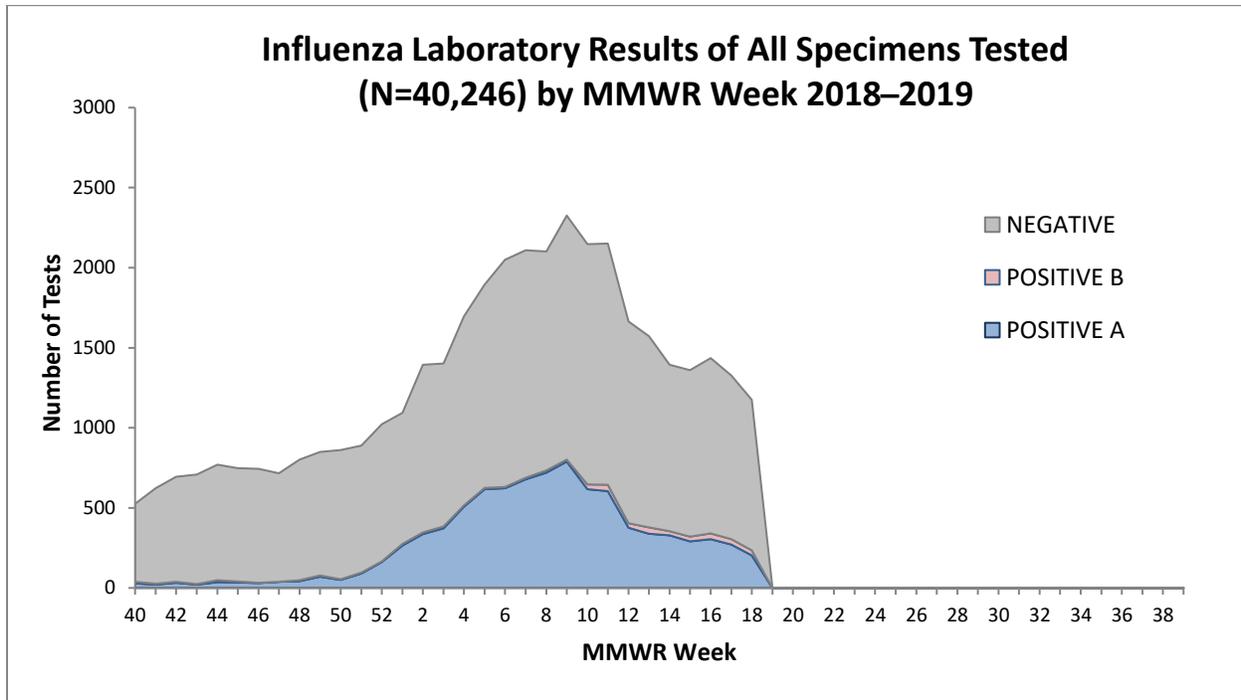


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



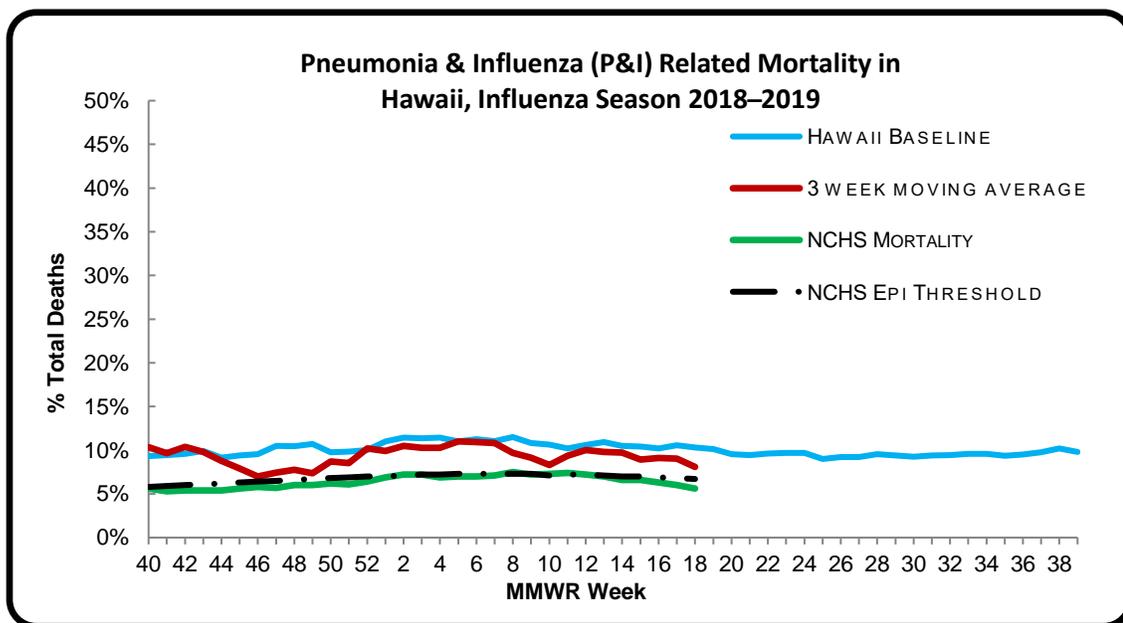
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 18 of the current influenza season:

- 5.5% of all deaths that occurred in Hawaii during week 18 were related to pneumonia or influenza. For the current season (season to date: 9.2%), there have been 7,255 deaths from any cause, 667 of which were due to P&I.
- The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (5.6%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.7%) (i.e., inside the 95% confidence interval) for week 18.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, five influenza-associated pediatric deaths were reported to CDC during week 18. Two deaths were associated with an influenza A(H3) virus and occurred during weeks 13 and 17 (weeks ending March 30 and April 27, 2019, respectively). Two deaths were associated with an influenza A virus for which no subtyping was

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

performed and occurred during weeks 16 and 18 (weeks ending April 20 and May 4, 2019, respectively). One death was associated with an influenza B virus and occurred during week 16. (Season total: 106).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 18.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **April 9, 2019**.

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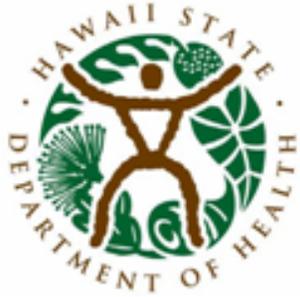
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27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 19: MAY 5, 2019–MAY 11, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 19

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.5%	Lower than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and lower than the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 34 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	19.2%	Lower than the previous week. This number means that many, if not all, of the 80.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	23.1%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	5.8%	Lower than Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	3	

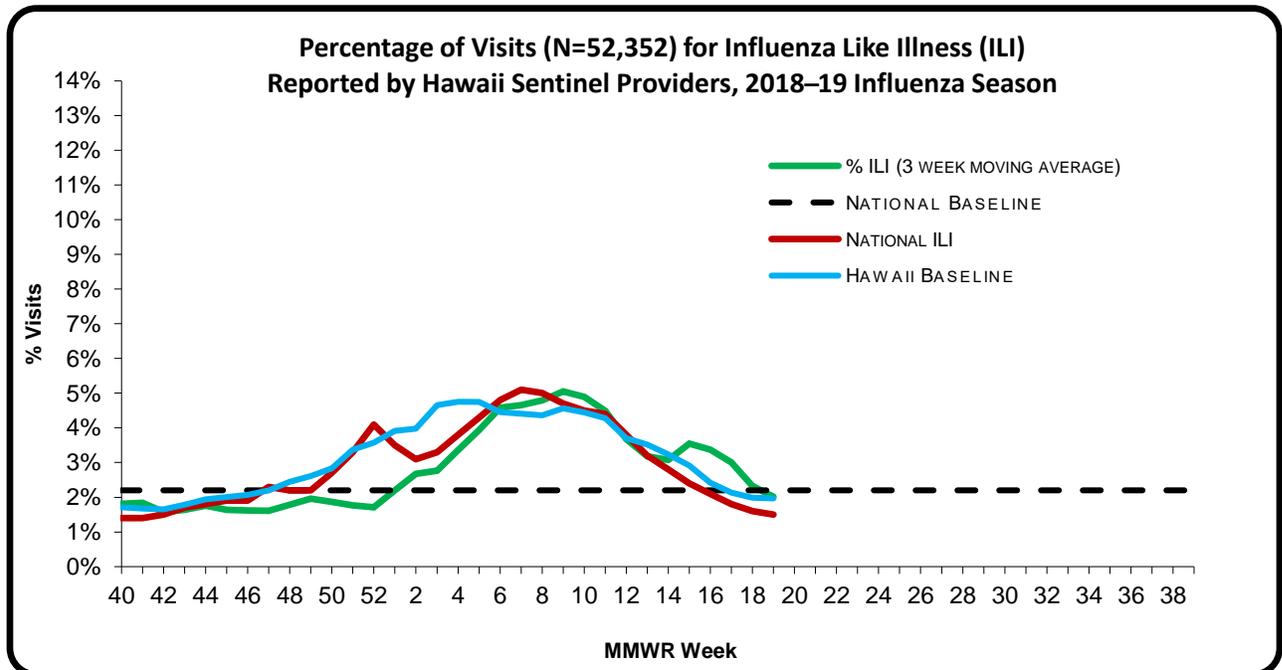
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 19 of the current influenza season:

- *1.5% (season to date: 2.8%) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.*
- *ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).*
- *Hawaii's ILI outpatient visits were lower than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (1.5%) (i.e., inside the 95% confidence interval).*
- *Geographic Spread: Local Activity⁵*
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 19. This cluster occurred at a school on Oahu.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

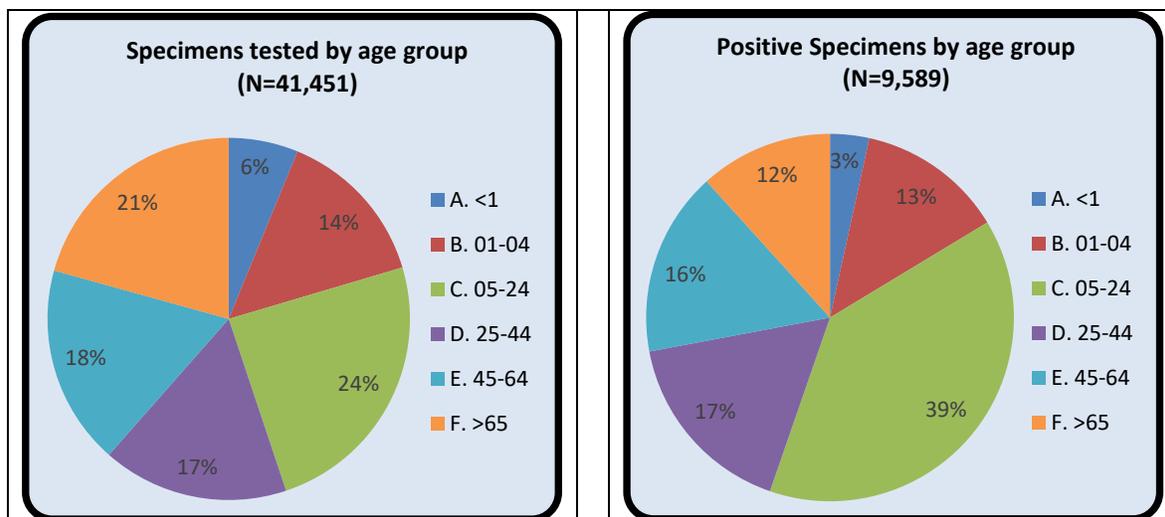
A. INFLUENZA:

- The following reflects laboratory findings for week 19 of the 2018–19 influenza season:
 - A total of **1,202** specimens have been tested statewide for influenza viruses (positive: 231 [19.2%]). (Season to date: 41,451 tested [23.1% positive])
 - 784 (65.2%) were screened only by rapid antigen tests with no confirmatory testing
 - 418 (34.8%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 971 (80.8%) were negative.

<i>Influenza type</i>	<i>Current week 19 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	6 (2.6)	729 (7.6)
<i>Influenza A (H3)</i>	7 (3.0)	329 (3.4)
<i>Influenza A no subtyping</i>	160 (69.3)	8,016 (83.6)
<i>Influenza B (Yamagata)</i>	2 (0.9)	22 (0.2)
<i>Influenza B (Victoria)</i>	3 (1.3)	34 (0.4)
<i>Influenza B no genotyping</i>	53 (22.9)	459 (4.8)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

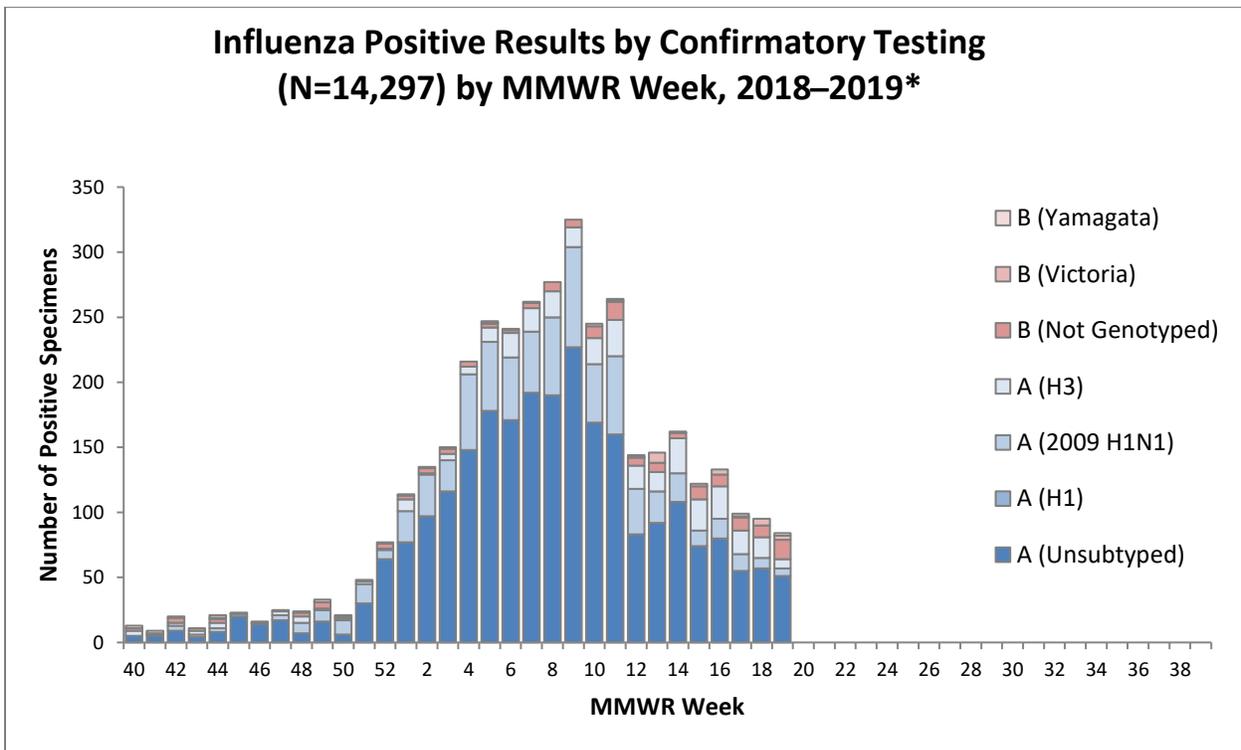
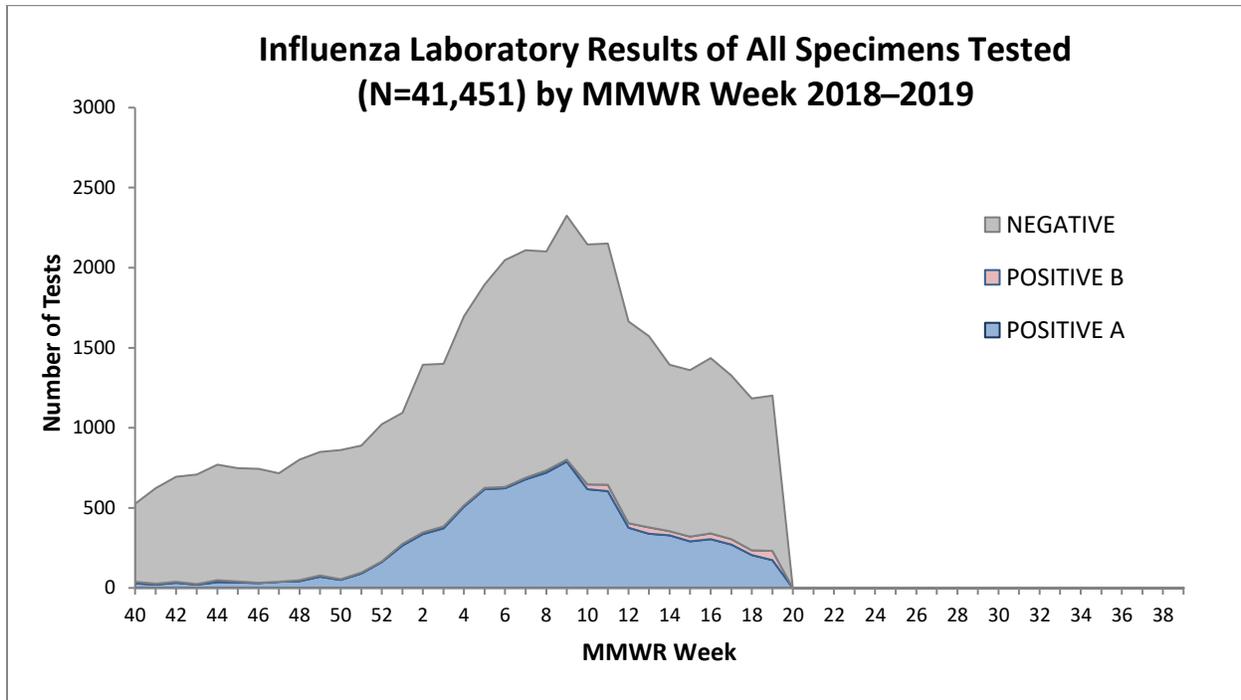


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



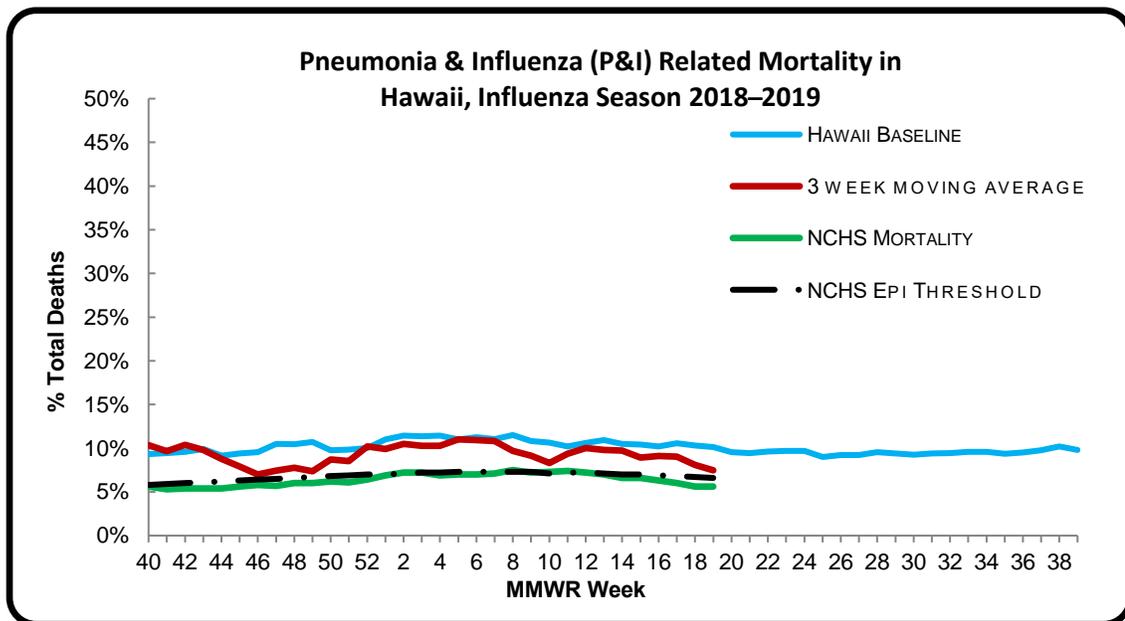
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 19 of the current influenza season:

- *5.8% of all deaths that occurred in Hawaii during week 19 were related to pneumonia or influenza. For the current season (season to date: 9.1%), there have been 7,478 deaths from any cause, 682 of which were due to P&I.*
- *The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).*
- *The Hawaii P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (5.6%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.6%) (i.e., inside the 95% confidence interval) for week 19.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 19. Two deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during weeks 13 and 18 (weeks ending March

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

30 and May 4, 2019, respectively). One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 18. (Season total: 109).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 19.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **April 9, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
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27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
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35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
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38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
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49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 20: MAY 12, 2019–MAY 18, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 20

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.2%	Higher than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	2	There have been 36 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	17.3%	Lower than the previous week. This number means that many, if not all, of the 82.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	23.0%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	6.7%	Comparable to Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	3	

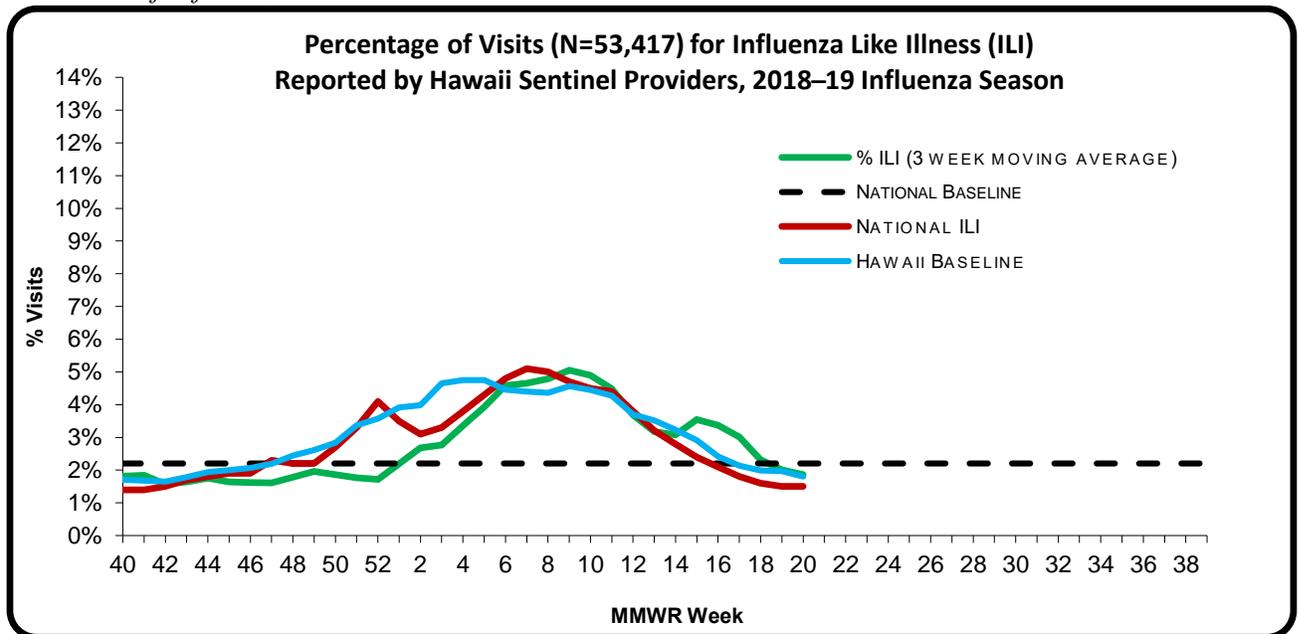
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 20 of the current influenza season:

- 2.2% (season to date: 2.8%) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii²⁻³ (i.e., inside the 95% confidence interval).
- Hawaii's ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (1.5%) (i.e., inside the 95% confidence interval).
- Geographic Spread: Regional Activity⁵
- ILI Cluster Activity: Two new clusters were reported to HDOH during week 20. One cluster occurred at a correctional facility on Hawaii island. One occurred at a long-term care facility on Oahu. These clusters included cases of influenza A and B.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

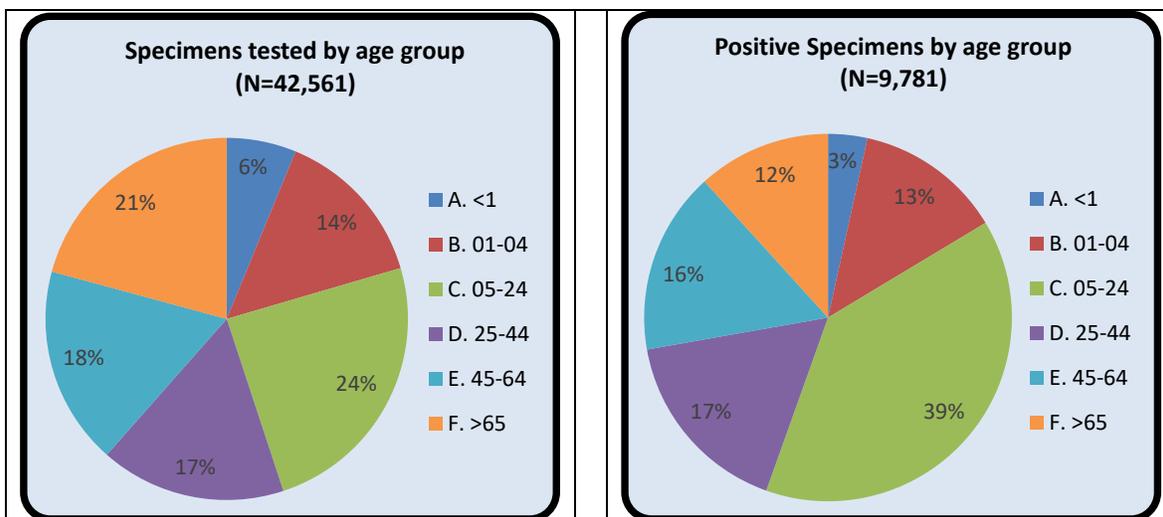
A. INFLUENZA:

- The following reflects laboratory findings for week 20 of the 2018–19 influenza season:
 - A total of **1,109** specimens have been tested statewide for influenza viruses (positive: 192 [17.3%]). (Season to date: 42,561 tested [23.0% positive])
 - 751 (67.7%) were screened only by rapid antigen tests with no confirmatory testing
 - 358 (32.3%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 917 (82.7%) were negative.

Influenza type	Current week 20 (%)	Season to date (%)
Influenza A (H1) ⁷	7 (3.6)	736 (7.5)
Influenza A (H3)	7 (3.6)	337 (3.4)
Influenza A no subtyping	126 (65.6)	8,140 (83.2)
Influenza B (Yamagata)	0 (0.0)	23 (0.2)
Influenza B (Victoria)	4 (2.1)	39 (0.4)
Influenza B no genotyping	48 (25.0)	506 (5.2)

1. AGE DISTRIBUTION

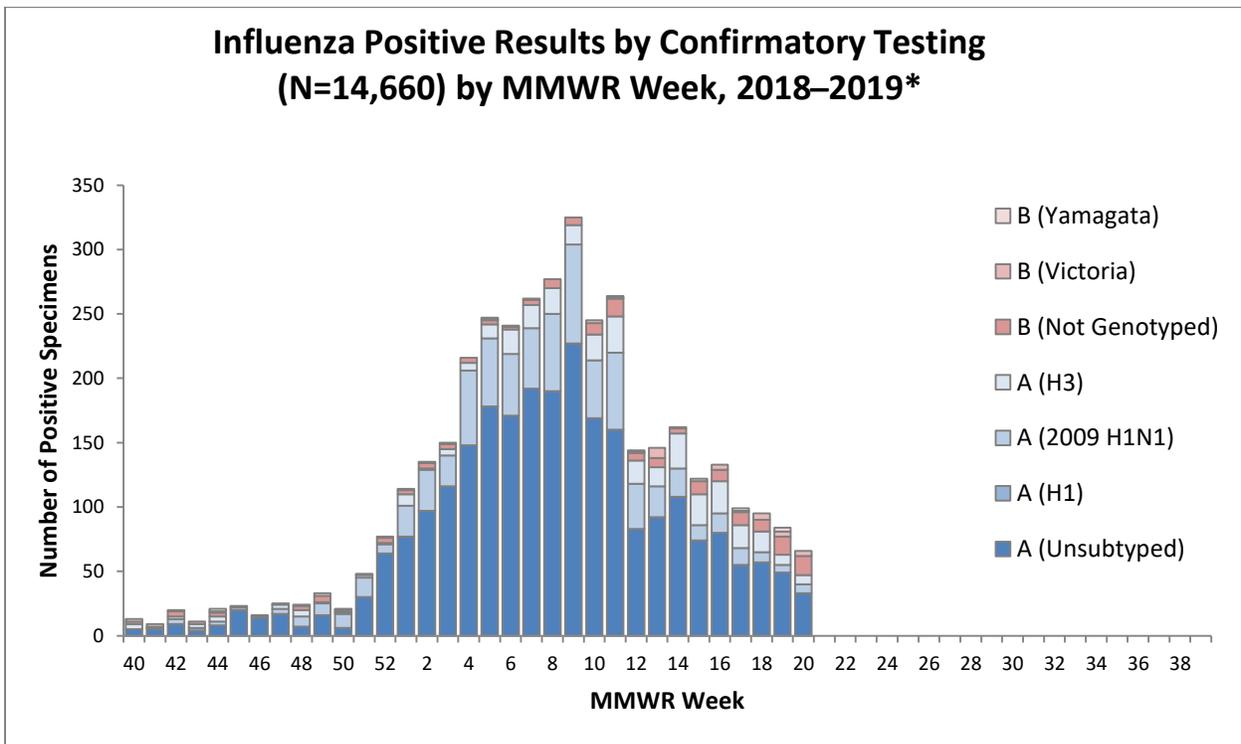
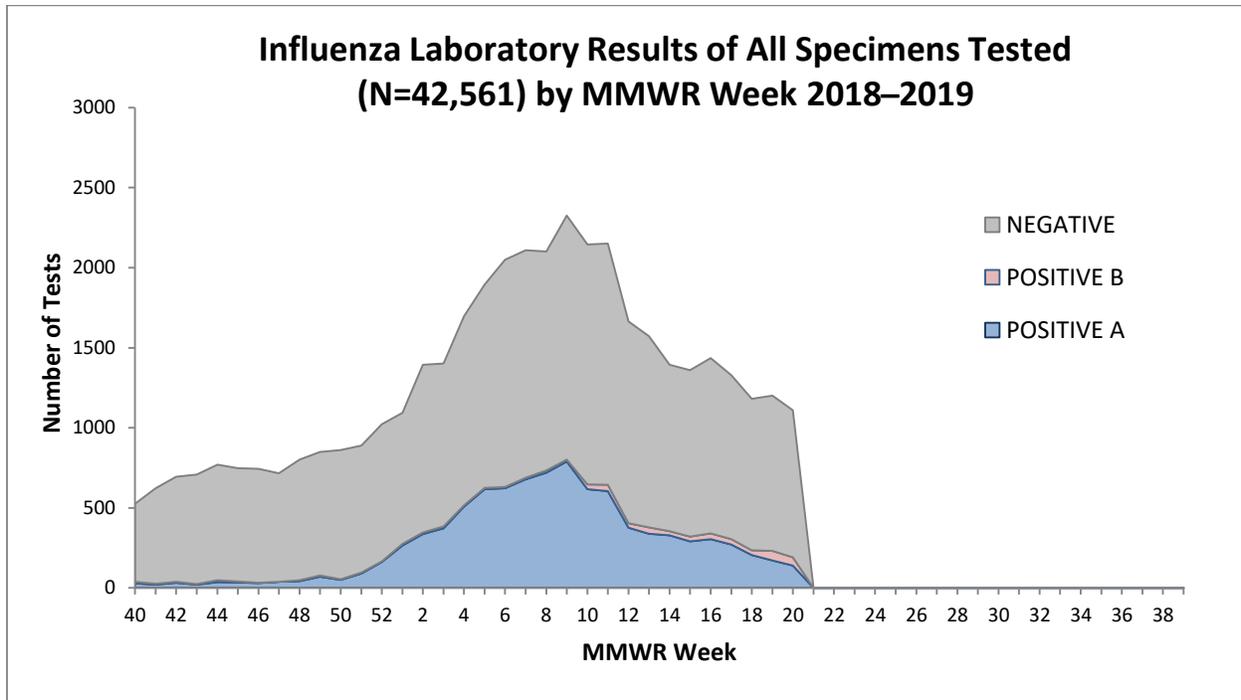
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



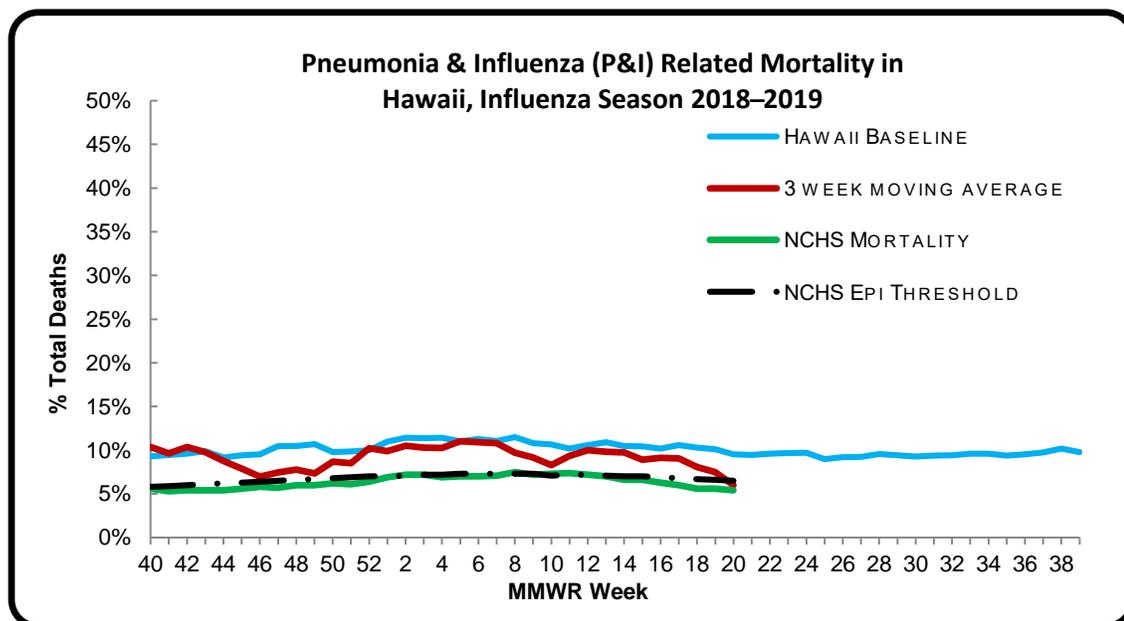
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 20 of the current influenza season:

- *6.7% of all deaths that occurred in Hawaii during week 20 were related to pneumonia or influenza. For the current season (season to date: 9.1%), there have been 7,721 deaths from any cause, 702 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Hawaii P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (5.4%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.5%) (i.e., inside the 95% confidence interval) for week 20.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 20, two of which occurred during the 2018-2019 influenza season. Two deaths were associated with an influenza A virus for

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

which no subtyping was performed and occurred during weeks 3 and 17 (weeks ending January 19, 2019 and April 27, 2019, respectively). (Season total: 111).

- One death that occurred during the 2017-2018 season was reported to CDC. This death was associated with an influenza A(H3) virus and brings the total number of reported influenza-associated deaths during that season to 187.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A viruses were reported to CDC during week 20.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **May 10, 2019**. Since the last update, one new laboratory-confirmed human case of influenza A (H5N1) was reported to WHO from Nepal. This case was hospitalized and was fatal. This case had exposure to a live bird market. One new laboratory-confirmed human case of influenza A (H9N2) was reported to WHO from Oman. This case was hospitalized and recovered. This case may have had indirect exposure to chickens.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

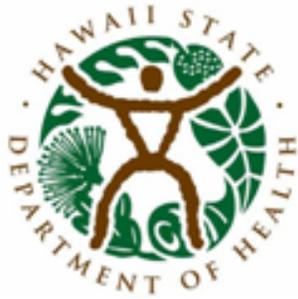
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 21: MAY 19, 2019–MAY 25, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 21

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.3%	Higher than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 37 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	17.1%	Lower than the previous week. This number means that many, if not all, of the 82.9% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.8%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	8.2%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	2	

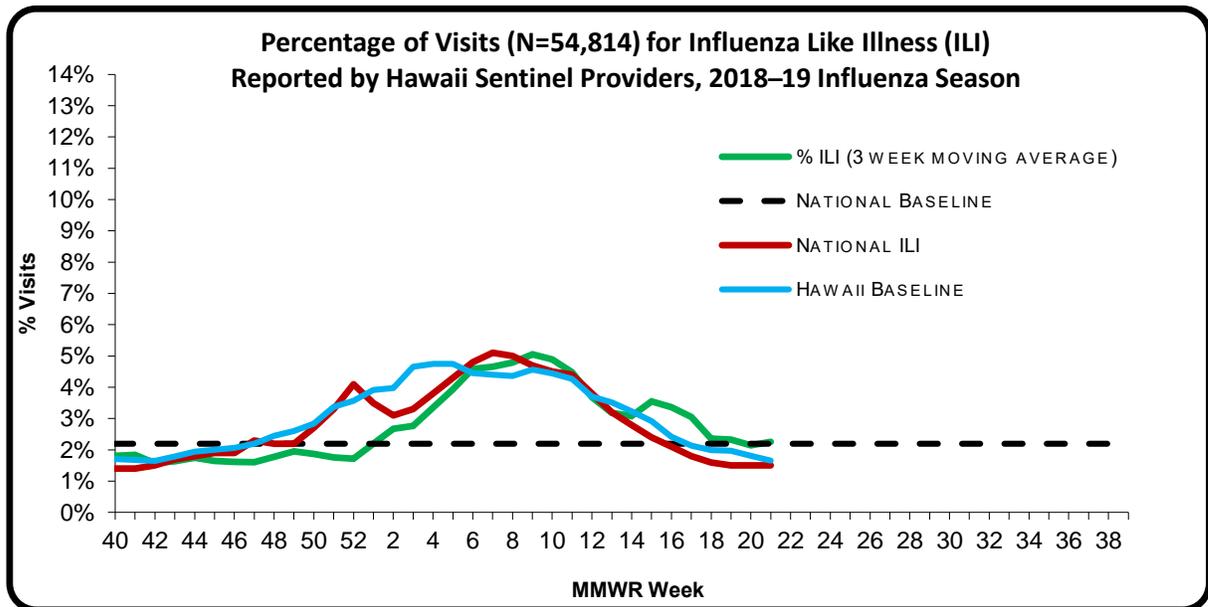
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 21 of the current influenza season:

- 2.3% (season to date: 2.8%) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii²⁻³ (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (1.5%) (i.e., inside the 95% confidence interval).
- Geographic Spread: Local Activity⁵
- ILI Cluster Activity: One new cluster was reported to HDOH during week 21. This cluster occurred at a school on Oahu.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

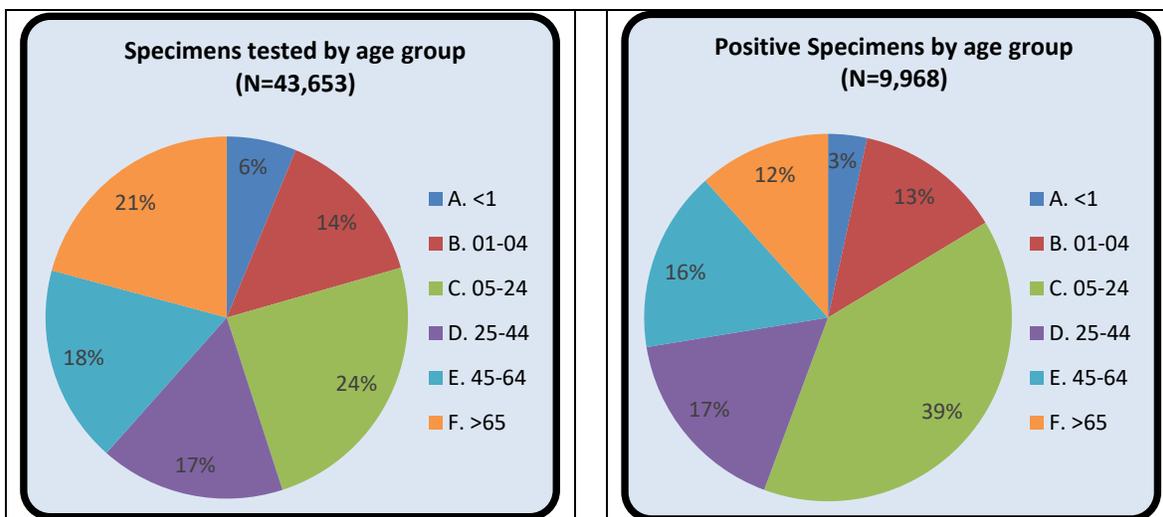
A. INFLUENZA:

- The following reflects laboratory findings for week 21 of the 2018–19 influenza season:
 - A total of **1,084** specimens have been tested statewide for influenza viruses (positive: 185 [17.1%]). (Season to date: 43,653 tested [22.8% positive])
 - 714 (65.9%) were screened only by rapid antigen tests with no confirmatory testing
 - 370 (34.1%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 899 (82.9%) were negative.

Influenza type	Current week 21 (%)	Season to date (%)
Influenza A (H1) ⁷	4 (2.2)	741 (7.4)
Influenza A (H3)	5 (2.7)	345 (3.5)
Influenza A no subtyping	102 (55.1)	8,240 (82.7)
Influenza B (Yamagata)	0 (0.0)	23 (0.2)
Influenza B (Victoria)	4 (2.2)	44 (0.4)
Influenza B no genotyping	70 (37.8)	575 (5.8)

1. AGE DISTRIBUTION

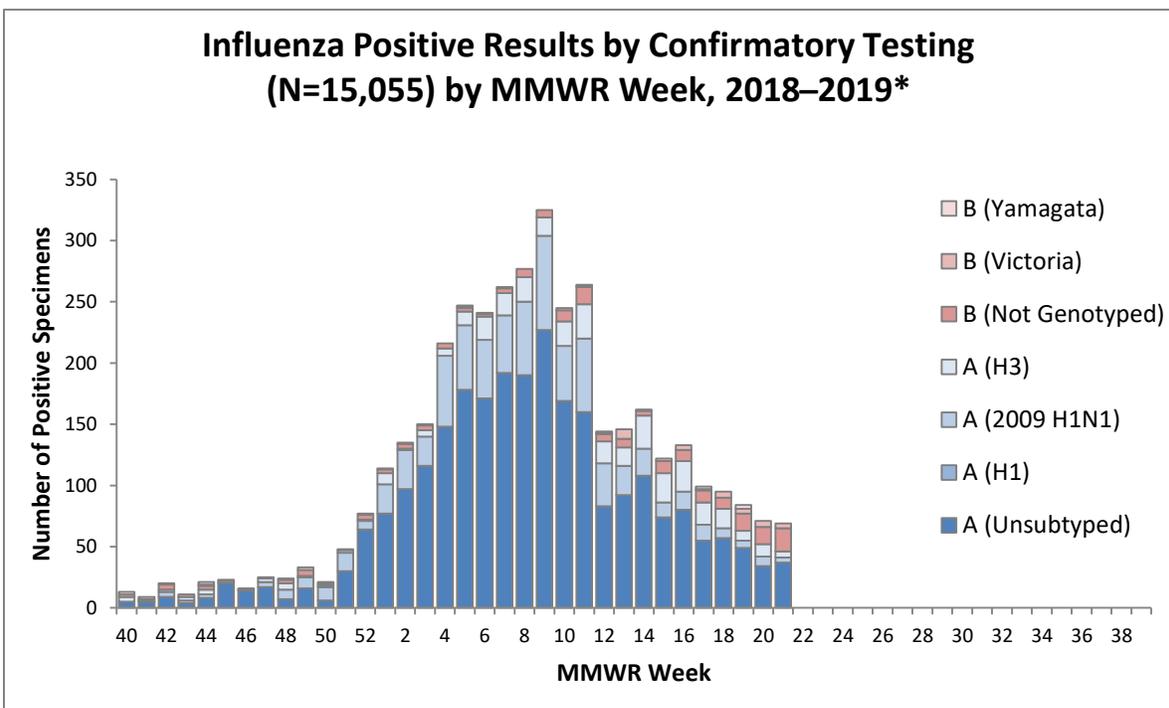
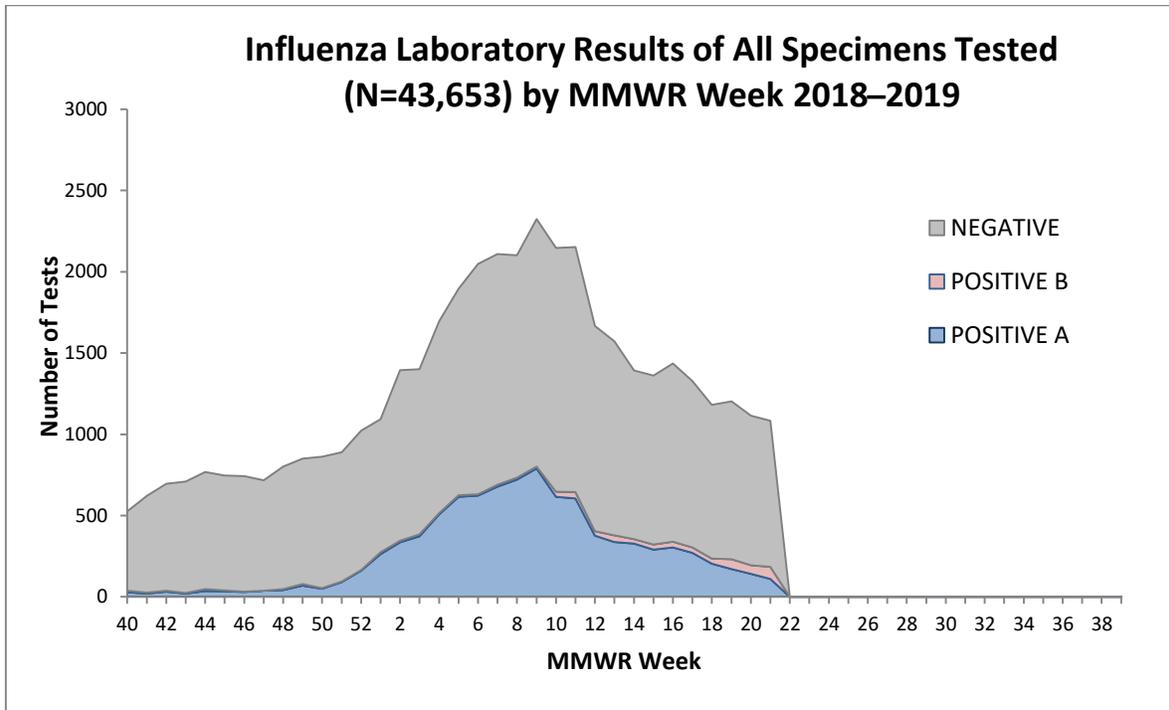
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



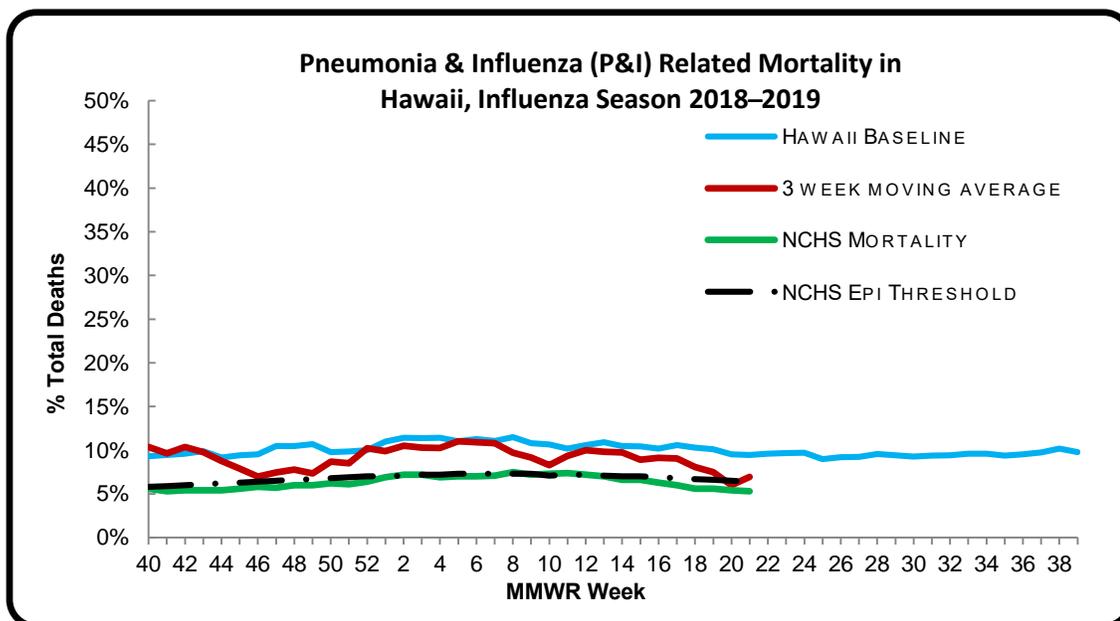
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 21 of the current influenza season:

- 8.2% of all deaths that occurred in Hawaii during week 21 were related to pneumonia or influenza. For the current season (season to date: 9.1%), there have been 7,721 deaths from any cause, 702 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.3%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.4%) (i.e., inside the 95% confidence interval) for week 21.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 21. Both deaths were associated with an influenza A (H3) virus and occurred during weeks 12 and 19 (the weeks ending March 23, 2019 and May 11, 2019, respectively). (Season total: 113).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

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¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *One new human infection with a novel influenza A (H1N1)v virus was reported to CDC from Michigan during week 21. This person was hospitalized and recovered. No exposure to swine was reported.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **May 10, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

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For more information regarding local and national influenza surveillance programs, visit the following sites.

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World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

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6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
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12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
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25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
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37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
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45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
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50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 22: MAY 26, 2019–JUNE 1, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 22

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.5%	Higher than the previous week. Higher than Hawaii’s historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 37 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	21.3%	Higher than the previous week. This number means that many, if not all, of the 78.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.8%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	5.3%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	1	

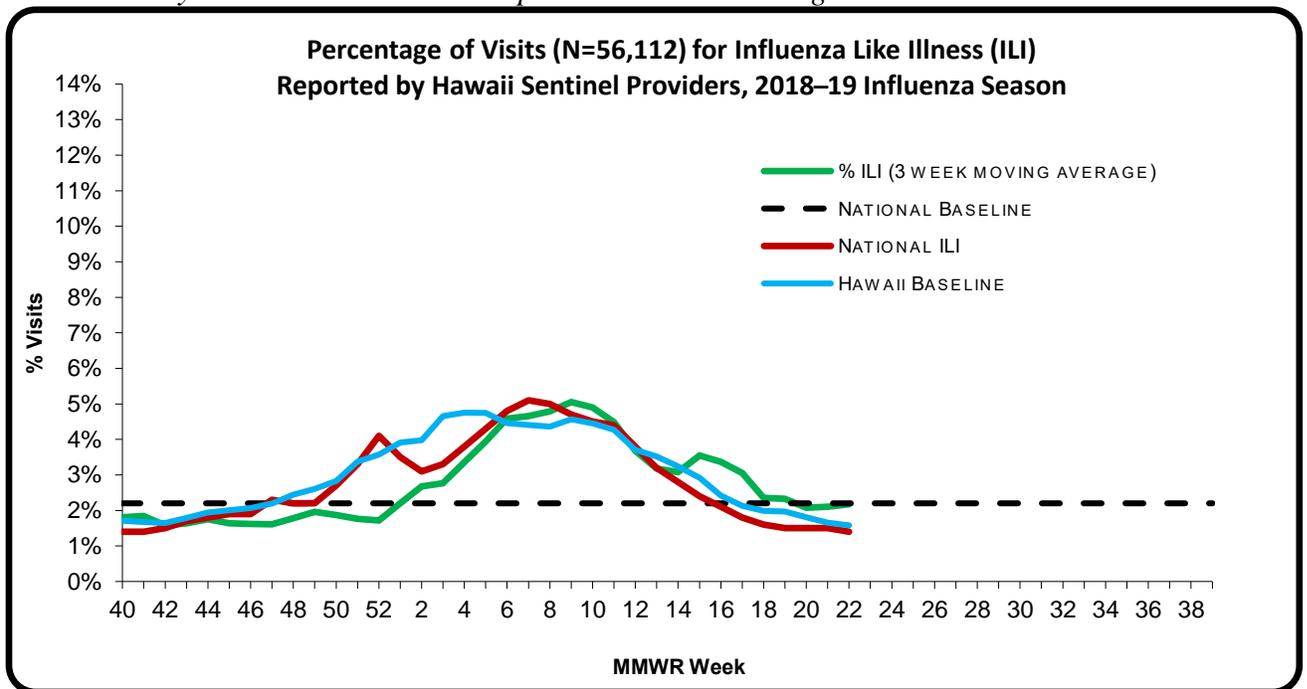
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 22** of the current influenza season:

- **2.5%** (season to date: **2.8%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (1.4%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 22.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

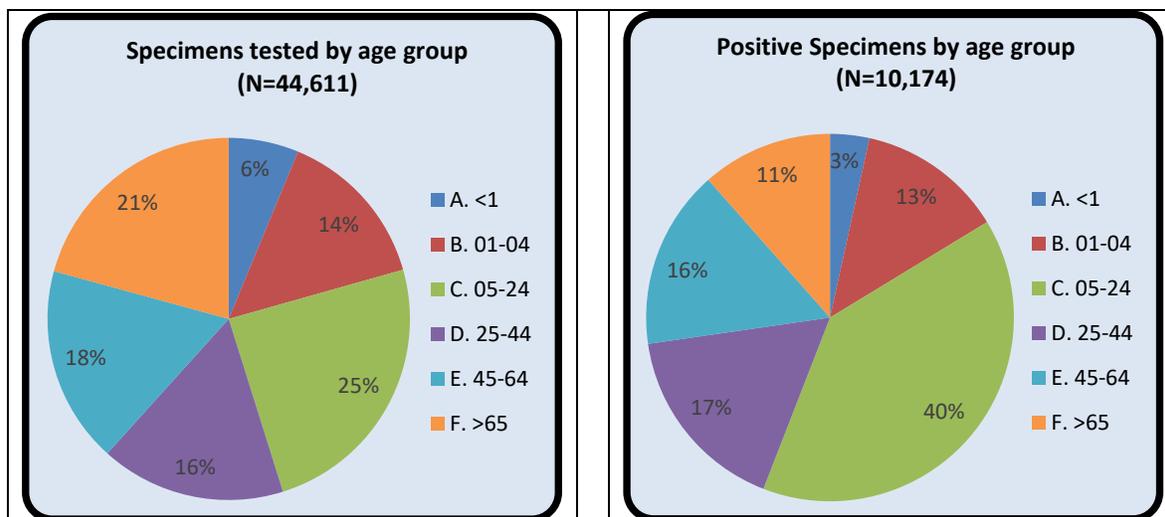
A. INFLUENZA:

- The following reflects laboratory findings for week 22 of the 2018–19 influenza season:
 - A total of **953 specimens** have been tested statewide for influenza viruses (positive: 203 [**21.3%**]). (Season to date: 44,611 tested [**22.8%** positive])
 - 665 (69.8%) were screened only by rapid antigen tests with no confirmatory testing
 - 288 (30.2%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 750 (78.7%) were negative.

<i>Influenza type</i>	<i>Current week 22 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	0 (0.0)	742 (7.3)
<i>Influenza A (H3)</i>	3 (1.5)	351 (3.4)
<i>Influenza A no subtyping</i>	91 (44.8)	8,330 (81.9)
<i>Influenza B (Yamagata)</i>	2 (1.0)	25 (0.2)
<i>Influenza B (Victoria)</i>	5 (2.5)	53 (0.5)
<i>Influenza B no genotyping</i>	102 (50.2)	673 (6.6)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

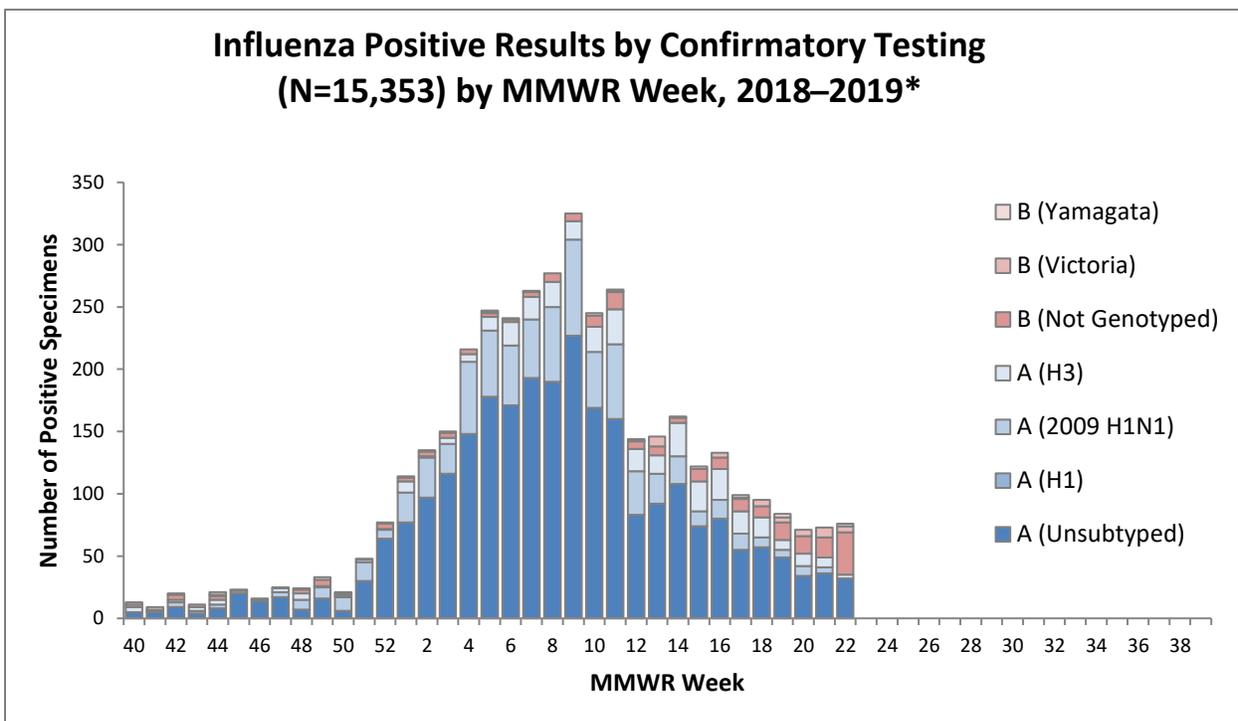
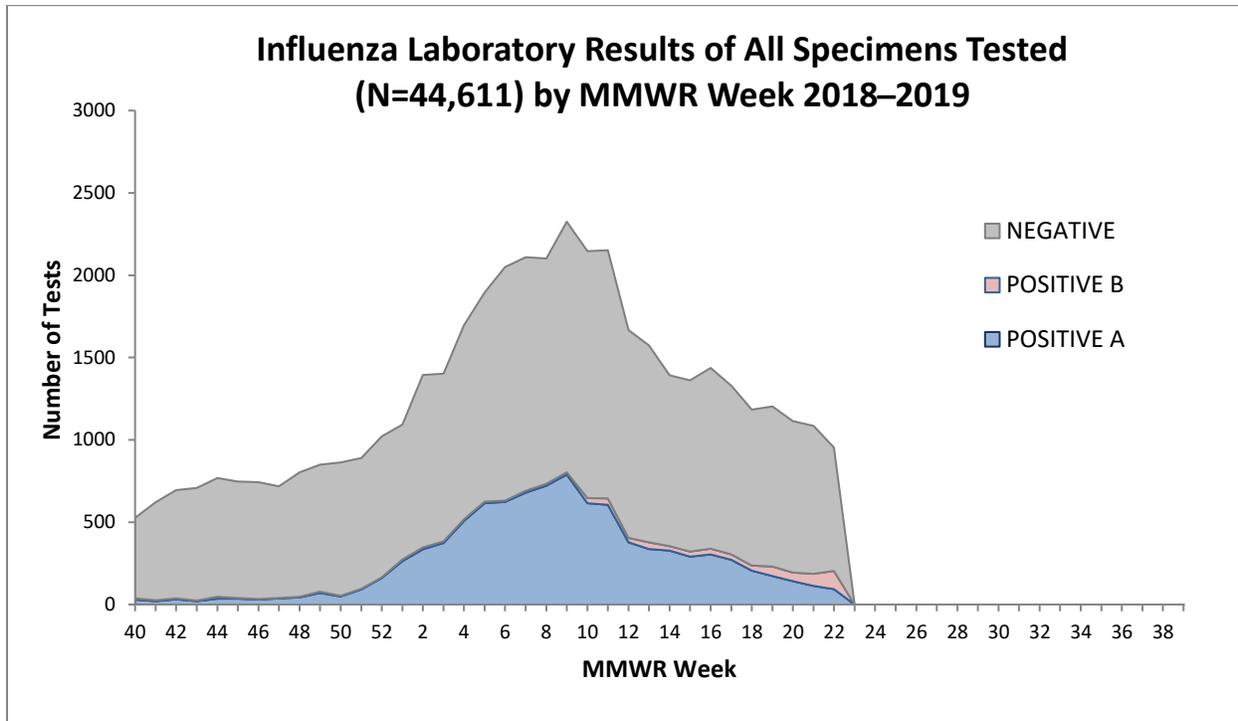


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



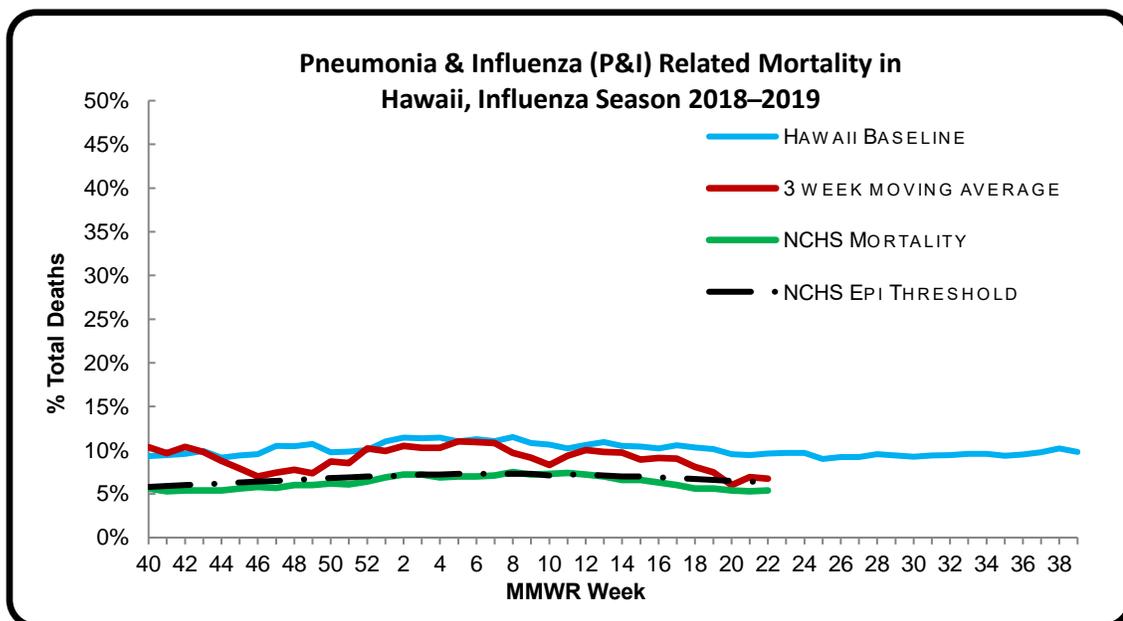
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 22 of the current influenza season:

- 5.3% of all deaths that occurred in Hawaii during week 22 were related to pneumonia or influenza. For the current season (season to date: 8.9%), there have been 8,206 deaths from any cause, 727 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.4%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.3%) (i.e., inside the 95% confidence interval) for week 22.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 22. This death was associated with an influenza A (H3) virus and occurred during week 8 (week ending February 23, 2019). (Season total: 114).

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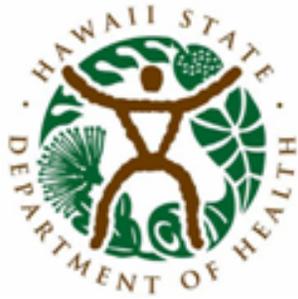
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19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 23: JUNE 2, 2019–JUNE 8, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 23

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.0%	Higher than the previous week. Higher than Hawaii’s historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 37 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	18.9%	Lower than the previous week. This number means that many, if not all, of the 81.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.7%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	5.0%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	2	

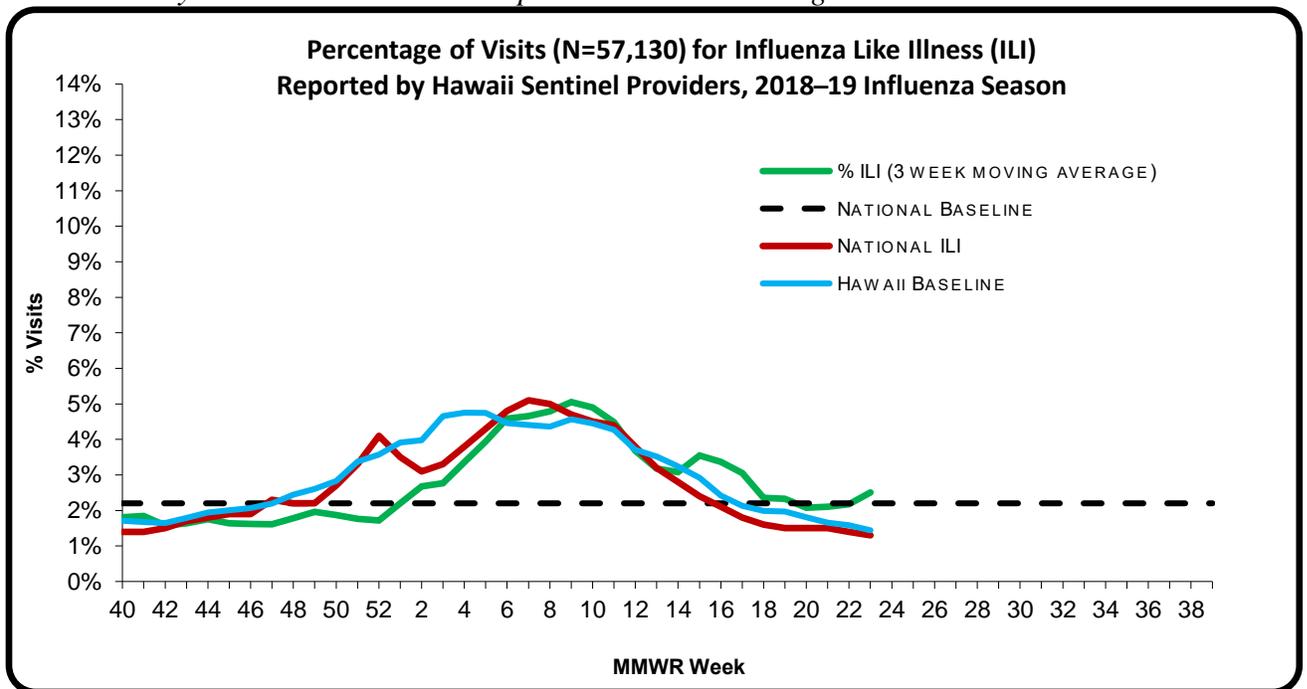
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 23 of the current influenza season:

- **3.0%** (season to date: **2.8%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (1.3%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 23.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

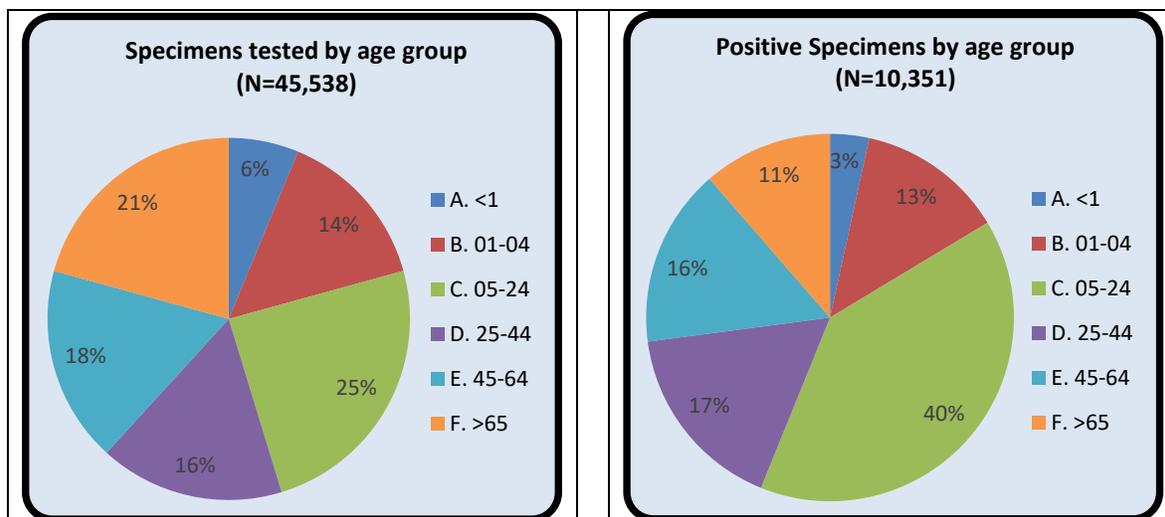
A. INFLUENZA:

- The following reflects laboratory findings for week 23 of the 2018–19 influenza season:
 - A total of **932 specimens** have been tested statewide for influenza viruses (positive: 176 [**18.9%**]). (Season to date: 45,538 tested [**22.7%** positive])
 - 659 (70.7%) were screened only by rapid antigen tests with no confirmatory testing
 - 273 (29.3%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 756 (81.1%) were negative.

Influenza type	Current week 23 (%)	Season to date (%)
Influenza A (H1) ⁷	2 (1.1)	748 (7.2)
Influenza A (H3)	2 (1.1)	357 (3.4)
Influenza A no subtyping	62 (35.2)	8,385 (81.0)
Influenza B (Yamagata)	0 (0.0)	25 (0.2)
Influenza B (Victoria)	7 (4.0)	63 (0.6)
Influenza B no genotyping	103 (58.5)	773 (7.5)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

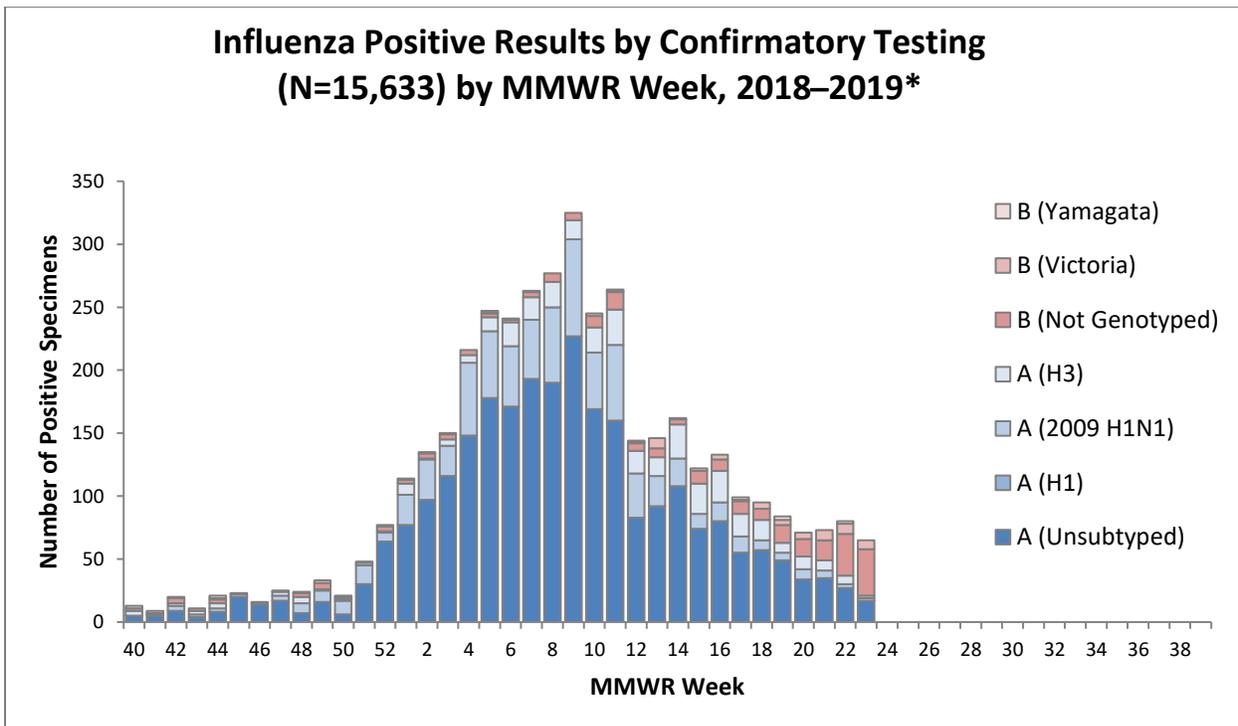
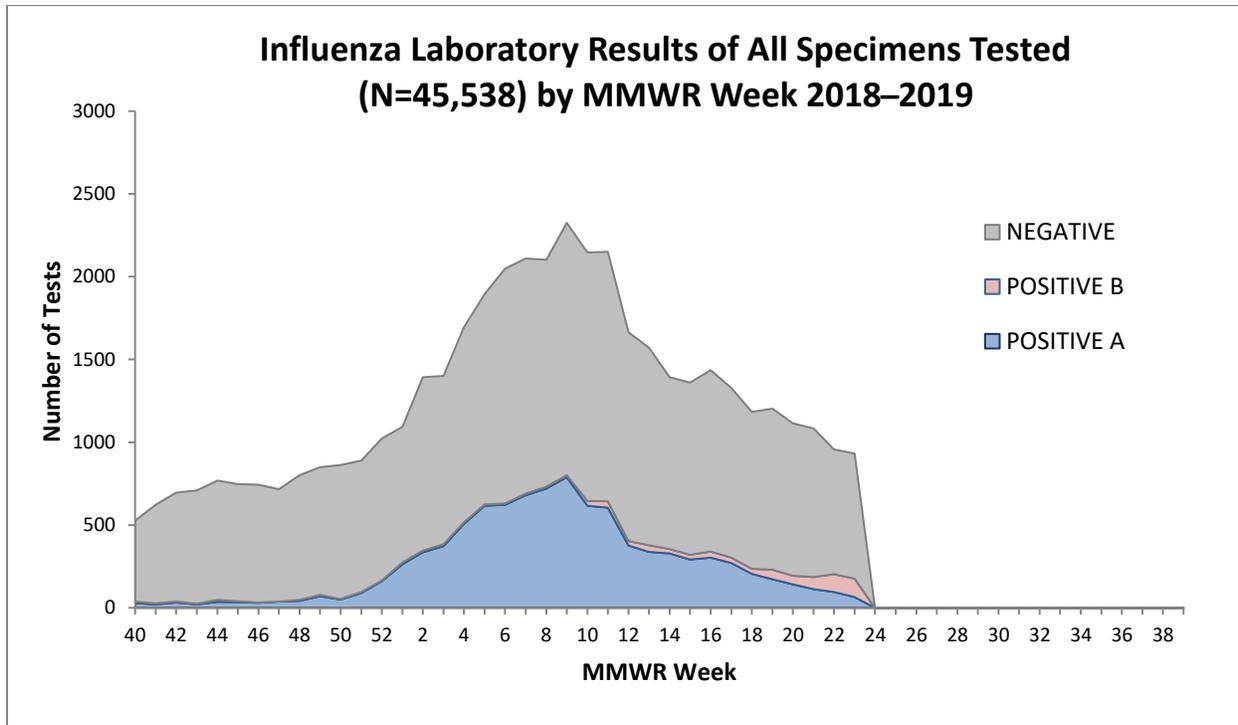


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



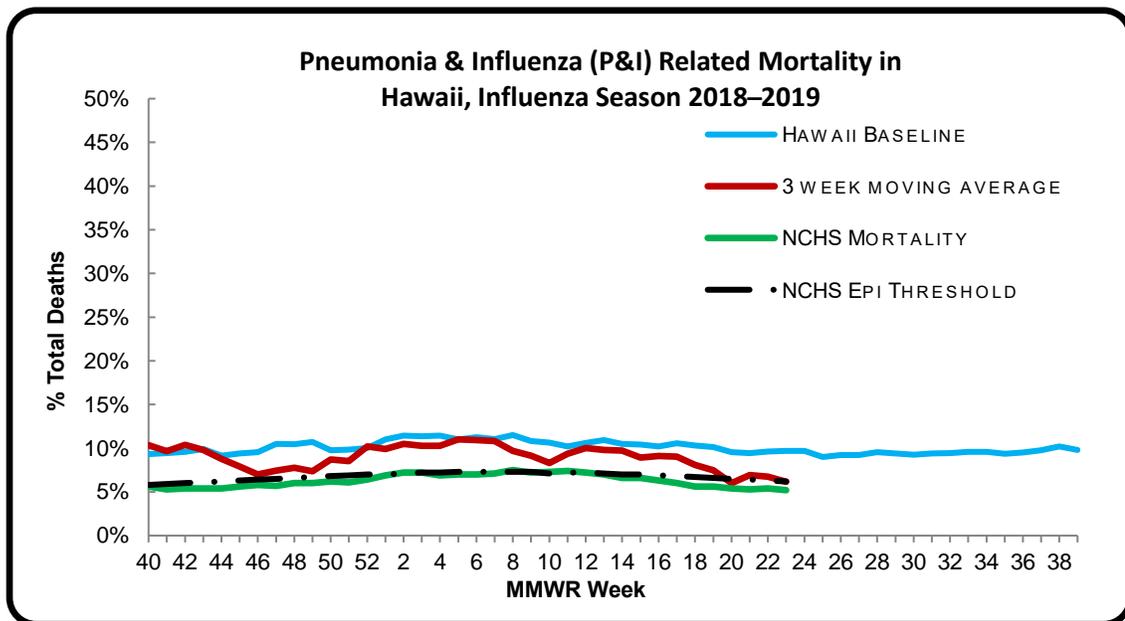
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 23 of the current influenza season:

- 5.0% of all deaths that occurred in Hawaii during week 23 were related to pneumonia or influenza. For the current season (season to date: 8.9%), there have been 8,414 deaths from any cause, 752 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.2%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.2%) (i.e., inside the 95% confidence interval) for week 23.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, two influenza-associated pediatric death was reported to CDC during week 23. One death was associated with an influenza A(H3) virus and occurred during week 19 (week ending May 11, 2019). One death

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013–2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

was associated with an influenza virus for which no virus type or subtype testing was performed and occurred during week 22 (week ending June 1, 2019). (Season total: 116).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 23.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **May 10, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

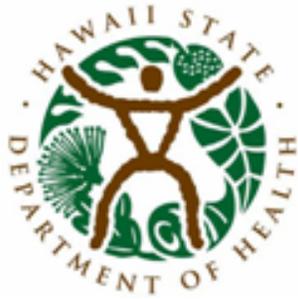
For more information regarding local and national influenza surveillance programs, visit the following sites.

<p>Centers for Disease Control and Prevention</p>	<p>General Influenza National ILI and P&I Data Vaccine Virus Selection</p>
<p>Flu.gov</p>	<p>General Influenza Information</p>
<p>HDOH Flu and Pneumonia</p>	<p>General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator</p>
<p>World Health Organization</p>	<p>General Global and Local Influenza Avian Influenza</p>

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 24: JUNE 9, 2019–JUNE 15, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 24

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.8%	Lower than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 37 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	13.6%	Lower than the previous week. This number means that many, if not all, of the 86.4% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.6%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	12.0%	Comparable to Hawaii’s historical baseline, higher than the national epidemic threshold and higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	3	

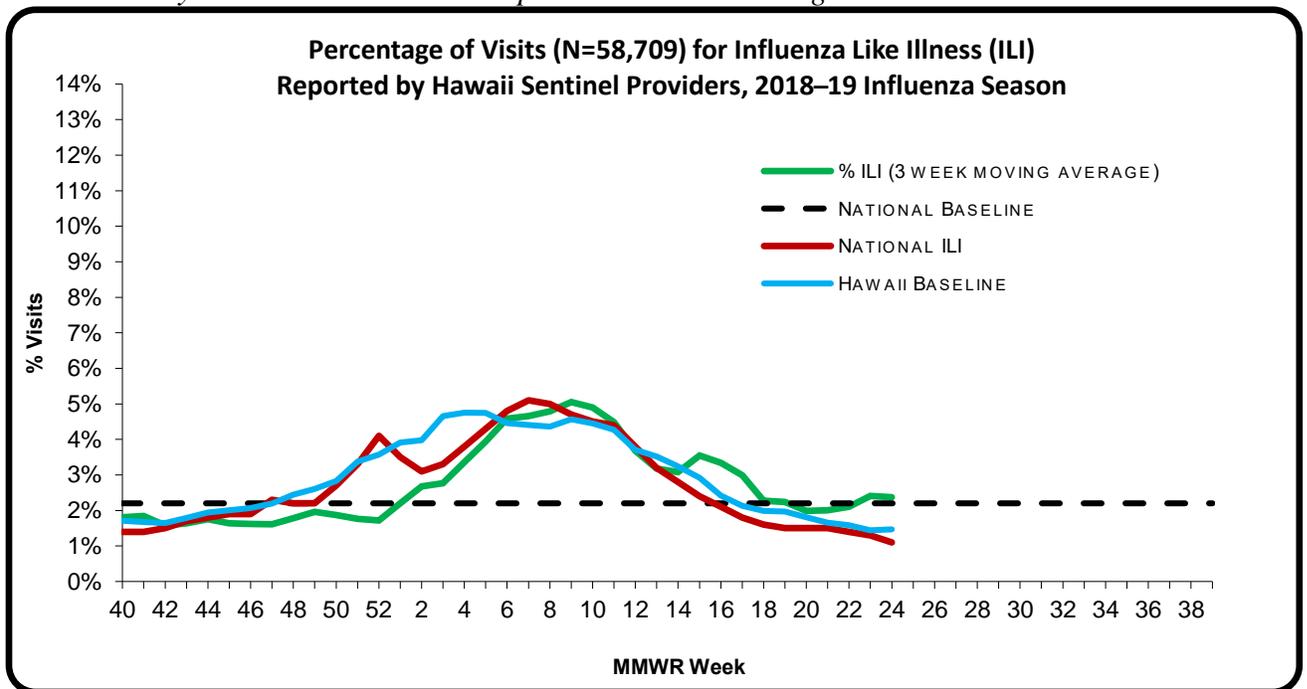
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 24 of the current influenza season:

- 1.8% (season to date: 2.7%) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii²⁻³ (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (1.1%) (i.e., inside the 95% confidence interval).
- Geographic Spread: Sporadic Activity⁵
- ILI Cluster Activity: No new clusters were reported to HDOH during week 24.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

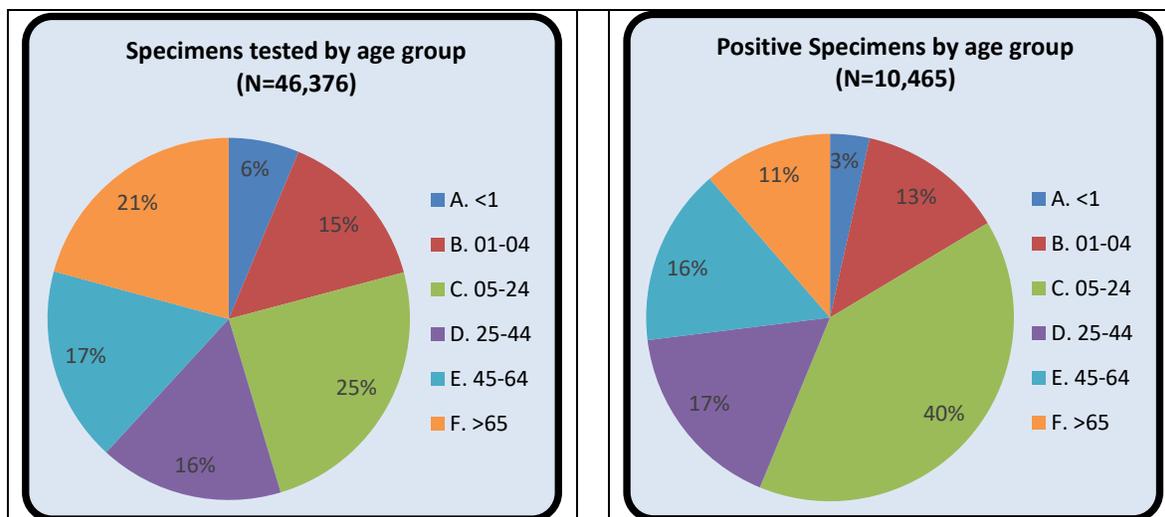
A. INFLUENZA:

- The following reflects laboratory findings for week 24 of the 2018–19 influenza season:
 - A total of 836 specimens have been tested statewide for influenza viruses (positive: 114 [13.6%]). (Season to date: 46,376 tested [22.6% positive])
 - 588 (70.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 248 (29.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 722 (86.4%) were negative.

Influenza type	Current week 24 (%)	Season to date (%)
Influenza A (H1) ⁷	0 (0.0)	748 (7.2)
Influenza A (H3)	0 (0.0)	357 (3.4)
Influenza A no subtyping	37 (32.5)	8,422 (80.5)
Influenza B (Yamagata)	0 (0.0)	25 (0.2)
Influenza B (Victoria)	1 (0.9)	64 (0.6)
Influenza B no genotyping	76 (66.7)	849 (8.1)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

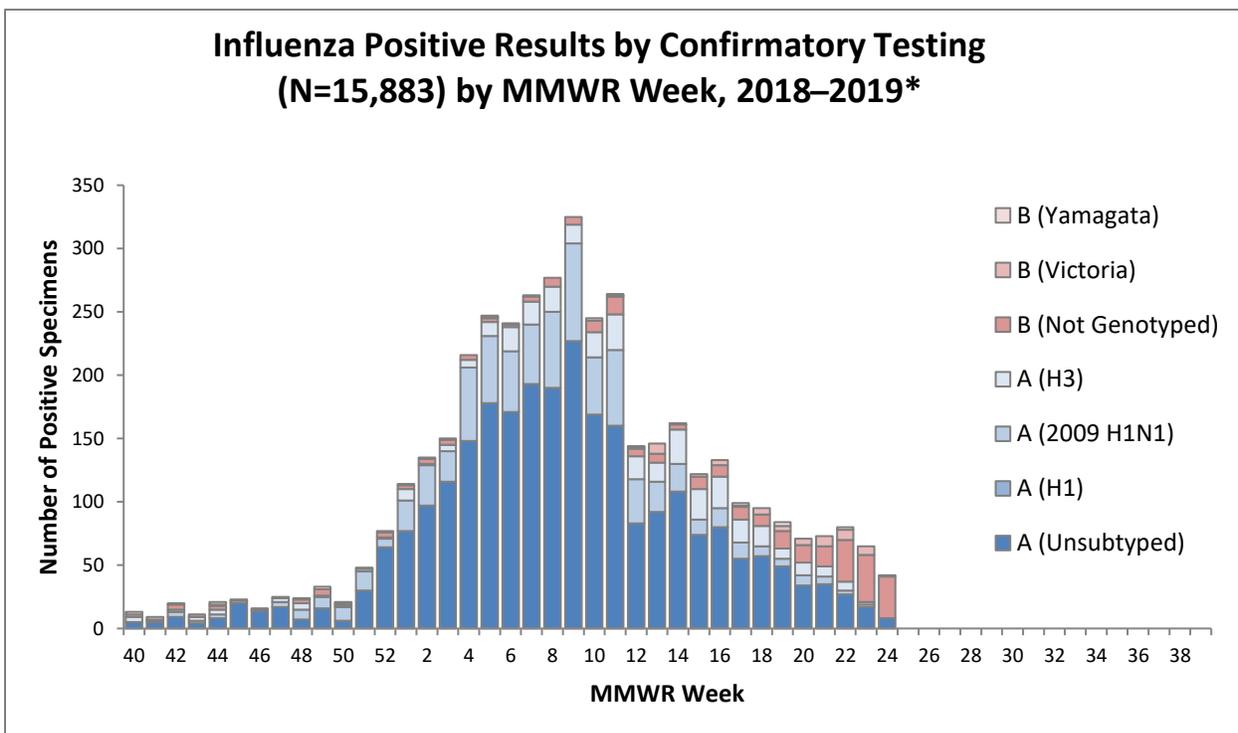
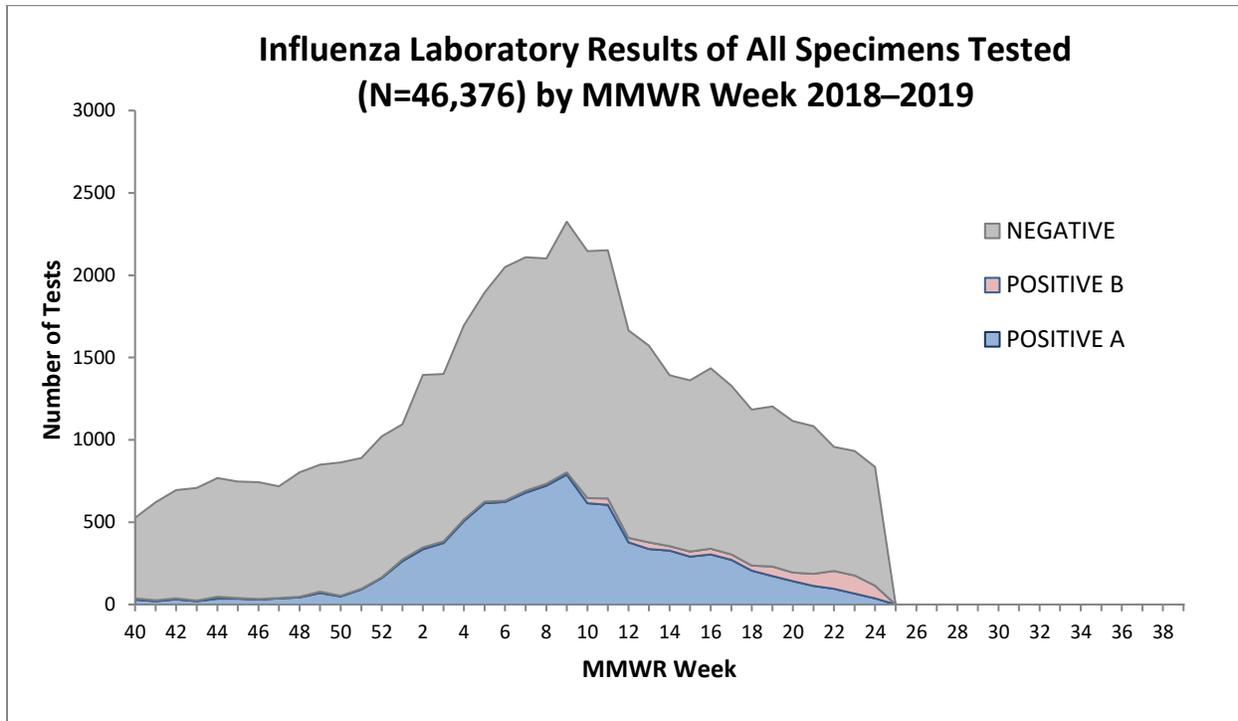


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



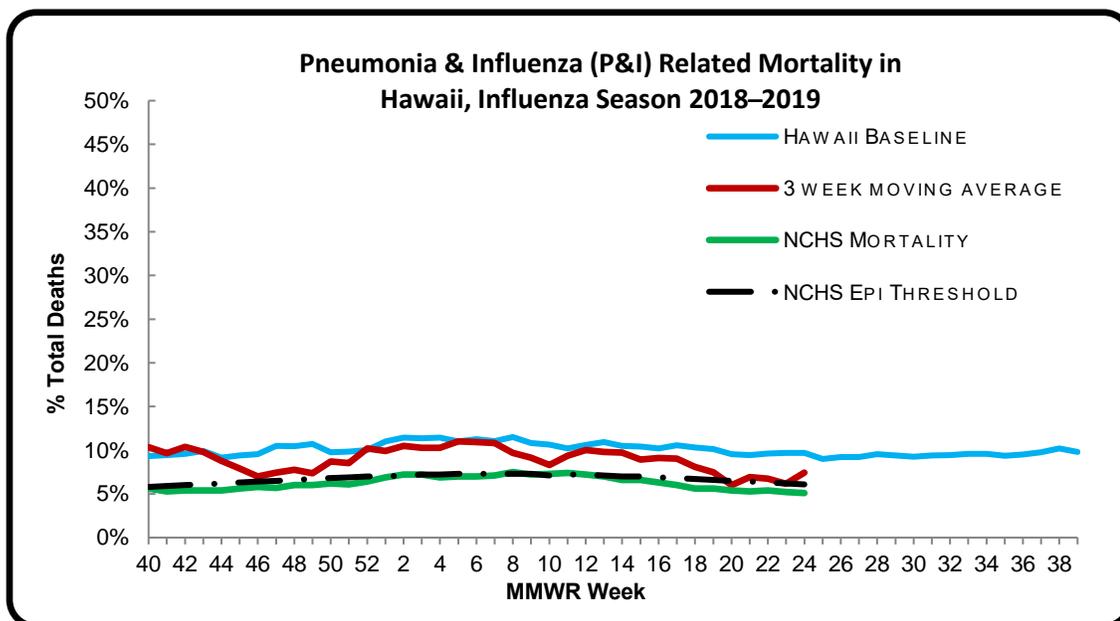
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 24 of the current influenza season:

- *12.0% of all deaths that occurred in Hawaii during week 24 were related to pneumonia or influenza. For the current season (season to date: 8.8%), there have been 8,683 deaths from any cause, 764 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Hawaii P&I rate was higher than the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.1%) (i.e., outside the 95% confidence interval) and higher than the national epidemic threshold (6.1%) (i.e., outside the 95% confidence interval) for week 24.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, three influenza-associated pediatric death was reported to CDC during week 24. One death was associated with an influenza A(H3) virus and occurred during week 8 (week ending February 23, 2019), one death was associated with an influenza A virus for which no subtyping was performed and occurred during week

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

20 (week ending May 18, 2019), and one death was associated with an influenza B virus and occurred during week 24 (week ending June 15, 2019). (Season total: 119).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 24.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**. Since the last update, no new laboratory-confirmed cases of influenza A (H5) or influenza A (H7N9) virus infections were reported to WHO.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 25: JUNE 16, 2019–JUNE 22, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 25

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.5%	Higher than the previous week. Higher than Hawaii’s historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 37 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	11.9%	Lower than the previous week. This number means that many, if not all, of the 88.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	4.5%	Lower than Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

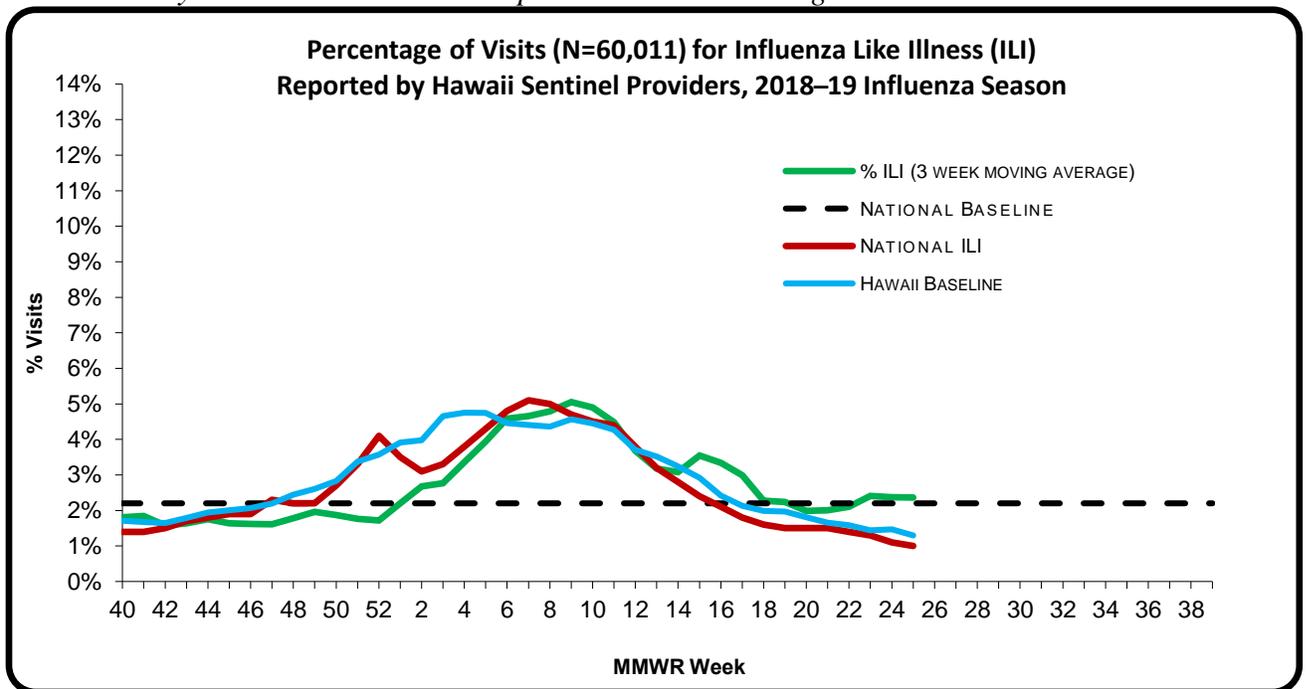
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 25** of the current influenza season:

- **2.5%** (season to date: **2.7%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (1.0%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 25.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

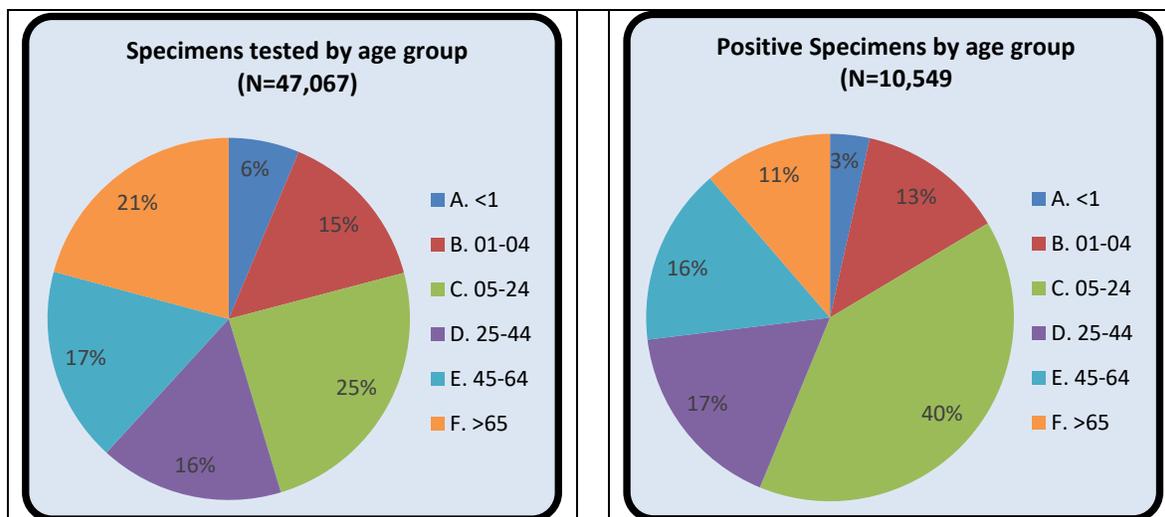
A. INFLUENZA:

- The following reflects laboratory findings for week 25 of the 2018–19 influenza season:
 - A total of **683** specimens have been tested statewide for influenza viruses (positive: 81 [**11.9%**]). (Season to date: 47,067 tested [**22.4%** positive])
 - 454 (66.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 229 (33.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 602 (88.1%) were negative.

<i>Influenza type</i>	<i>Current week 25 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	0 (0.0)	750 (7.1)
<i>Influenza A (H3)</i>	2 (2.5)	362 (3.4)
<i>Influenza A no subtyping</i>	20 (24.7)	8,437 (80.0)
<i>Influenza B (Yamagata)</i>	0 (0.0)	26 (0.3)
<i>Influenza B (Victoria)</i>	1 (1.2)	74 (0.7)
<i>Influenza B no genotyping</i>	58 (71.6)	900 (8.5)

1. AGE DISTRIBUTION

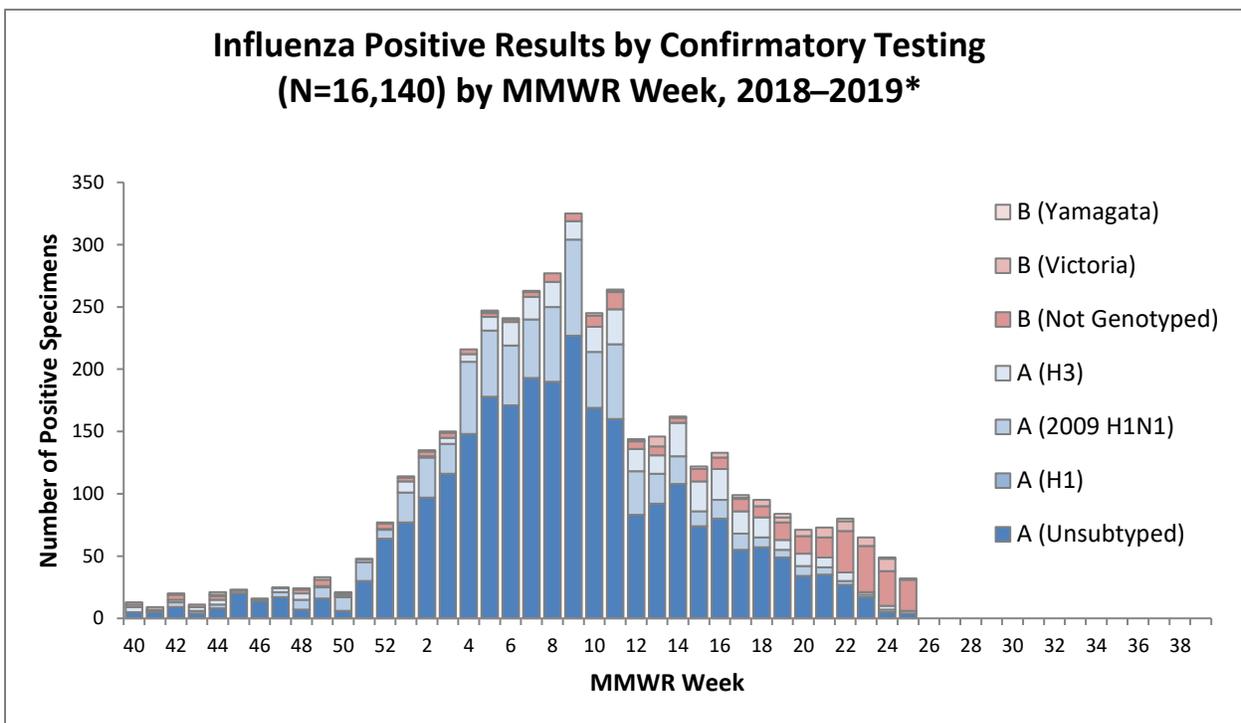
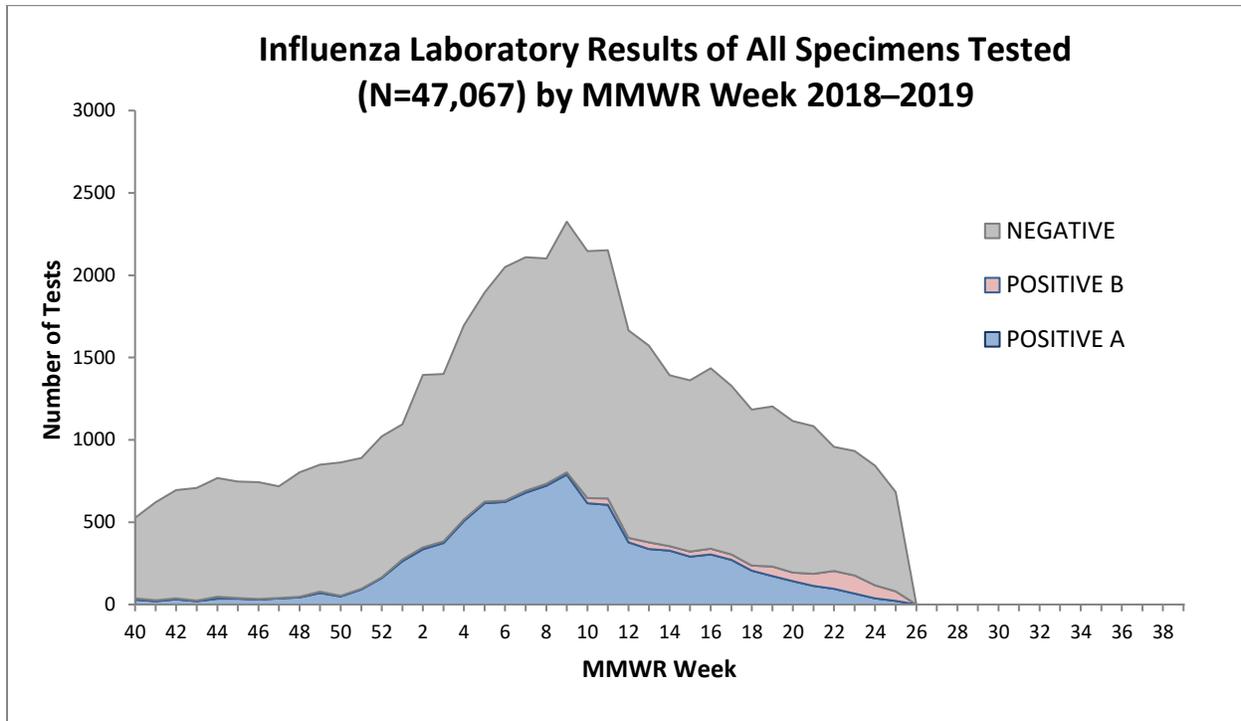
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



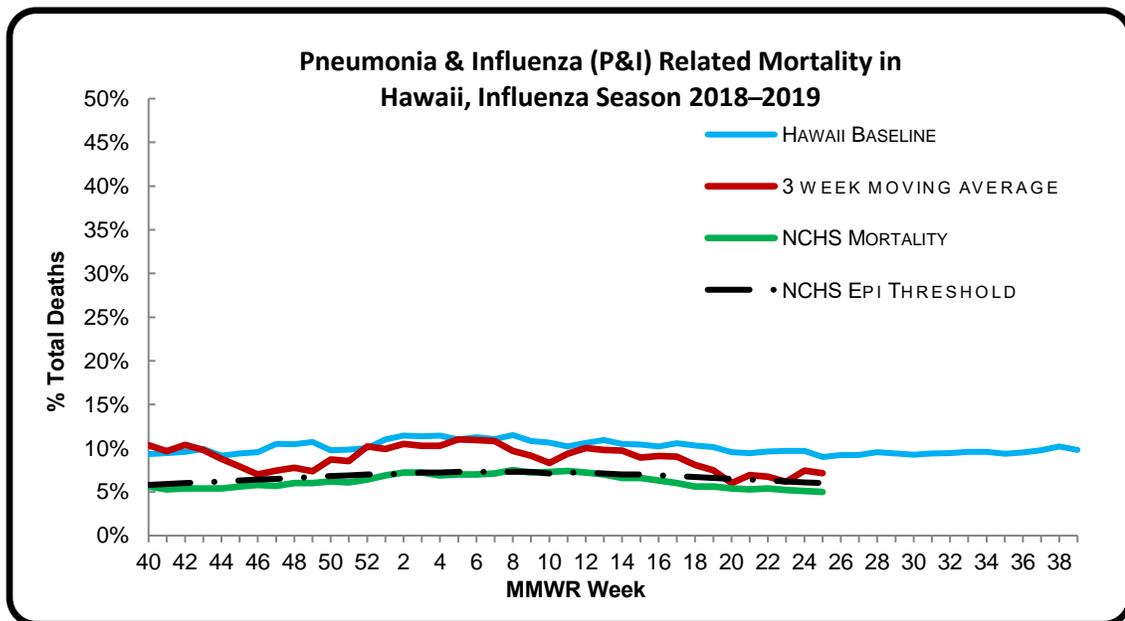
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 25 of the current influenza season:

- 4.5% of all deaths that occurred in Hawaii during week 25 were related to pneumonia or influenza. For the current season (season to date: 8.8%), there have been 8,683 deaths from any cause, 764 of which were due to P&I.
- The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.0%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (6.0%) (i.e., inside the 95% confidence interval) for week 25.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 25. (Season total: 119).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 25.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 26: JUNE 23, 2019–JUNE 29, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 26

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.9%	Lower than the previous week. Comparable to Hawaii’s historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 37 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	16.2%	Higher than the previous week. This number means that many, if not all, of the 83.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.3%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	6.6%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	3	

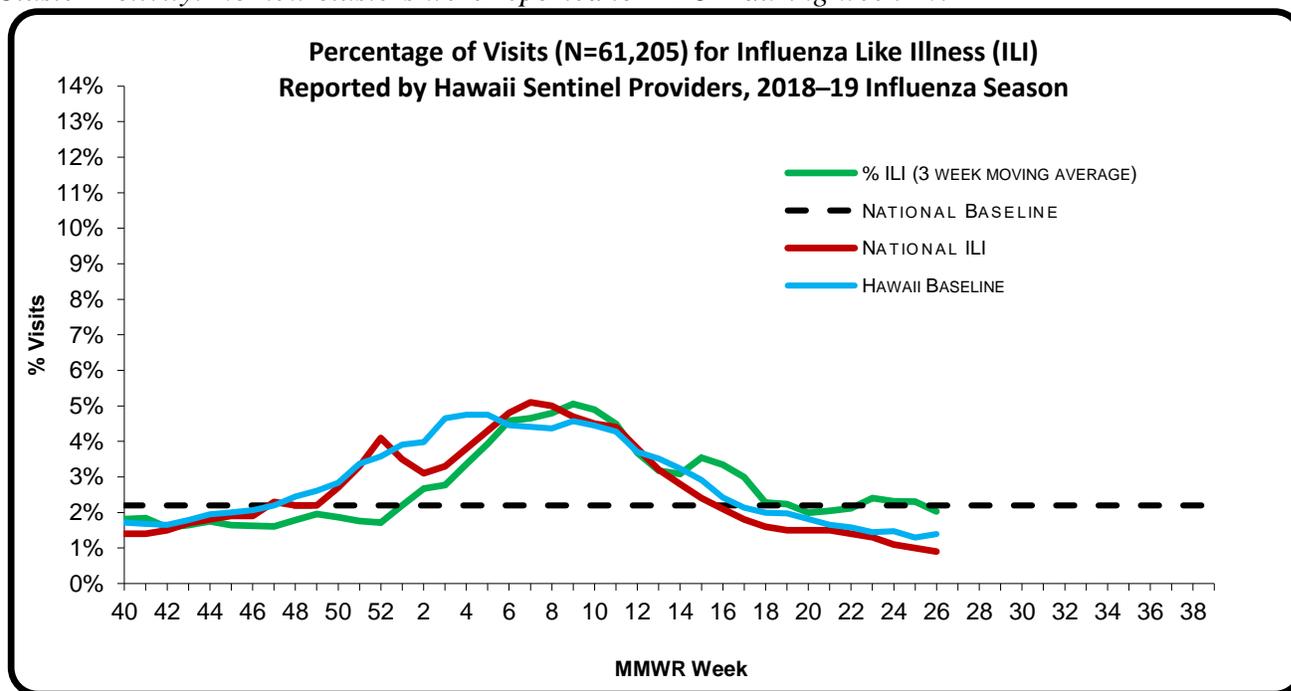
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 26 of the current influenza season:

- **1.9%** (season to date: **2.7%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii²⁻³ (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (0.9%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 26.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

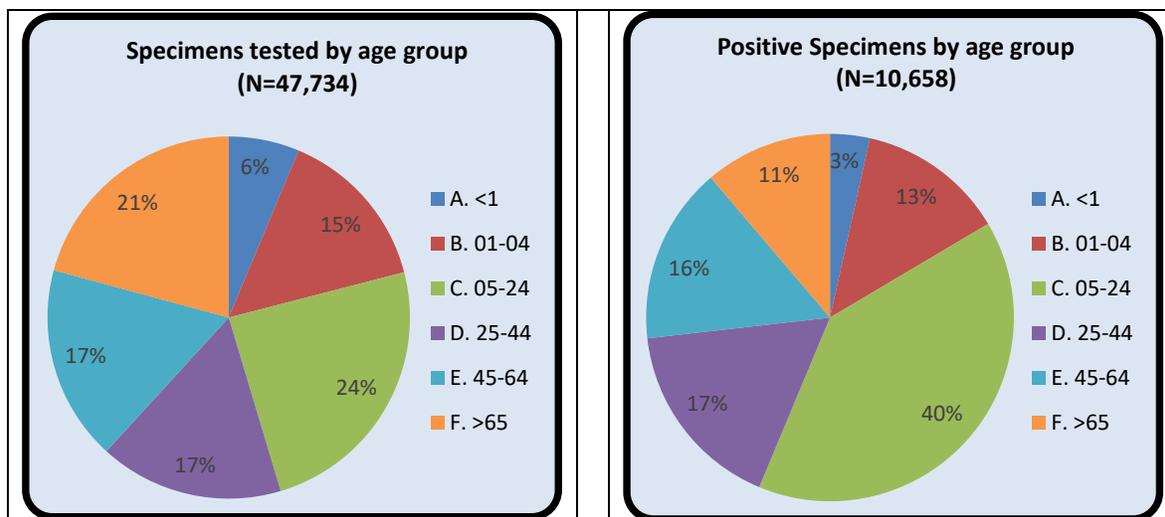
A. INFLUENZA:

- The following reflects laboratory findings for week 26 of the 2018–19 influenza season:
 - A total of **666** specimens have been tested statewide for influenza viruses (positive: 108 [**16.2%**]). (Season to date: 47,734 tested [**22.3%** positive])
 - 454 (68.2%) were screened only by rapid antigen tests with no confirmatory testing
 - 212 (31.8%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 558 (83.8%) were negative.

<i>Influenza type</i>	<i>Current week 26 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	0 (0.0)	750 (7.0)
<i>Influenza A (H3)</i>	0 (0.0)	362 (3.4)
<i>Influenza A no subtyping</i>	39 (36.1)	8,476 (79.5)
<i>Influenza B (Yamagata)</i>	0 (0.0)	26 (0.2)
<i>Influenza B (Victoria)</i>	1 (0.9)	85 (0.8)
<i>Influenza B no genotyping</i>	68 (63.0)	959 (9.0)

1. AGE DISTRIBUTION

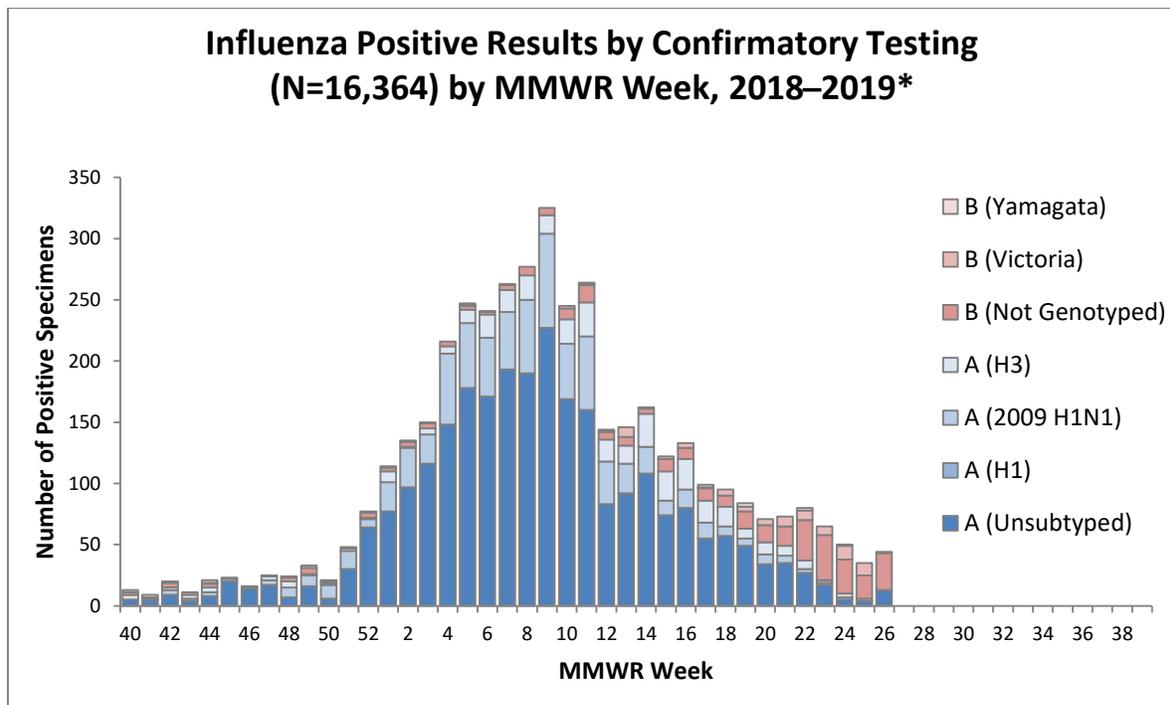
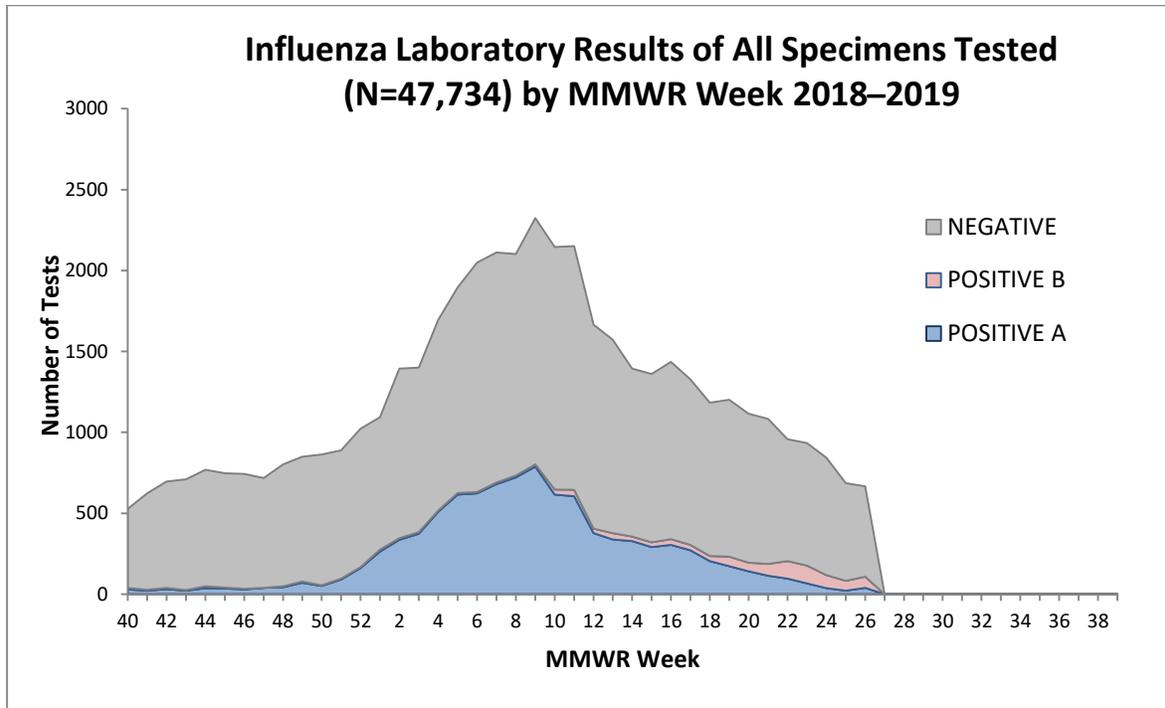
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



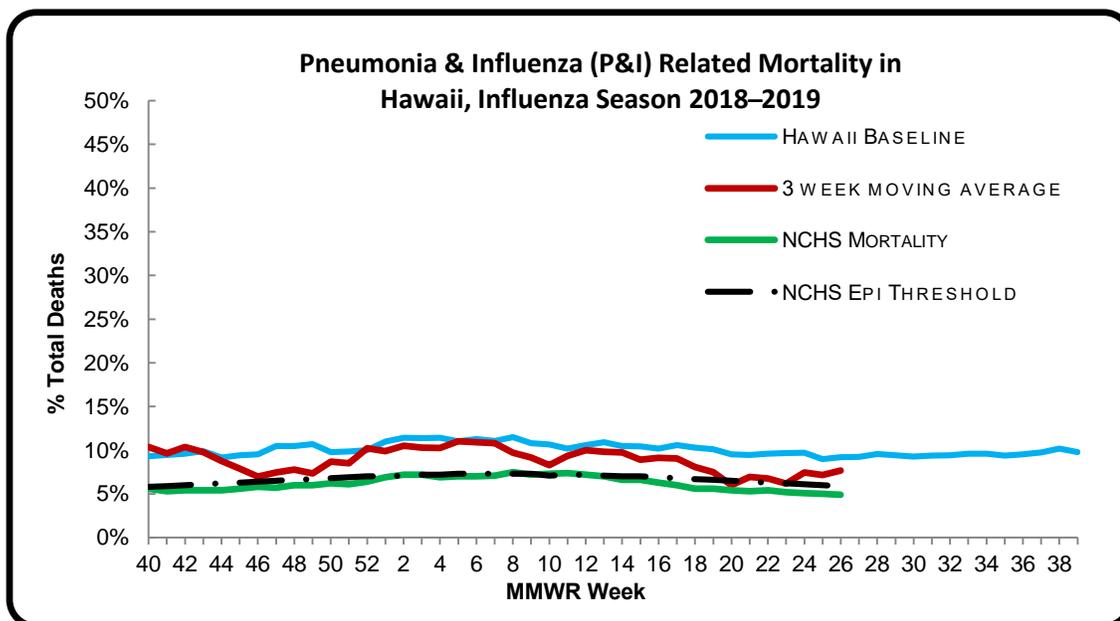
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 26 of the current influenza season:

- *6.6% of all deaths that occurred in Hawaii during week 26 were related to pneumonia or influenza. For the current season (season to date: 8.6%), there have been 9,083 deaths from any cause, 784 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (4.9%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.9%) (i.e., inside the 95% confidence interval) for week 26.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 26. All three deaths were associated with an influenza A virus for which no subtyping was performed. (Season total: 122).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 26.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

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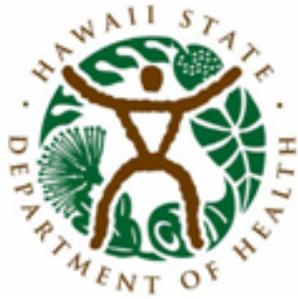
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APPENDIX 2: MMWR WEEK DATES

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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 27: JUNE 30, 2019–JULY 06, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 27

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.5%	Lower than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and lower than the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 37 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	15.5%	Higher than the previous week. This number means that many, if not all, of the 84.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.2%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	3.2%	Lower than Hawaii’s historical baseline, lower than the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

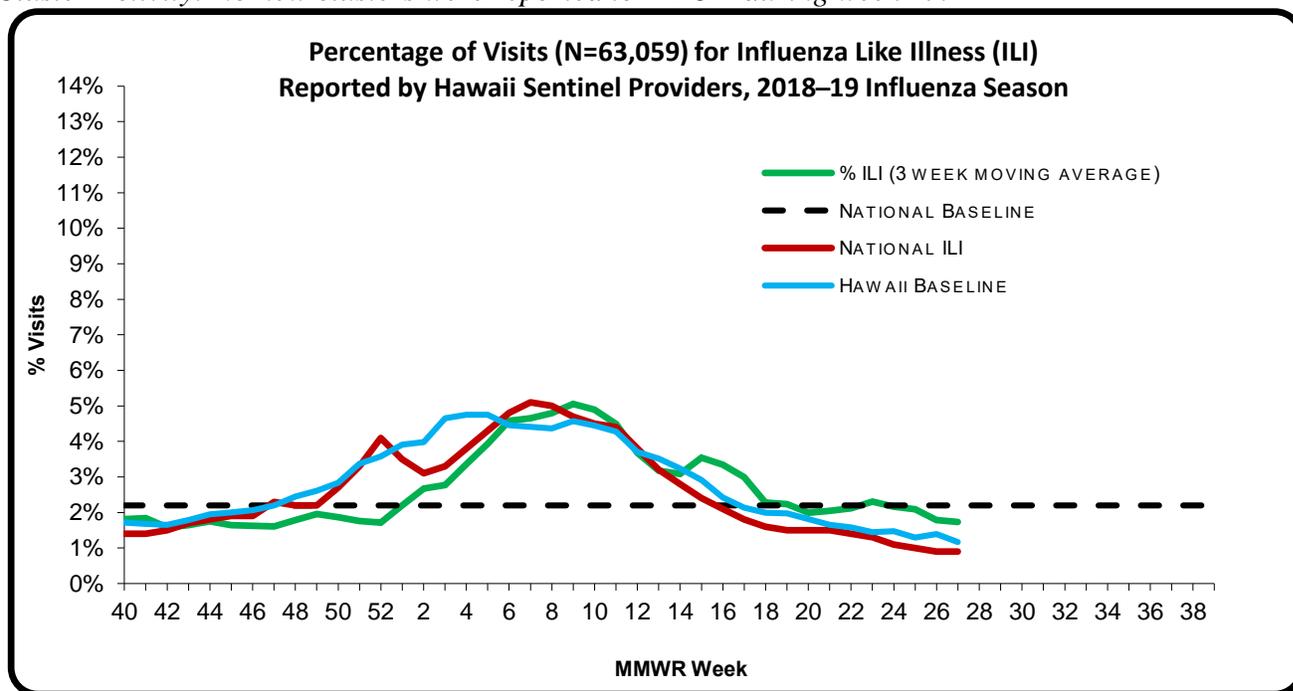
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 27 of the current influenza season:

- 1.5% (season to date: 2.7%) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii²⁻³ (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were lower than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (0.9%) (i.e., inside the 95% confidence interval).
- Geographic Spread: Sporadic Activity⁵.
- ILI Cluster Activity: No new clusters were reported to HDOH during week 27.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

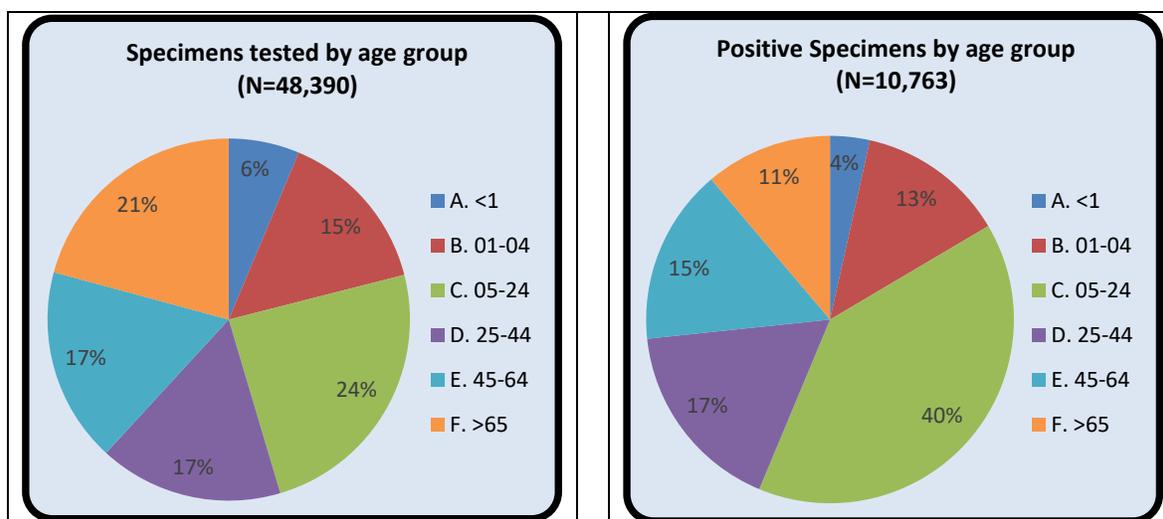
A. INFLUENZA:

- The following reflects laboratory findings for week 27 of the 2018–19 influenza season:
 - A total of **650 specimens** have been tested statewide for influenza viruses (positive: 101 [**15.5%**]). (Season to date: 48,390 tested [**22.2%** positive])
 - 473 (72.8%) were screened only by rapid antigen tests with no confirmatory testing.
 - 177 (27.2%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 549 (84.5%) were negative.

<i>Influenza type</i>	<i>Current week 27 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	1 (1.0)	756 (7.0)
<i>Influenza A (H3)</i>	0 (0.0)	366 (3.4)
<i>Influenza A no subtyping</i>	22 (21.8)	8,491 (78.9)
<i>Influenza B (Yamagata)</i>	1 (1.0)	27 (0.3)
<i>Influenza B (Victoria)</i>	6 (5.9)	97 (0.9)
<i>Influenza B no genotyping</i>	71 (70.3)	1026 (9.5)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

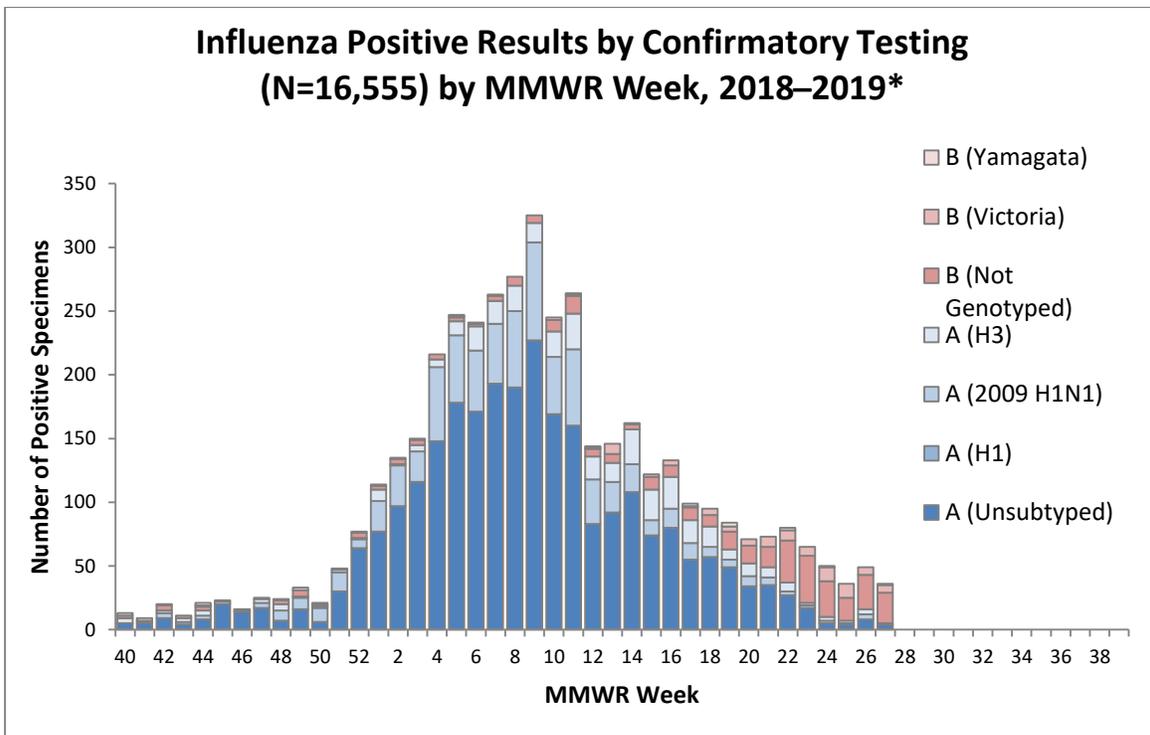
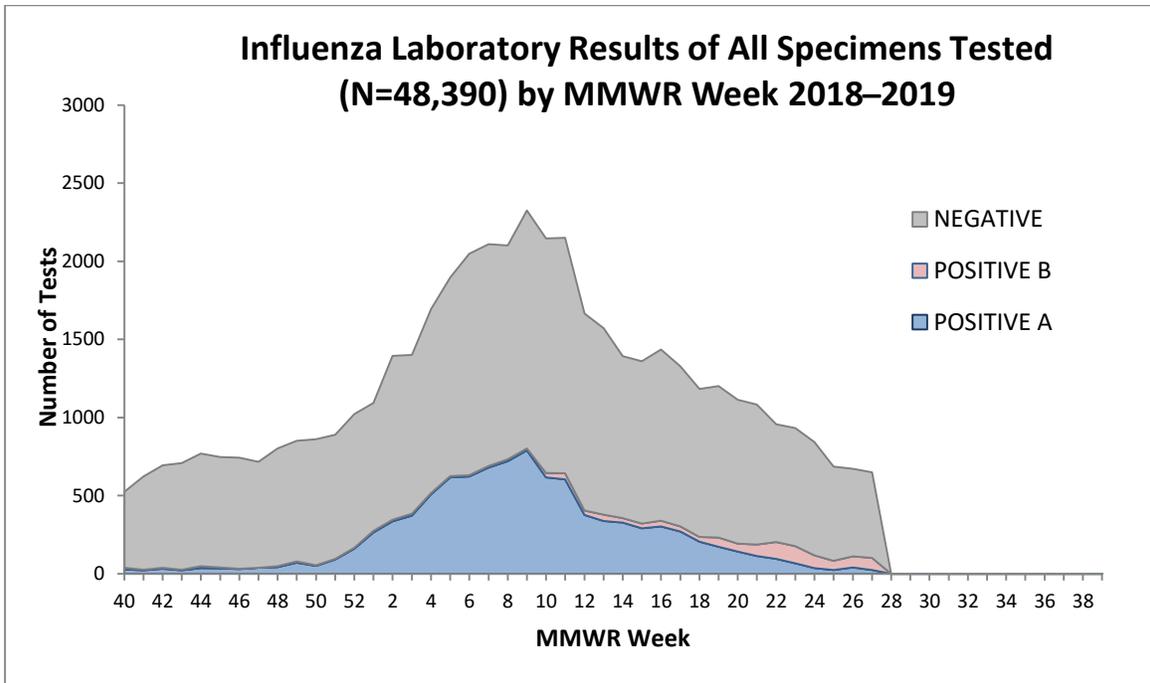


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



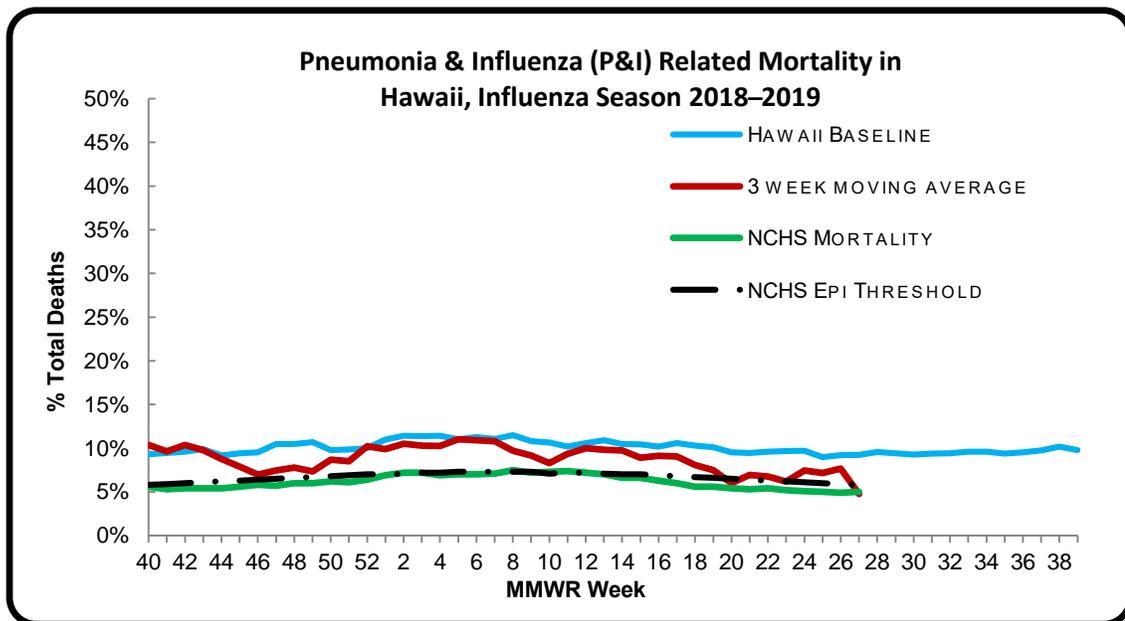
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 27 of the current influenza season:

- 3.2% of all deaths that occurred in Hawaii during week 27 were related to pneumonia or influenza. For the current season (season to date: 8.6%), there have been 9,083 deaths from any cause, 784 of which were due to P&I.
- The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.0%) (i.e., inside the 95% confidence interval) and lower than the national epidemic threshold (5.8%) (i.e., outside the 95% confidence interval) for week 27.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 27. (Season total: 122).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 27.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

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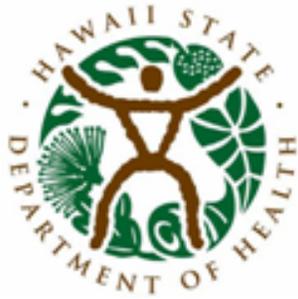
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41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
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52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 28: JULY 7, 2019–JULY 13, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 28

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.4%	Lower than the previous week. Comparable to Hawaii’s historical baseline, comparable to the national ILI rate, and lower than the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 37 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	16.2%	Higher than the previous week. This number means that many, if not all, of the 83.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.2%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	5.0%	Lower than Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	2	

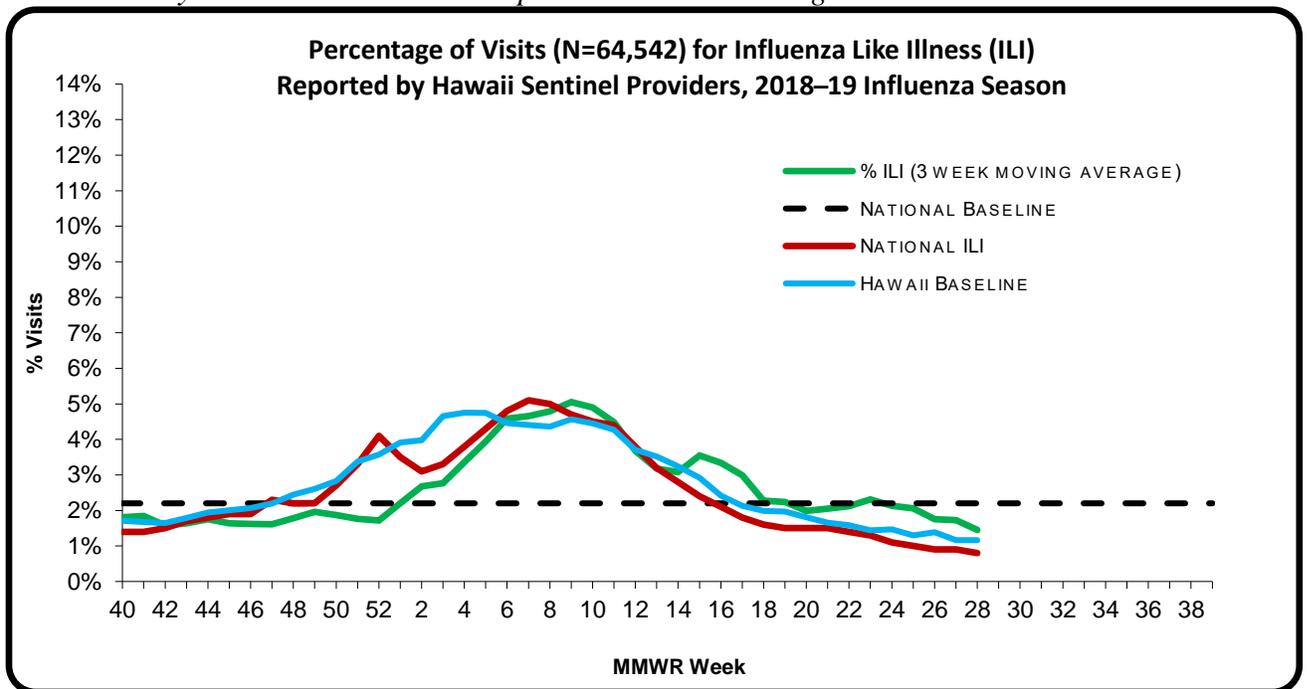
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 28 of the current influenza season:

- **1.4%** (season to date: **2.6%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were lower than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (0.8%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵.
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 28.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

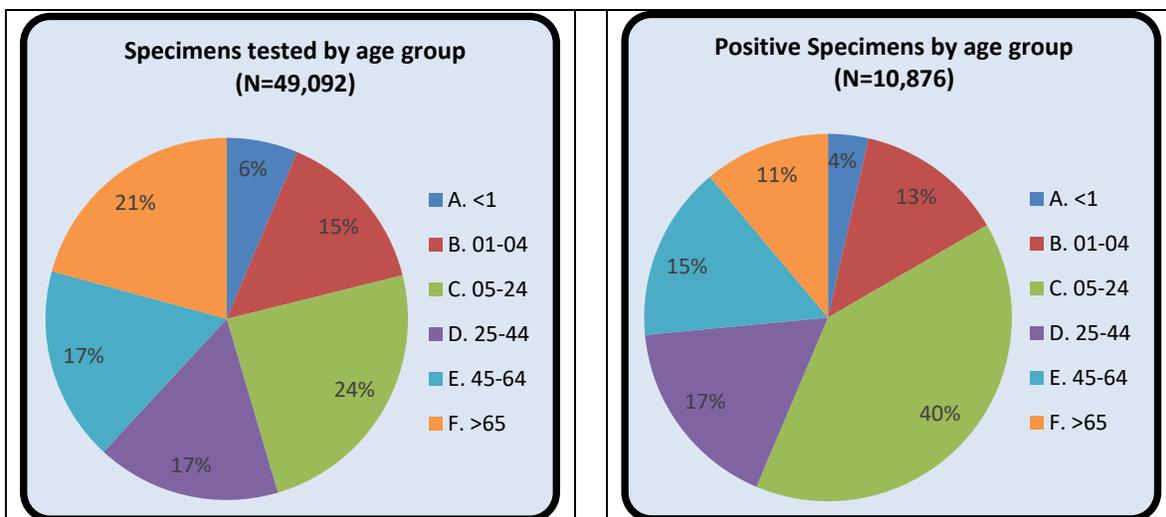
A. INFLUENZA:

- The following reflects laboratory findings for week 28 of the 2018–19 influenza season:
 - A total of **699** specimens have been tested statewide for influenza viruses (positive: 113 [**16.2%**]). (Season to date: 49,092 tested [**22.2%** positive])
 - 502 (71.8%) were screened only by rapid antigen tests with no confirmatory testing.
 - 197 (28.2%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 586 (83.8%) were negative.

<i>Influenza type</i>	<i>Current week 28 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	1 (0.9)	757 (7.0)
<i>Influenza A (H3)</i>	1 (0.9)	368 (3.4)
<i>Influenza A no subtyping</i>	23 (20.4)	8,513 (78.3)
<i>Influenza B (Yamagata)</i>	1 (0.9)	28 (0.3)
<i>Influenza B (Victoria)</i>	7 (6.2)	108 (1.0)
<i>Influenza B no genotyping</i>	80 (70.8)	1,102 (10.1)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

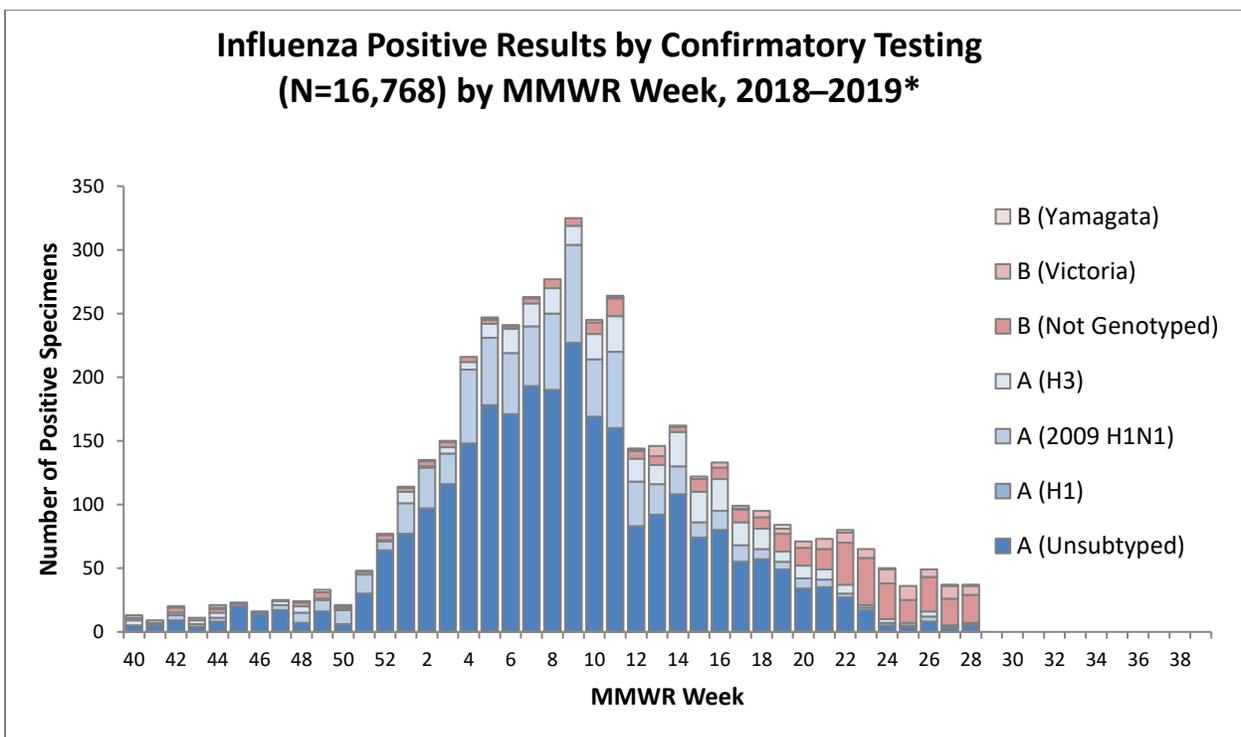
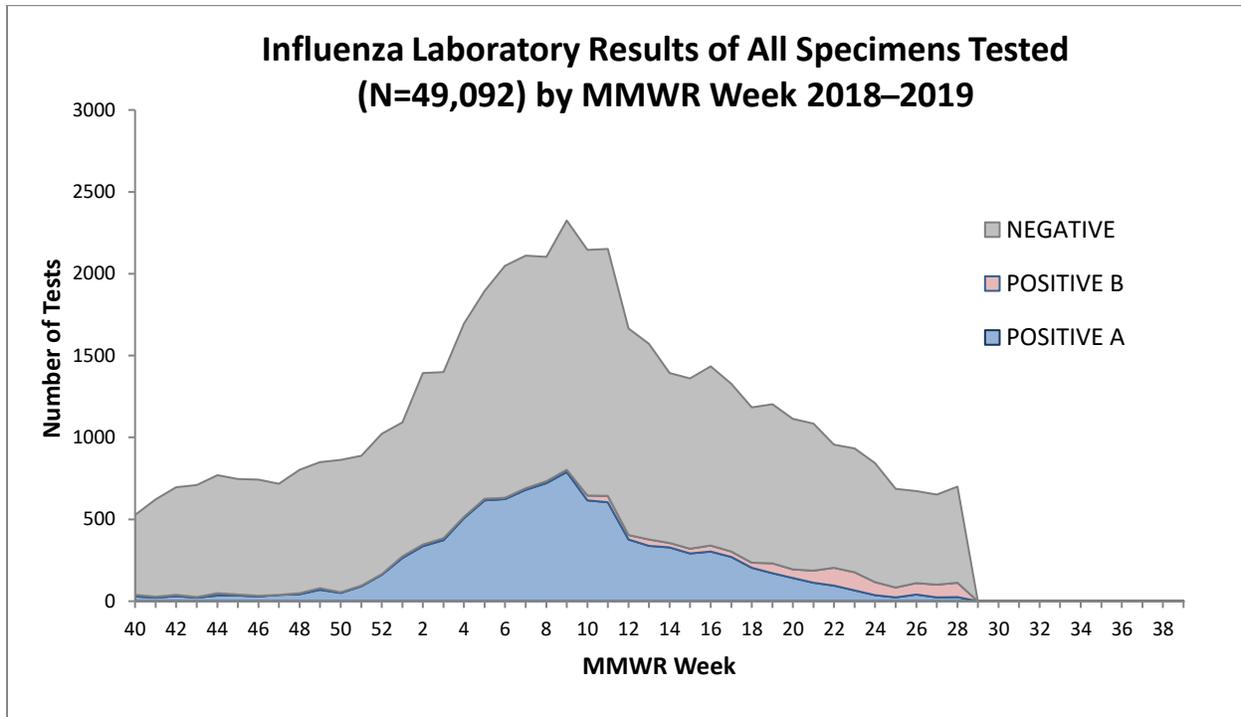


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



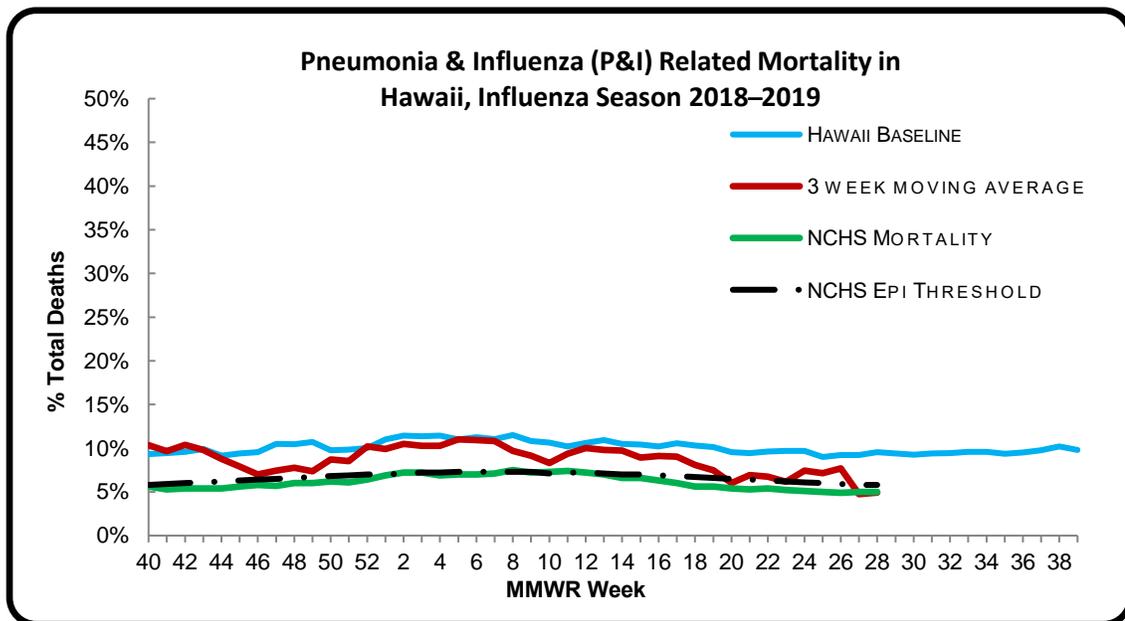
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 28 of the current influenza season:

- 5.0% of all deaths that occurred in Hawaii during week 28 were related to pneumonia or influenza. For the current season (season to date: 8.5%), there have been 9,595 deaths from any cause, 811 of which were due to P&I.
- The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (5.0%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.8%) (i.e., inside the 95% confidence interval) for week 28.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 28. One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 7 (week

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

ending February 16, 2019) and one death was associated with an influenza A(H3) virus and occurred during week 18 (week ending May 4, 2019). (Season total: 124).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 28.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

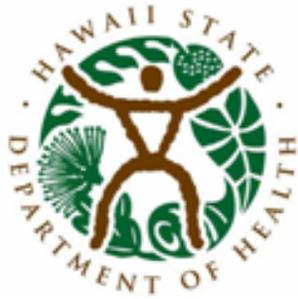
<p>Centers for Disease Control and Prevention</p>	<p>General Influenza National ILI and P&I Data Vaccine Virus Selection</p>
<p>Flu.gov</p>	<p>General Influenza Information</p>
<p>HDOH Flu and Pneumonia</p>	<p>General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator</p>
<p>World Health Organization</p>	<p>General Global and Local Influenza Avian Influenza</p>

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 29: JULY 14, 2019–JULY 20, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 29

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	0.8%	Lower than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and lower than the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 37 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	14.4%	Lower than the previous week. This number means that many, if not all, of the 85.6% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.1%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	5.5%	Lower than Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	2	

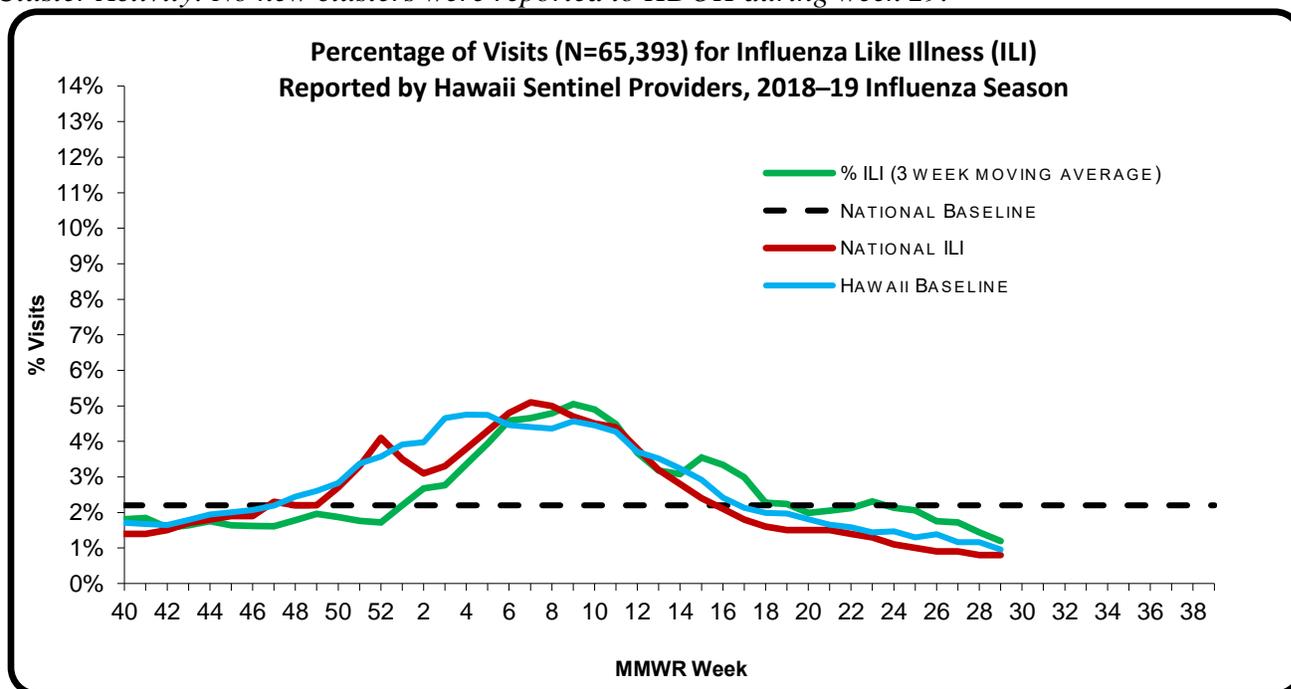
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INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 29** of the current influenza season:

- **0.8%** (season to date: **2.6%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii's ILI outpatient visits were lower than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (0.8%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵.
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 29.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

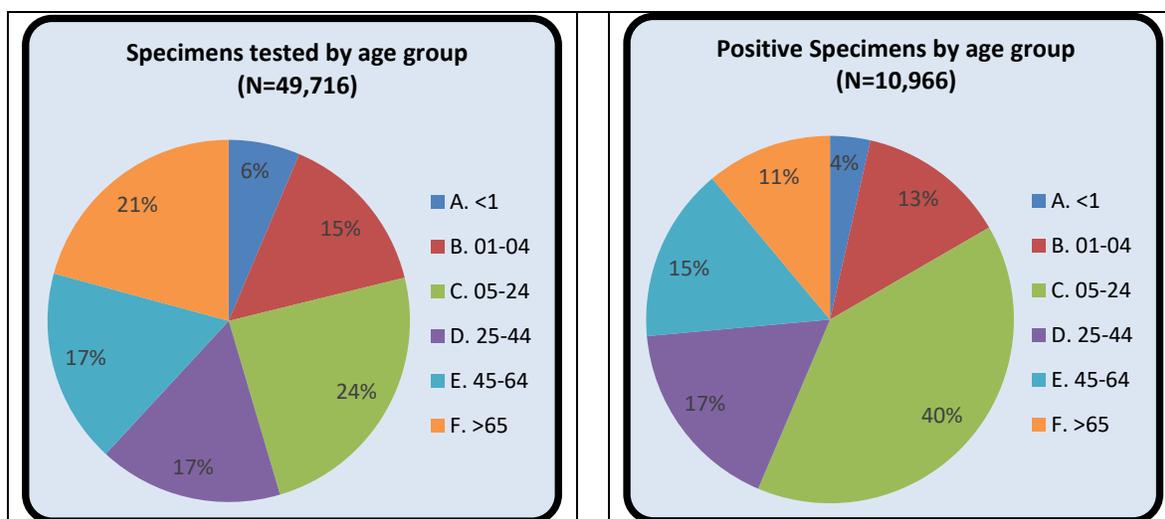
A. INFLUENZA:

- The following reflects laboratory findings for week 29 of the 2018–19 influenza season:
 - A total of **624** specimens have been tested statewide for influenza viruses (positive: 90 [**14.4%**]). (Season to date: 49,716 tested [**22.1%** positive])
 - 395 (63.3%) were screened only by rapid antigen tests with no confirmatory testing.
 - 229 (36.7%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 534 (85.6%) were negative.

<i>Influenza type</i>	<i>Current week 29 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	3 (3.3)	760 (6.9)
<i>Influenza A (H3)</i>	1 (1.1)	369 (3.4)
<i>Influenza A no subtyping</i>	22 (24.4)	8,535 (77.8)
<i>Influenza B (Yamagata)</i>	0 (0.0)	28 (0.3)
<i>Influenza B (Victoria)</i>	5 (5.6)	114 (1.0)
<i>Influenza B no genotyping</i>	59 (65.6)	1,160 (10.6)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

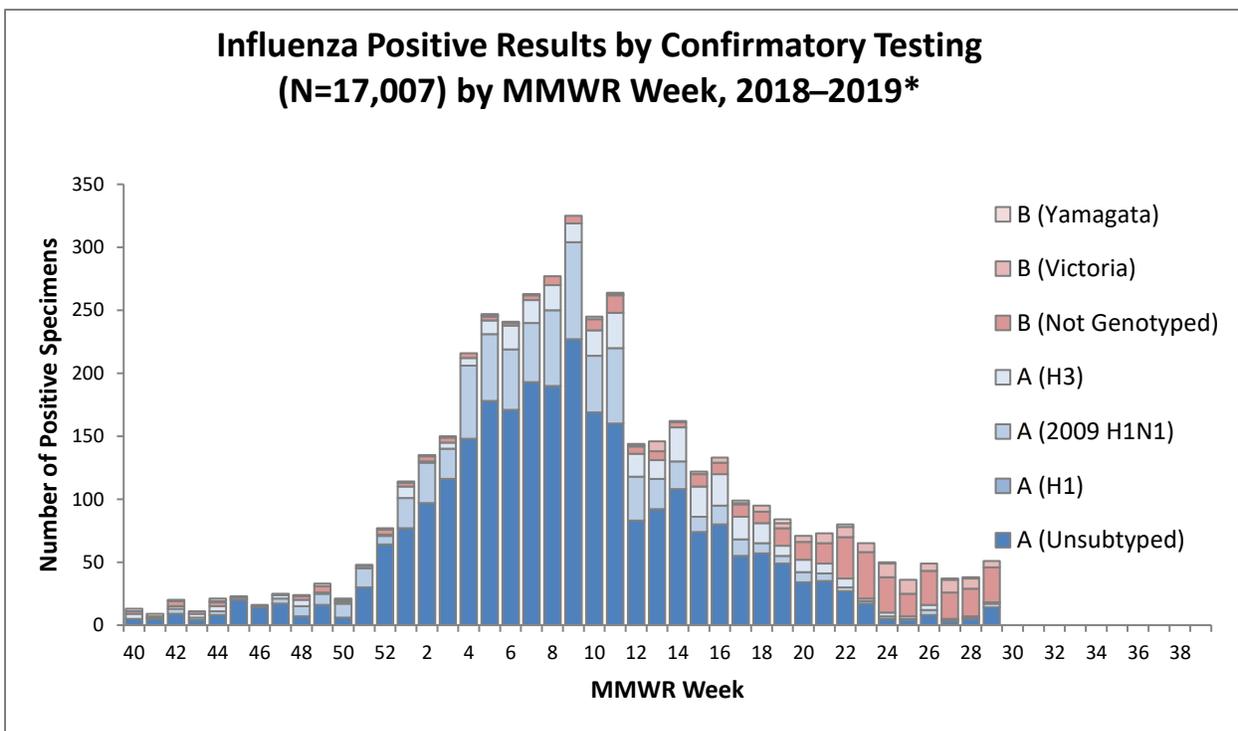
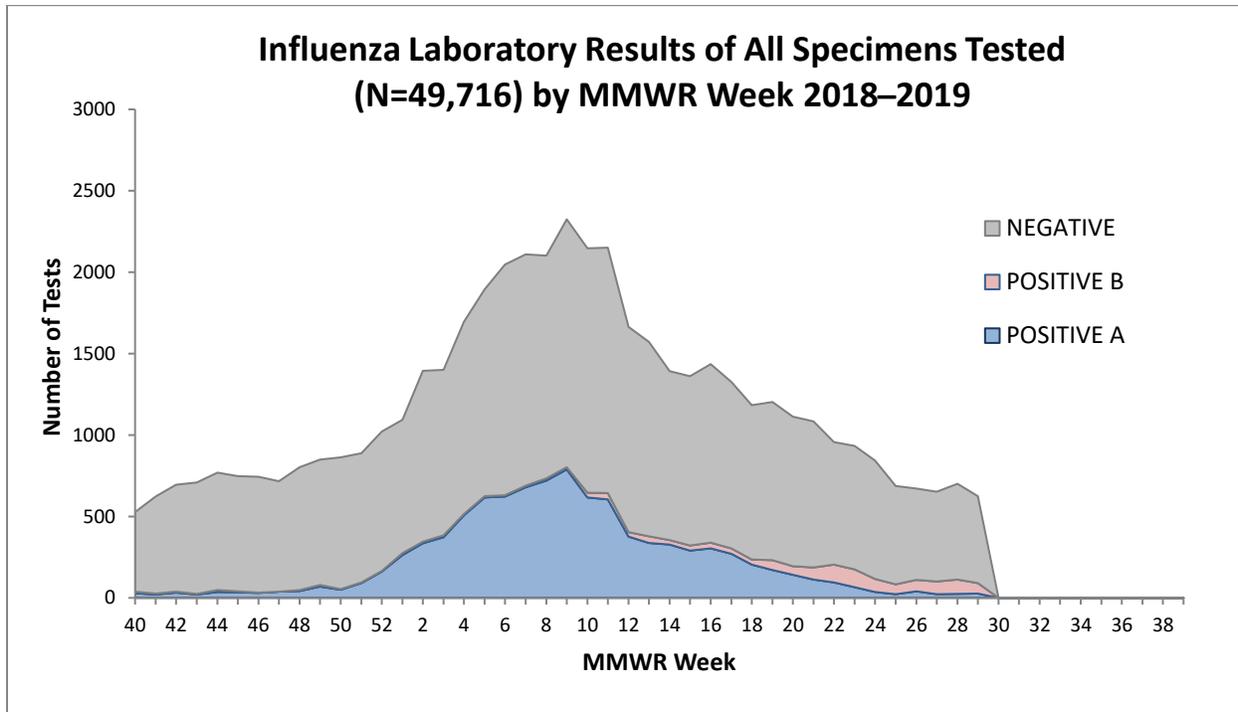


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



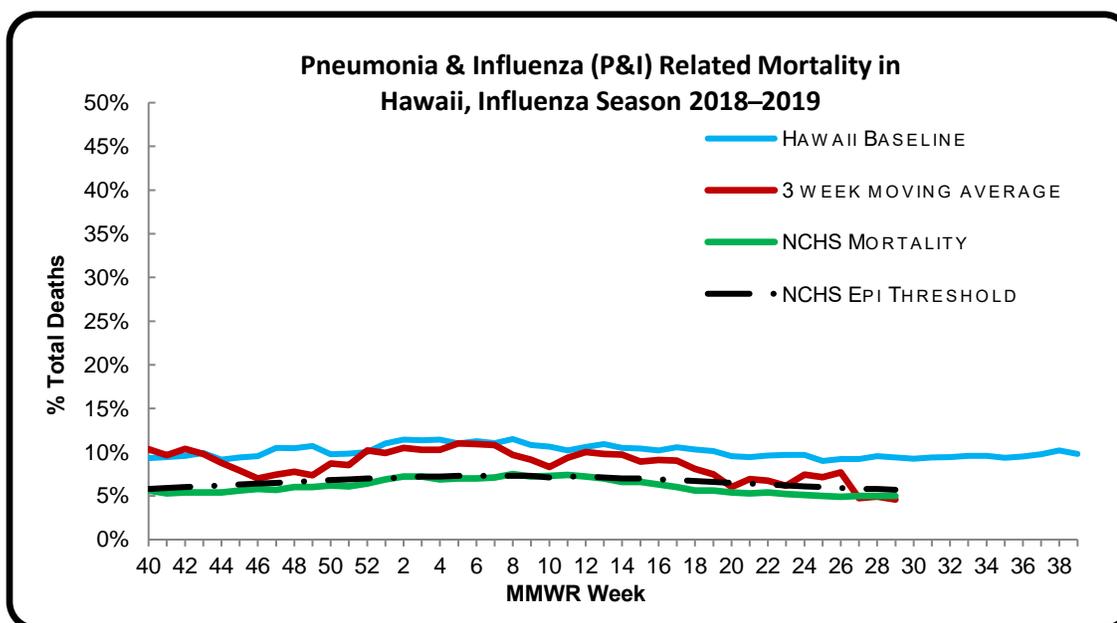
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 29 of the current influenza season:

- 5.5% of all deaths that occurred in Hawaii during week 29 were related to pneumonia or influenza. For the current season (season to date: 8.4%), there have been 9,595 deaths from any cause, 811 of which were due to P&I.
- The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (5.0%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.7%) (i.e., inside the 95% confidence interval) for week 29.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 29. One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 10 (week

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

ending March 9, 2019) and one death was associated with an influenza A(H1N1)pdm09 virus and occurred during week 21 (week ending May 25, 2019). (Season total: 126).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 29.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH

DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report

Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 30: JULY 21, 2019–JULY 27, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 30

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.5%	Higher than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and lower than the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 37 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	13.9%	Lower than the previous week. This number means that many, if not all, of the 86.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	22.0%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	4.2%	Lower than Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

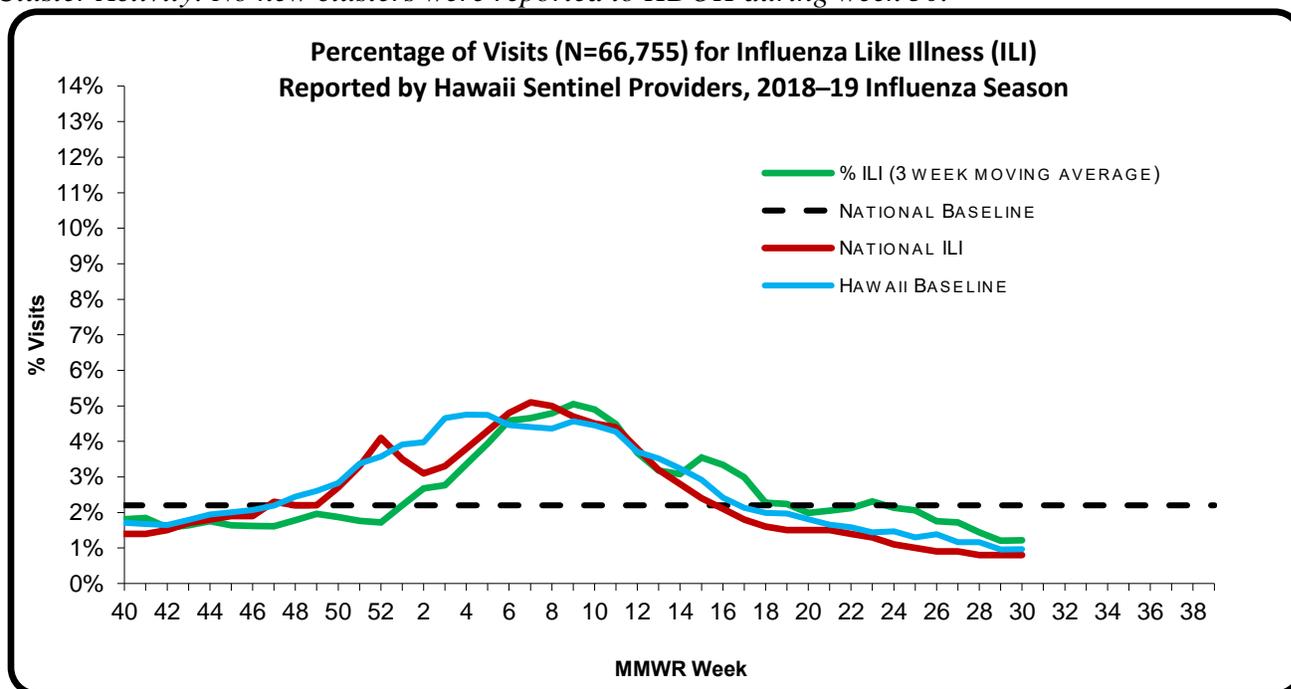
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 30 of the current influenza season:

- **1.5%** (season to date: **2.6%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii's ILI outpatient visits were lower than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (0.8%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵.
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 30.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

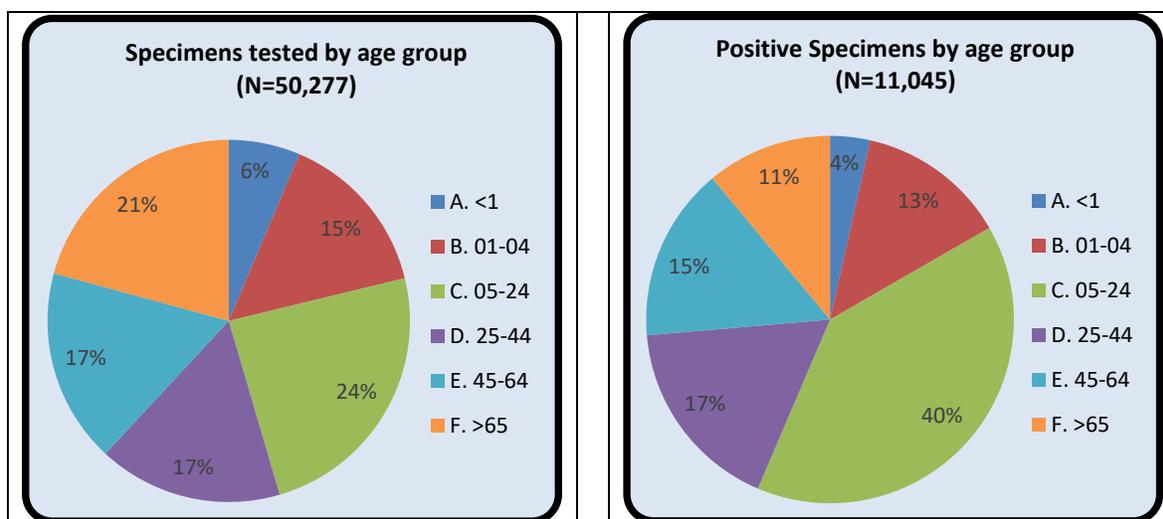
A. INFLUENZA:

- The following reflects laboratory findings for week 30 of the 2018–19 influenza season:
 - A total of **561** specimens have been tested statewide for influenza viruses (positive: 78 [13.9%]). (Season to date: 50,277 tested [22.0% positive])
 - 392 (69.9%) were screened only by rapid antigen tests with no confirmatory testing.
 - 169 (30.1%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 483 (86.1%) were negative.

<i>Influenza type</i>	<i>Current week 30 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	0 (0.0)	760 (6.9)
<i>Influenza A (H3)</i>	1 (1.3)	370 (3.4)
<i>Influenza A no subtyping</i>	7 (9.0)	8,542 (77.3)
<i>Influenza B (Yamagata)</i>	0 (0.0)	28 (0.3)
<i>Influenza B (Victoria)</i>	1 (1.3)	115 (1.0)
<i>Influenza B no genotyping</i>	69 (88.5)	1,230 (11.1)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

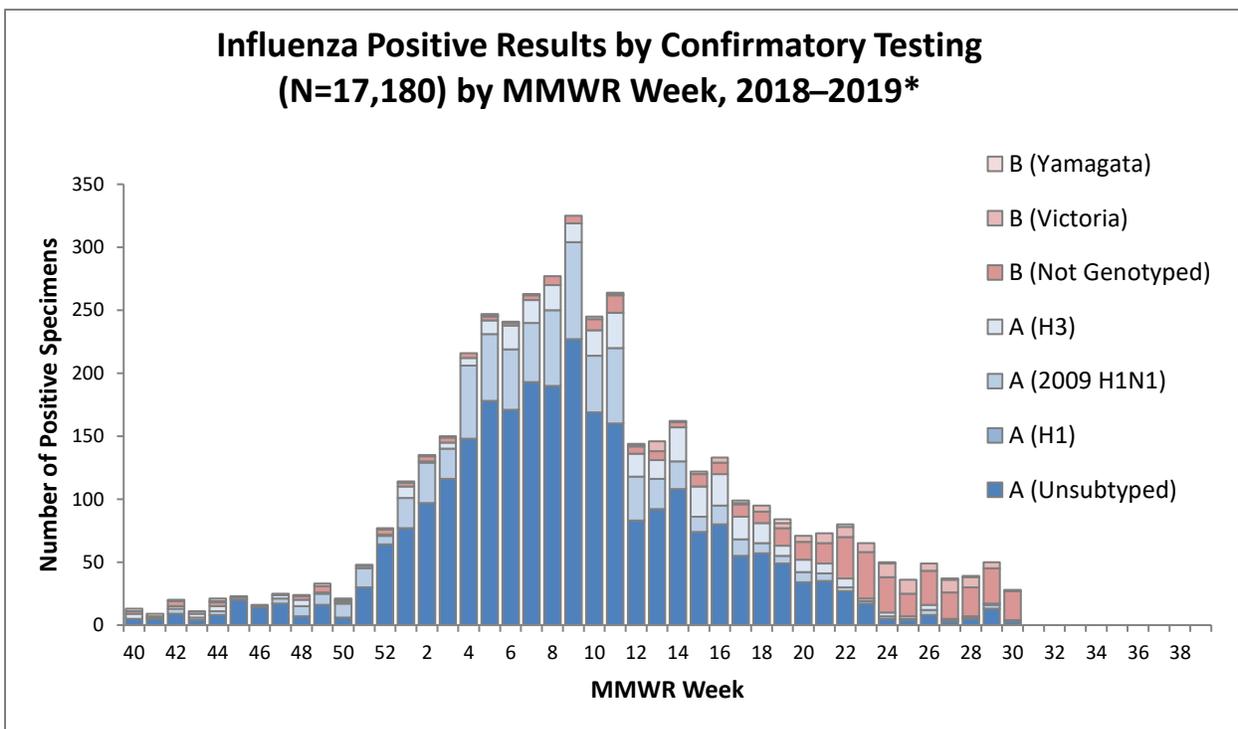
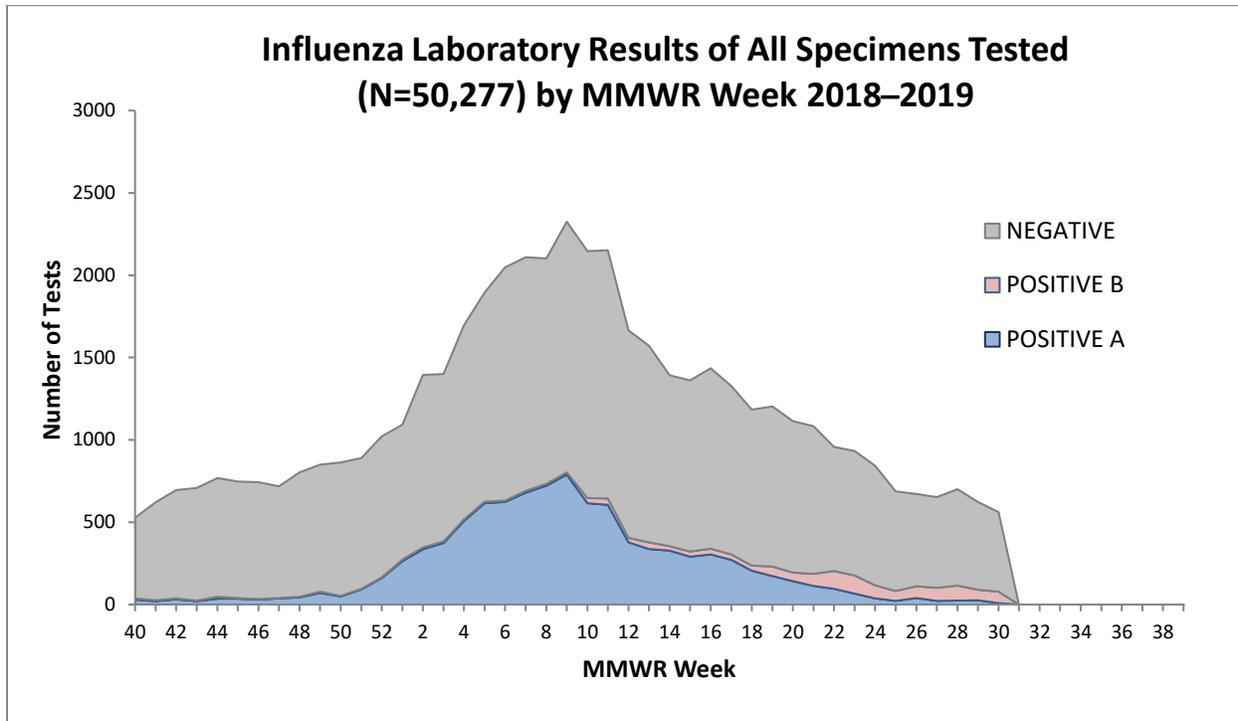


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



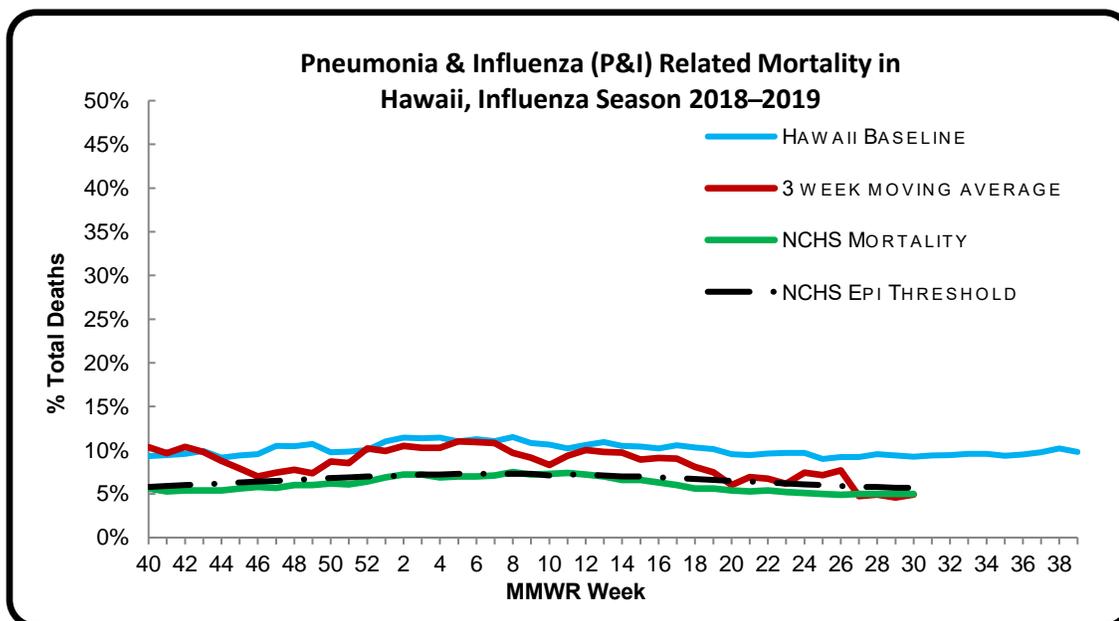
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 30 of the current influenza season:

- *4.2% of all deaths that occurred in Hawaii during week 30 were related to pneumonia or influenza. For the current season (season to date: 8.4%), there have been 9,811 deaths from any cause, 820 of which were due to P&I.*
- *The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).*
- *The Hawaii P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (5.0%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.7%) (i.e., inside the 95% confidence interval) for week 30.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 30. (Season total: 126).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 30.*

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These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

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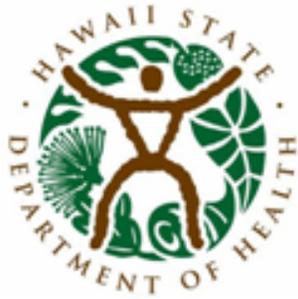
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APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

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14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
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22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
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30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
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35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
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44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
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46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 31: JULY 28, 2019–AUGUST 3, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 31

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	0.9%	Lower than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and lower than the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 38 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	10.9%	Lower than the previous week. This number means that many, if not all, of the 89.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	21.9%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	4.8%	Lower than Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	1	

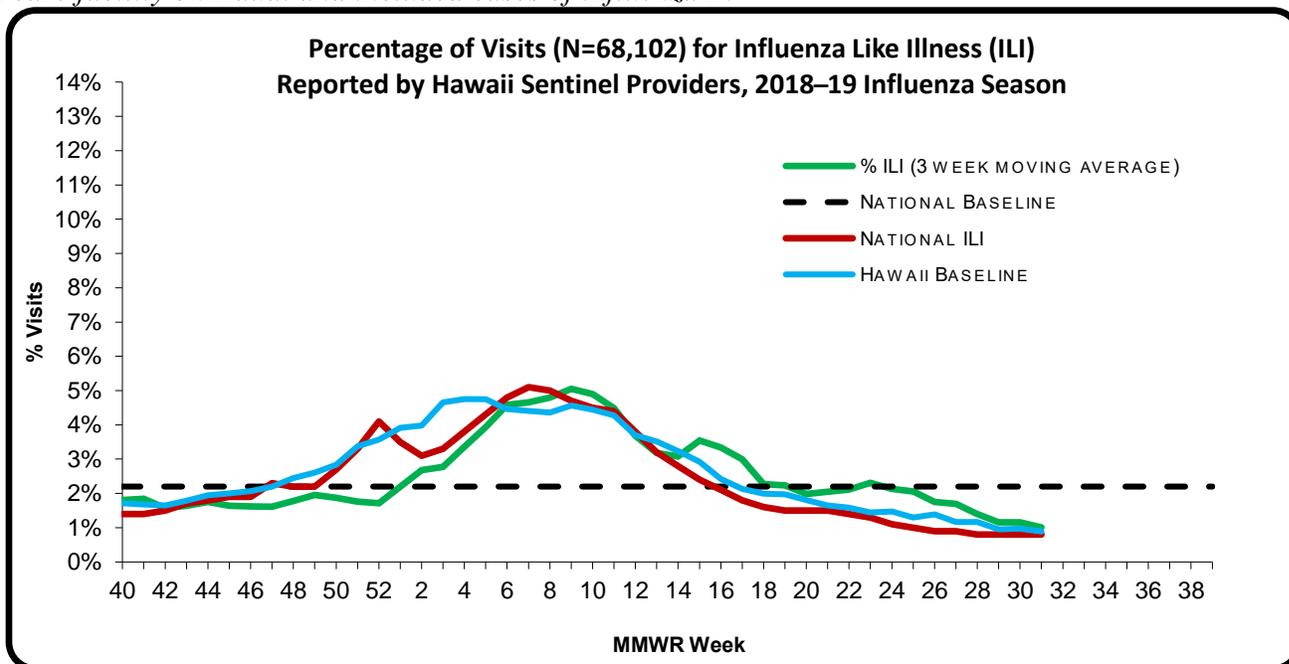
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 31 of the current influenza season:

- **0.9%** (season to date: **2.5%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were lower than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (0.8%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵.
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 31. This cluster occurred at a long-term care facility on Kauai and included cases of influenza B.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

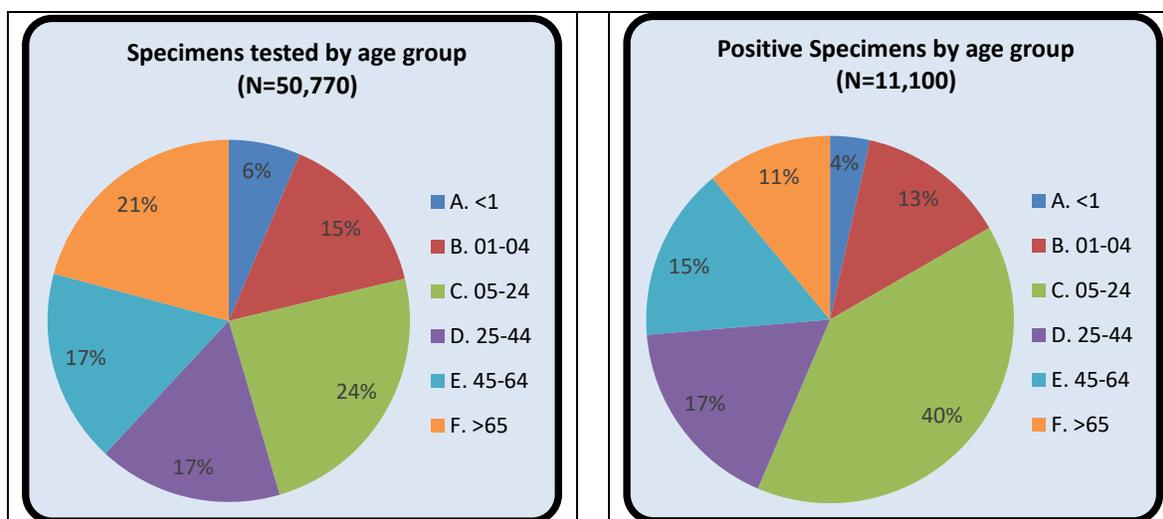
A. INFLUENZA:

- The following reflects laboratory findings for week 31 of the 2018–19 influenza season:
 - A total of 488 specimens have been tested statewide for influenza viruses (positive: 53 [10.9%]). (Season to date: 50,770 tested [21.9% positive])
 - 330 (67.6%) were screened only by rapid antigen tests with no confirmatory testing.
 - 158 (32.4%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 435 (89.1%) were negative.

Influenza type	Current week 31 (%)	Season to date (%)
Influenza A (H1) ⁷	0 (0.0)	761 (6.9)
Influenza A (H3)	0 (0.0)	371 (3.3)
Influenza A no subtyping	5 (9.4)	8,546 (77.0)
Influenza B (Yamagata)	0 (0.0)	28 (0.3)
Influenza B (Victoria)	4 (7.6)	127 (1.1)
Influenza B no genotyping	44 (83.0)	1,267 (11.4)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

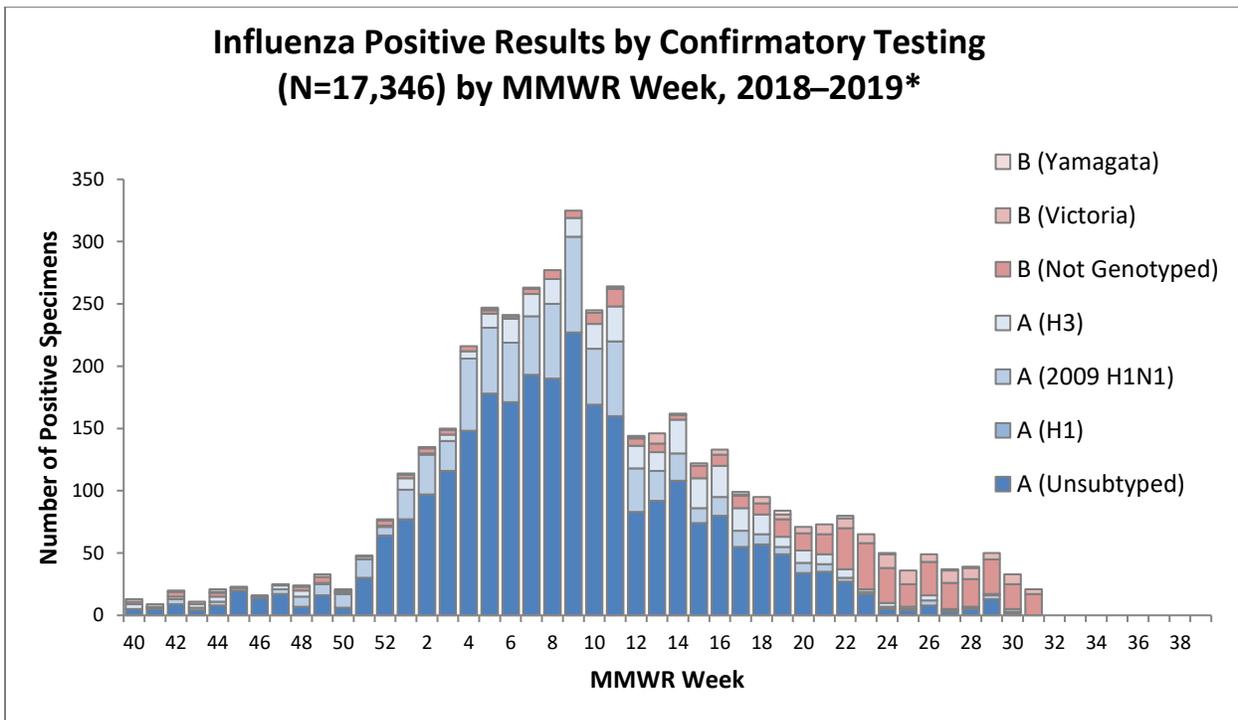
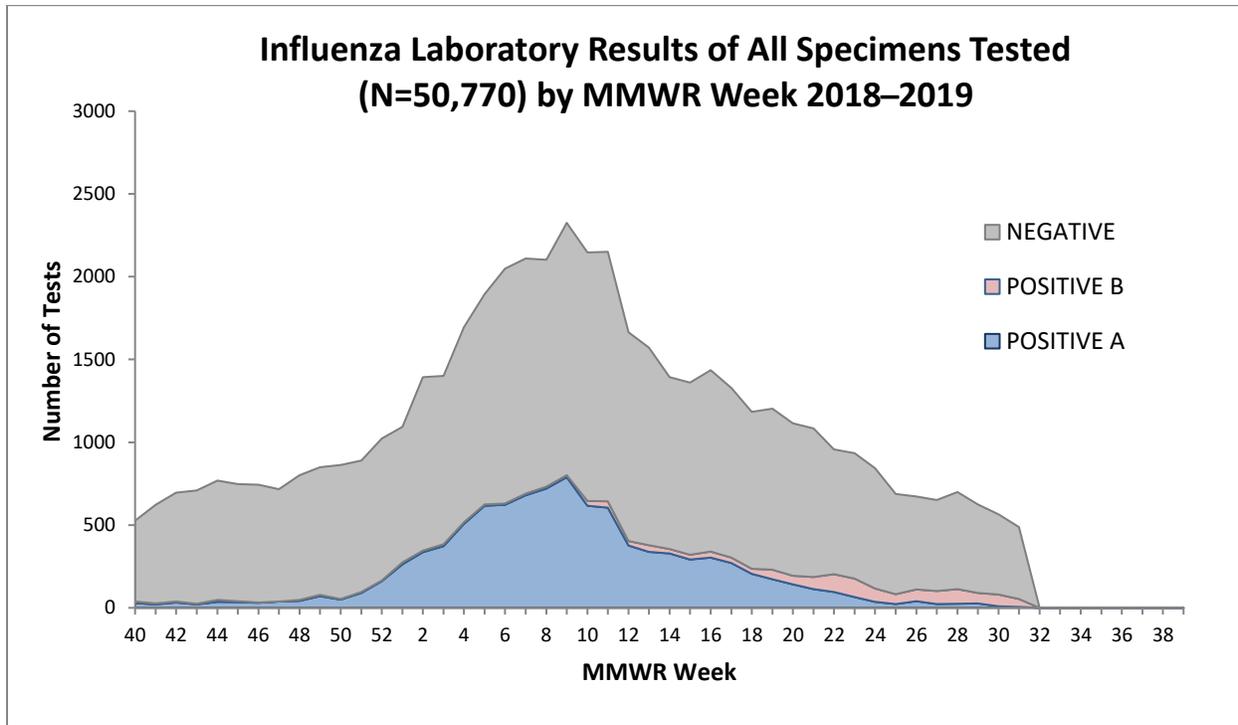


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



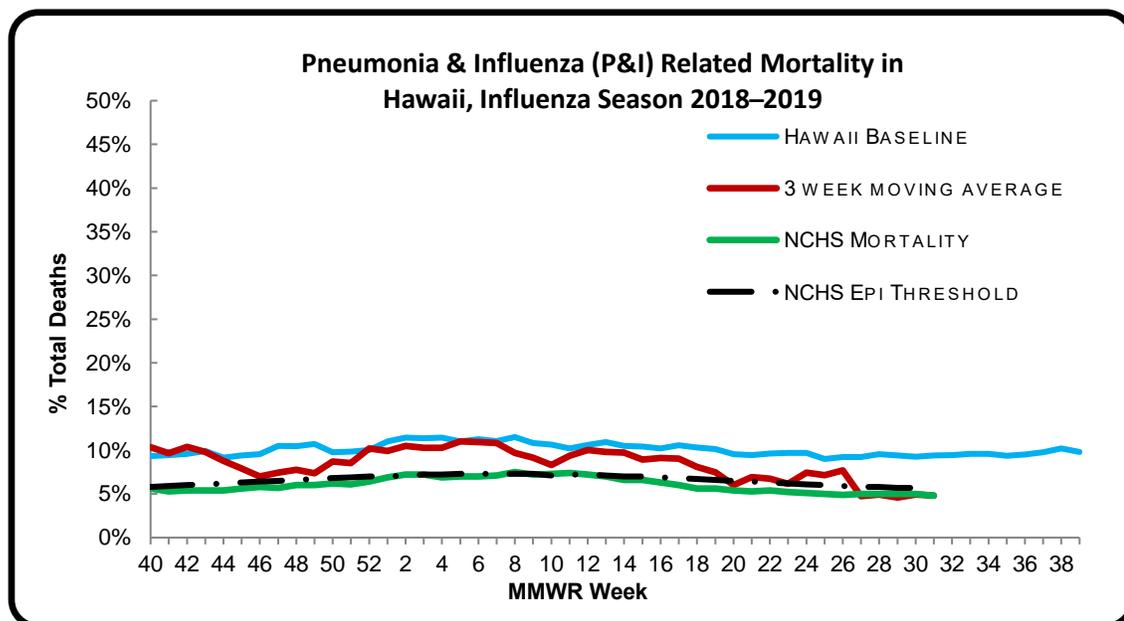
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 31 of the current influenza season:

- *4.8% of all deaths that occurred in Hawaii during week 31 were related to pneumonia or influenza. For the current season (season to date: 8.3%), there have been 10,042 deaths from any cause, 831 of which were due to P&I.*
- *The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).*
- *The Hawaii P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (4.8%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.6%) (i.e., inside the 95% confidence interval) for week 31.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 31. The death was associated with an influenza A virus for which no subtyping was performed and occurred during week 27 (week ending July 6, 2019). (Season total: 127).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

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V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

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11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
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48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 32: AUGUST 4, 2019–AUGUST 10, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 32

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	0.7%	Lower than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and lower than the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 38 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	11.9%	Higher than the previous week. This number means that many, if not all, of the 88.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	21.8%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	3.8%	Lower than Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	2	

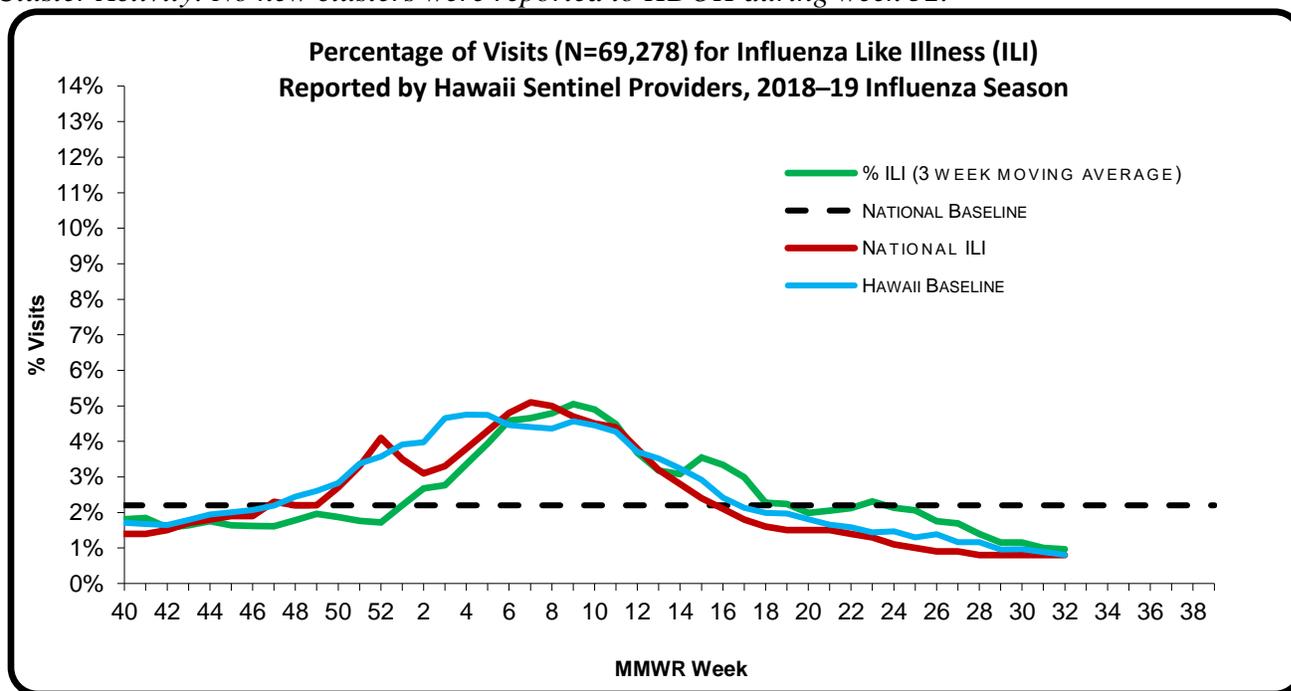
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 32** of the current influenza season:

- **0.7%** (season to date: **2.5%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were lower than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (0.8%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵.
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 32.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

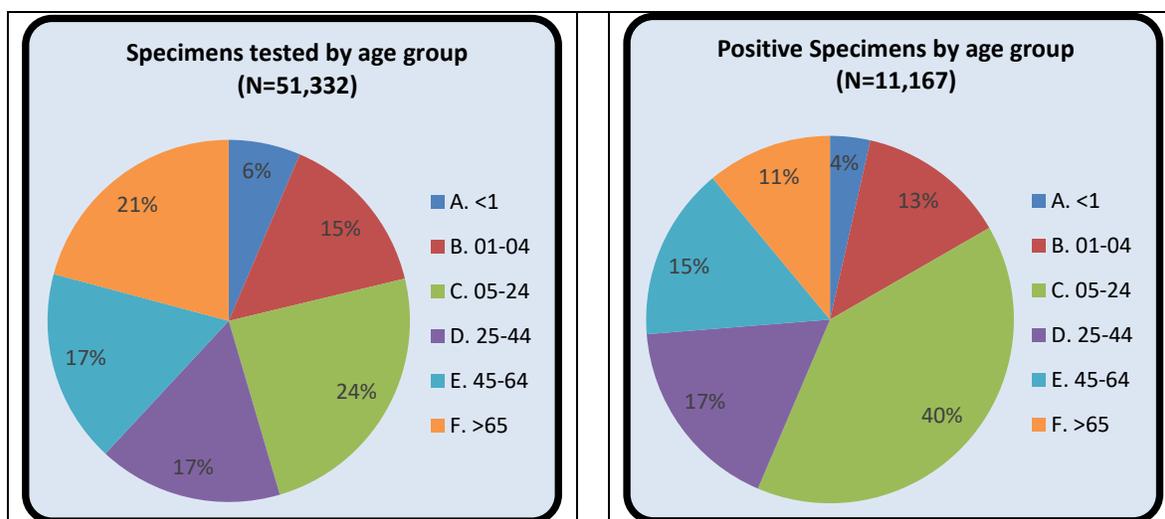
A. INFLUENZA:

- The following reflects laboratory findings for week 32 of the 2018–19 influenza season:
 - A total of 562 specimens have been tested statewide for influenza viruses (positive: 67 [11.9%]). (Season to date: 51,332 tested [21.8% positive])
 - 396 (70.5%) were screened only by rapid antigen tests with no confirmatory testing.
 - 166 (29.5%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 495 (88.1%) were negative.

Influenza type	Current week 32 (%)	Season to date (%)
Influenza A (H1) ⁷	0 (0.0)	761 (6.8)
Influenza A (H3)	0 (0.0)	371 (3.3)
Influenza A no subtyping	16 (23.9)	8,562 (76.7)
Influenza B (Yamagata)	0 (0.0)	28 (0.3)
Influenza B (Victoria)	6 (9.0)	135 (1.2)
Influenza B no genotyping	45 (67.2)	1,310 (11.7)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

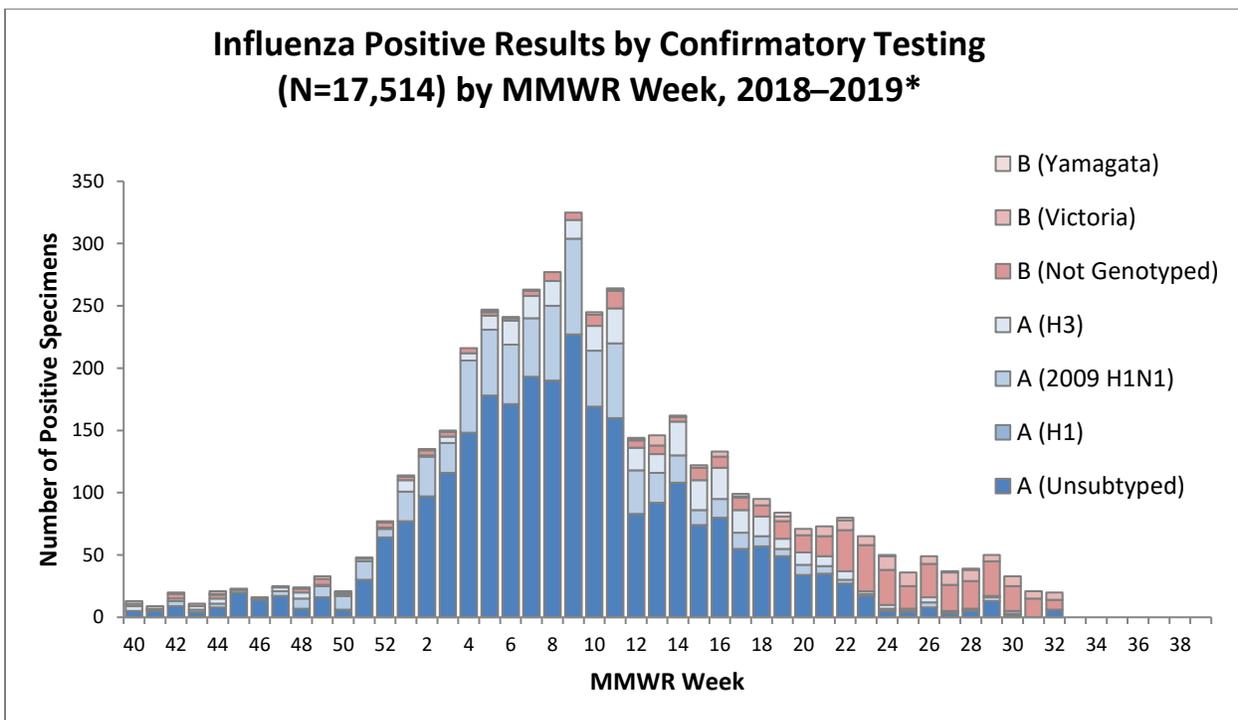
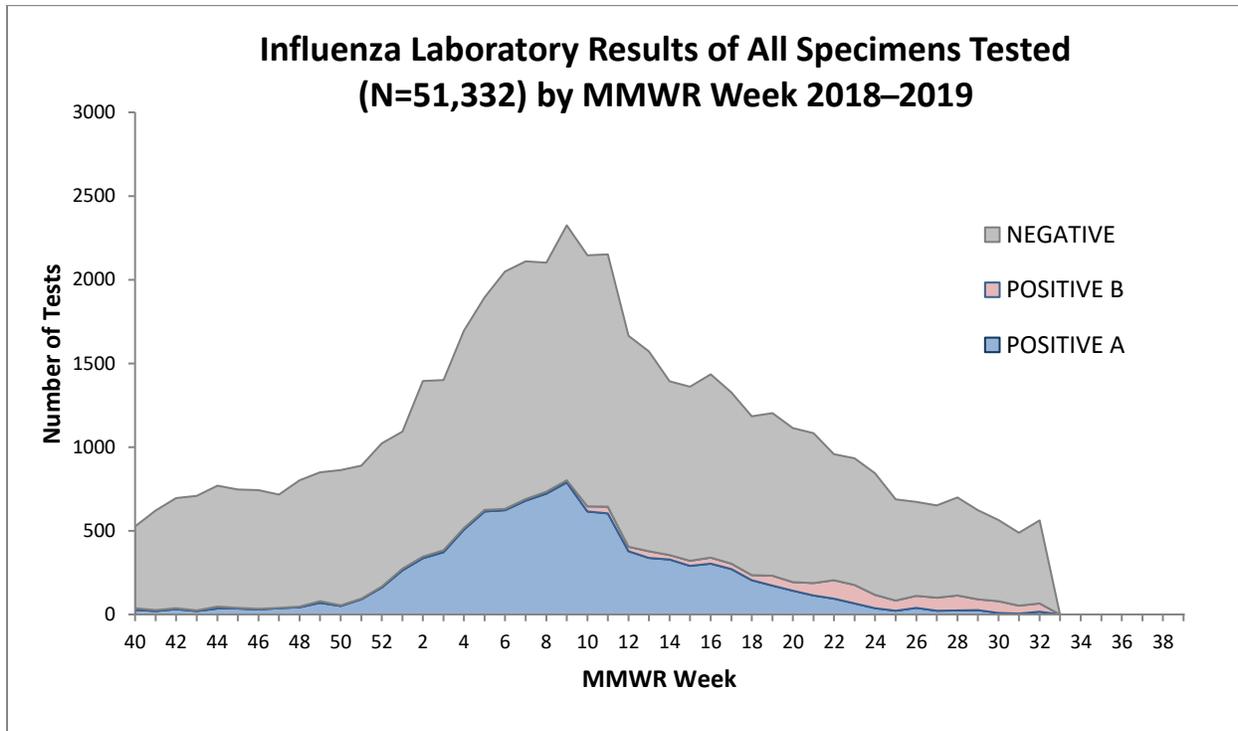


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



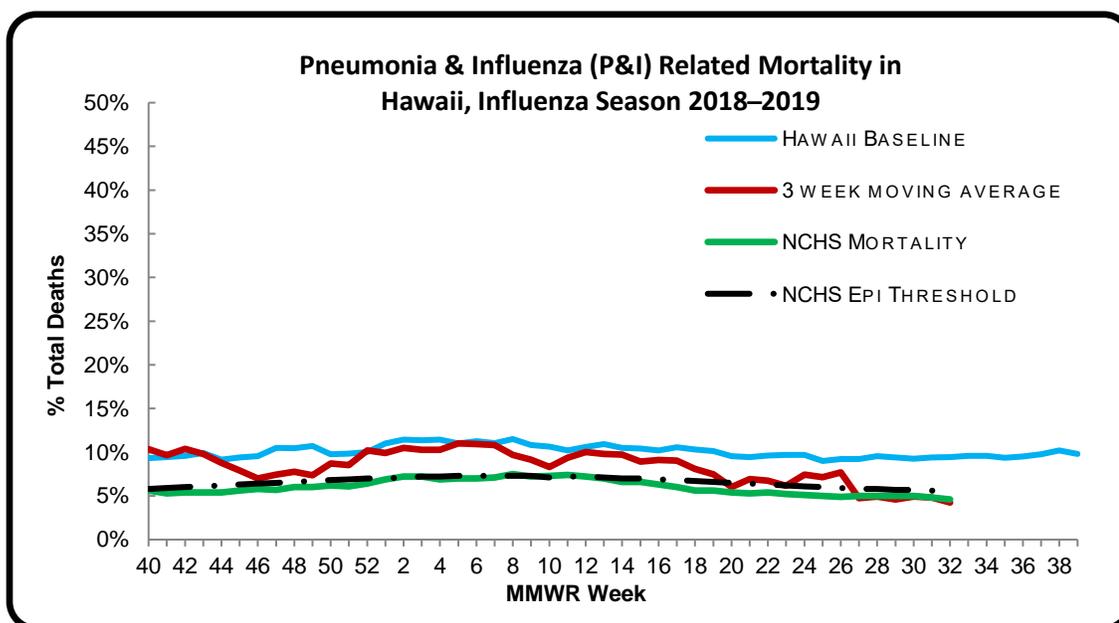
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 32 of the current influenza season:

- *3.8% of all deaths that occurred in Hawaii during week 32 were related to pneumonia or influenza. For the current season (season to date: 8.2%), there have been 10,252 deaths from any cause, 839 of which were due to P&I.*
- *The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).*
- *The Hawaii P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (4.6%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.6%) (i.e., inside the 95% confidence interval) for week 32.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 32. One death was associated with an influenza A (H3) virus and occurred during week 4 (week ending January 26, 2019) and one

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

death was associated with an influenza A (H1N1)pdm09 virus and occurred during week 18 (week ending May 4, 2019). (Season total: 129).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 32.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

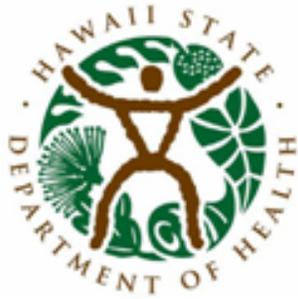
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
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19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
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23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
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26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
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35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
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44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 33: AUGUST 11, 2019–AUGUST 17, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 33

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	0.5%	Lower than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and lower than the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 38 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	14.1%	Higher than the previous week. This number means that many, if not all, of the 85.9% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	21.7%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	6.5%	Comparable to Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

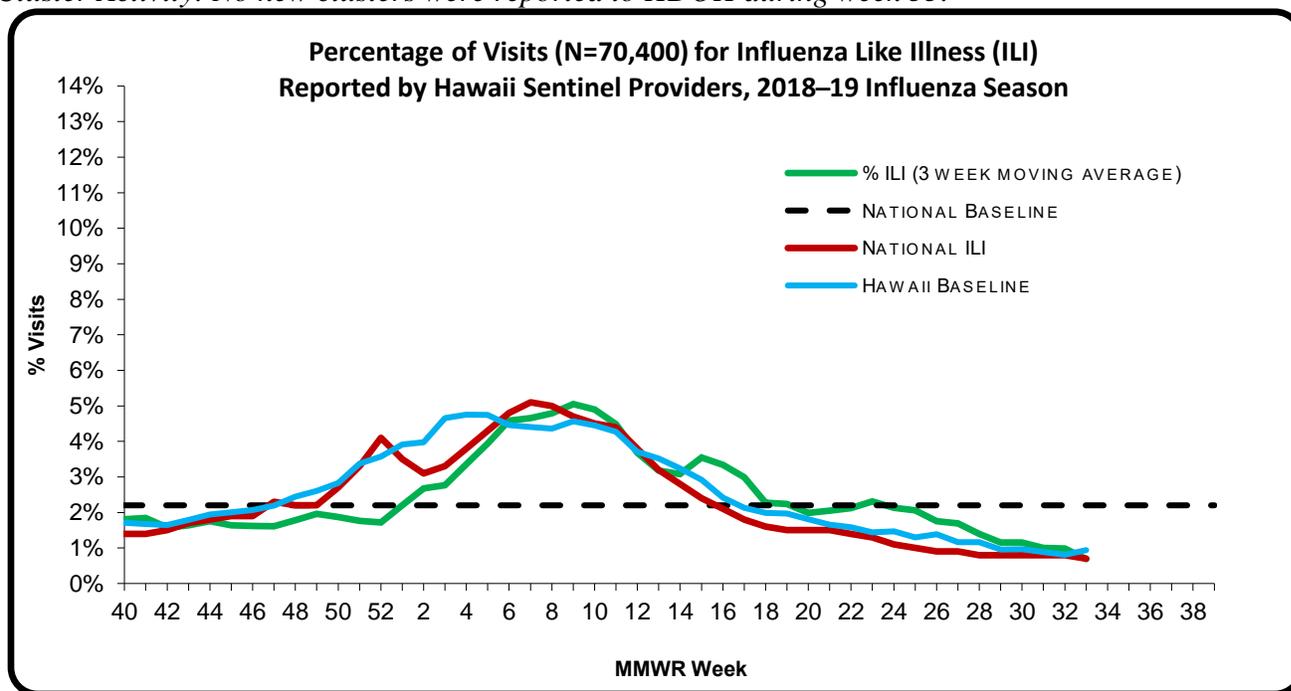
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 33** of the current influenza season:

- **0.5%** (season to date: **2.5%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were lower than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (0.7%) (i.e., inside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵.
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 33.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

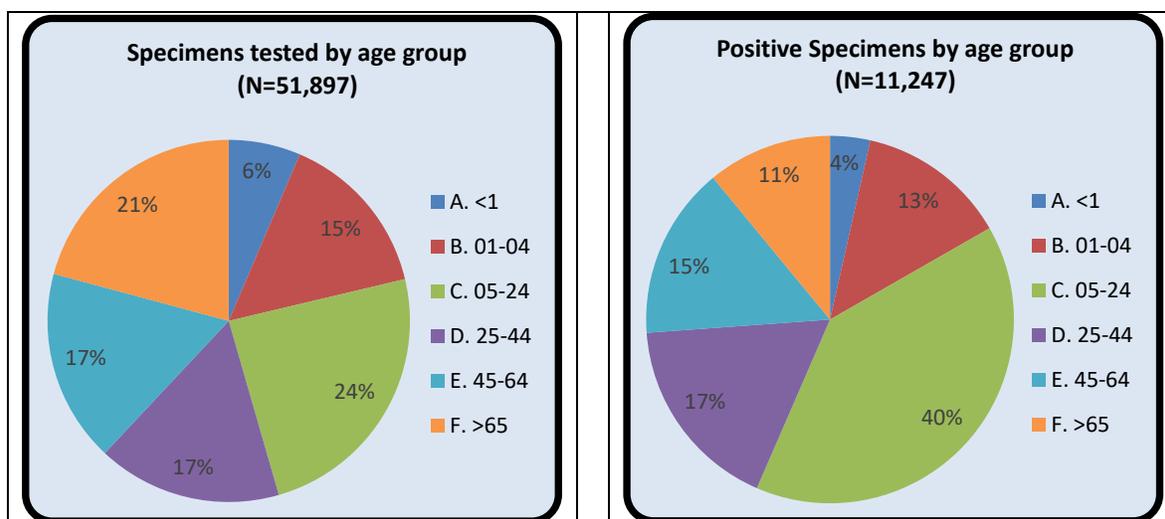
A. INFLUENZA:

- The following reflects laboratory findings for week 33 of the 2018–19 influenza season:
 - A total of **560 specimens** have been tested statewide for influenza viruses (positive: 79 [**14.1%**]). (Season to date: 51,897 tested [**21.7%** positive])
 - 387 (69.1%) were screened only by rapid antigen tests with no confirmatory testing.
 - 173 (30.9%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 481 (85.9%) were negative.

<i>Influenza type</i>	<i>Current week 33 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	0 (0.0)	761 (6.8)
<i>Influenza A (H3)</i>	0 (0.0)	373 (3.3)
<i>Influenza A no subtyping</i>	7 (8.9)	8,567 (76.2)
<i>Influenza B (Yamagata)</i>	0 (0.0)	28 (0.2)
<i>Influenza B (Victoria)</i>	6 (7.6)	144 (1.3)
<i>Influenza B no genotyping</i>	66 (83.5)	1,374 (12.2)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

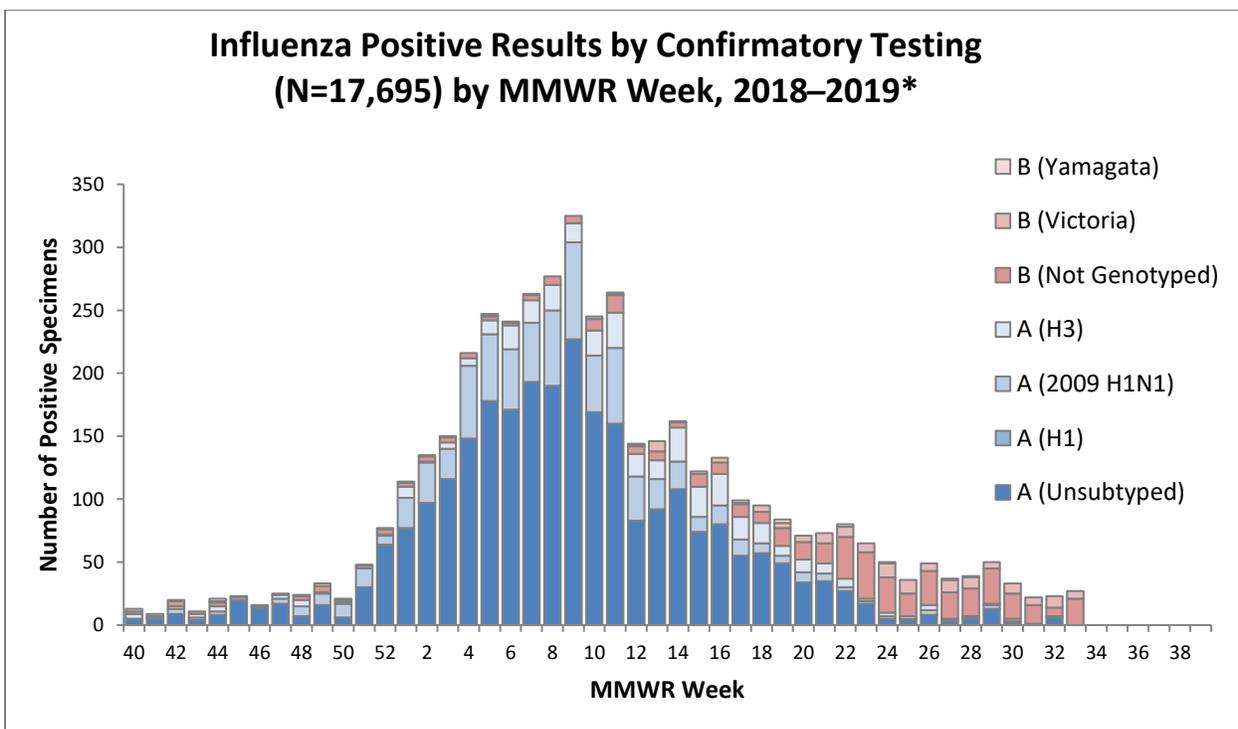
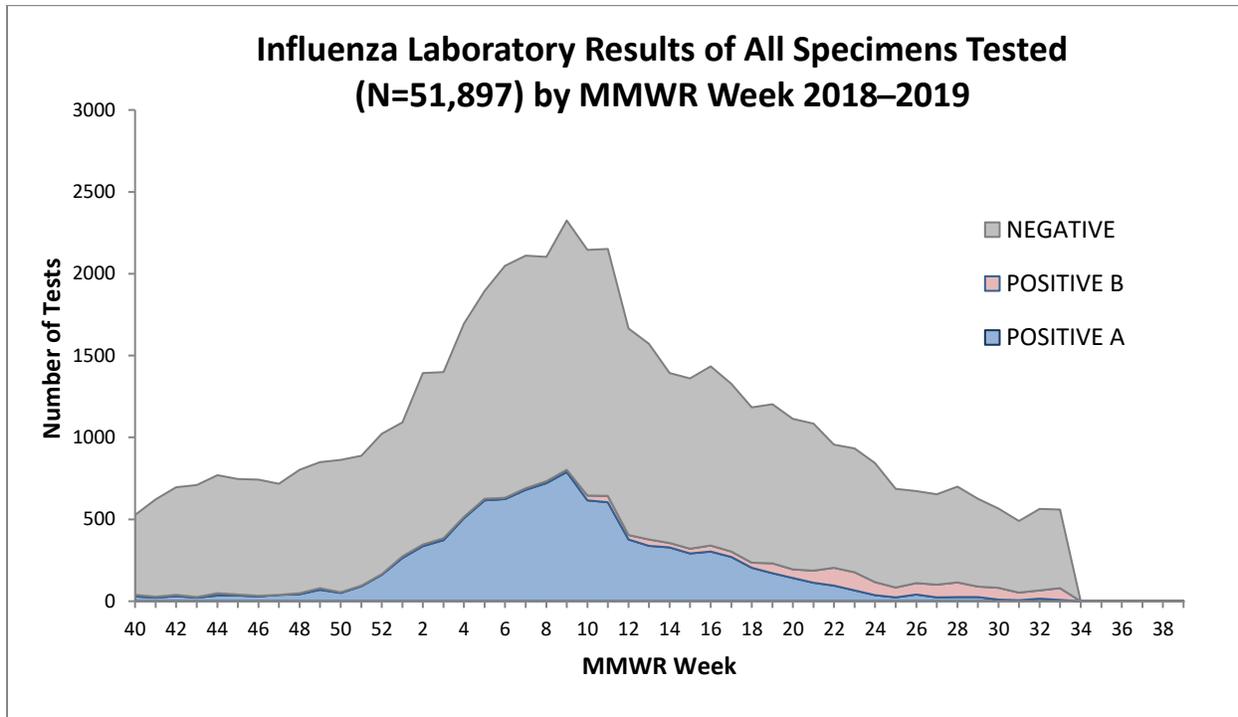


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



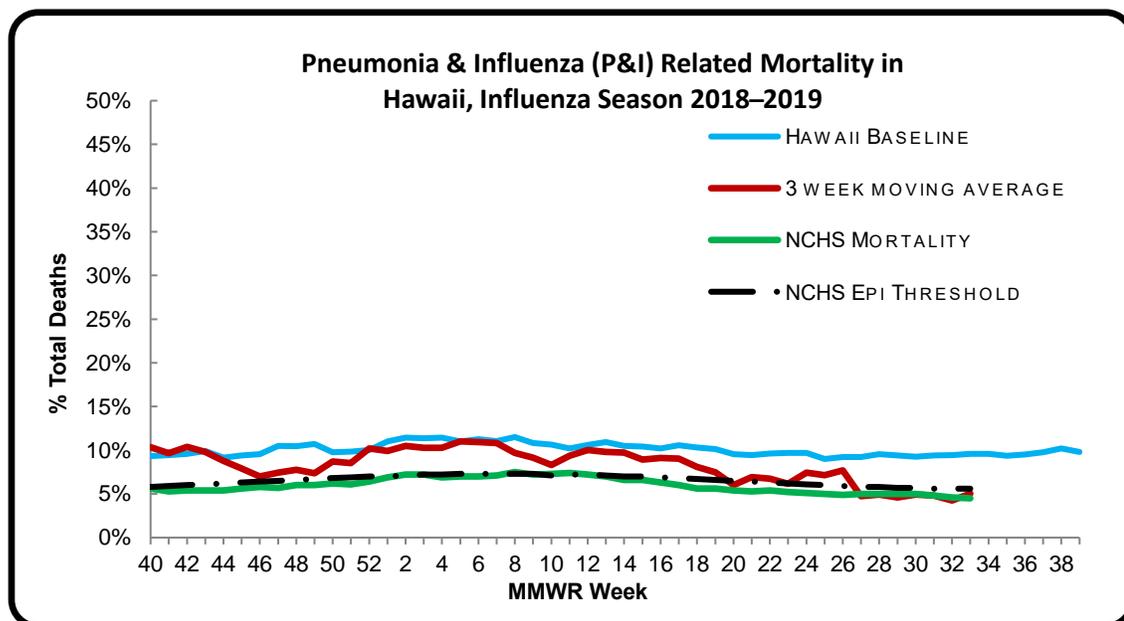
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 33 of the current influenza season:

- *6.5% of all deaths that occurred in Hawaii during week 33 were related to pneumonia or influenza. For the current season (season to date: 8.1%), there have been 10,467 deaths from any cause, 853 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).*
- *The Hawaii P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality⁹ (4.5%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.6%) (i.e., inside the 95% confidence interval) for week 33.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 33. (Season total: 129).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 33.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

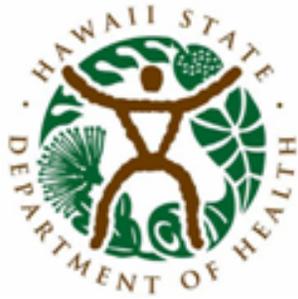
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 34: AUGUST 18, 2019–AUGUST 24, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 34

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.4%	Higher than the previous week. Comparable to Hawaii’s historical baseline, higher than the national ILI rate, and lower than the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 39 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	11.8%	Lower than the previous week. This number means that many, if not all, of the 88.2% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	21.5%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	3.5%	Lower than Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

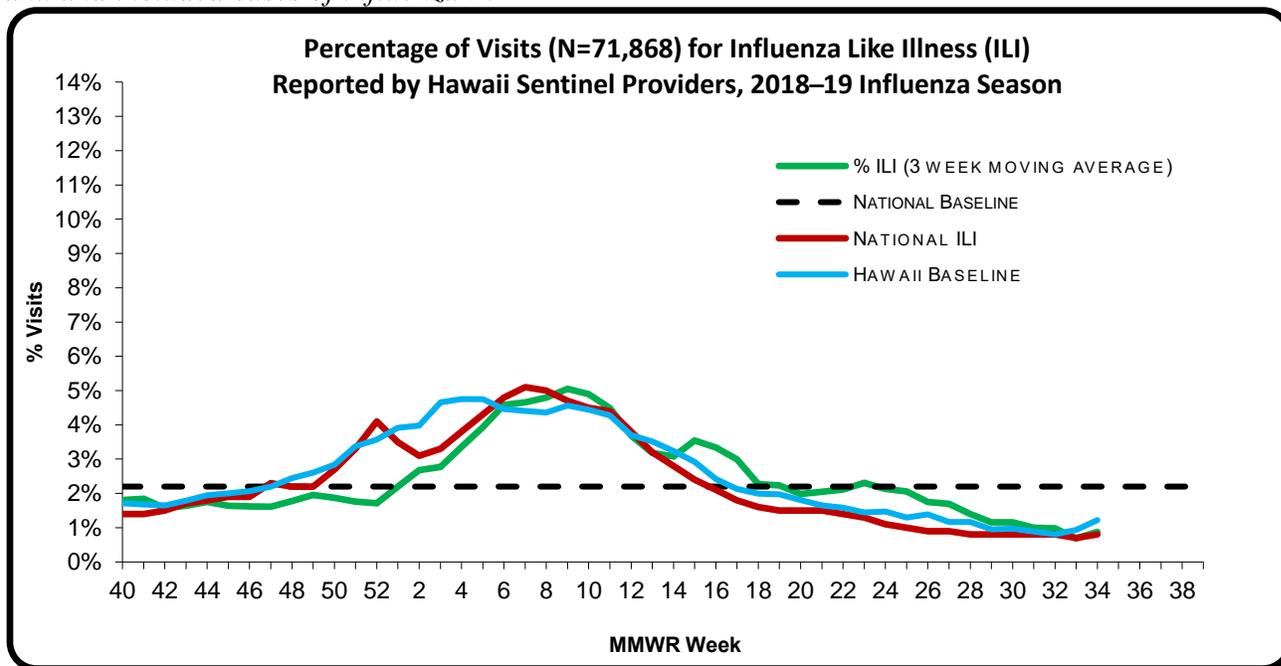
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 34 of the current influenza season:

- **1.4%** (season to date: **2.5%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were lower than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and higher than the national ILI rate (0.8%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵.
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 34. This cluster occurred at a school on Oahu and included cases of influenza B.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

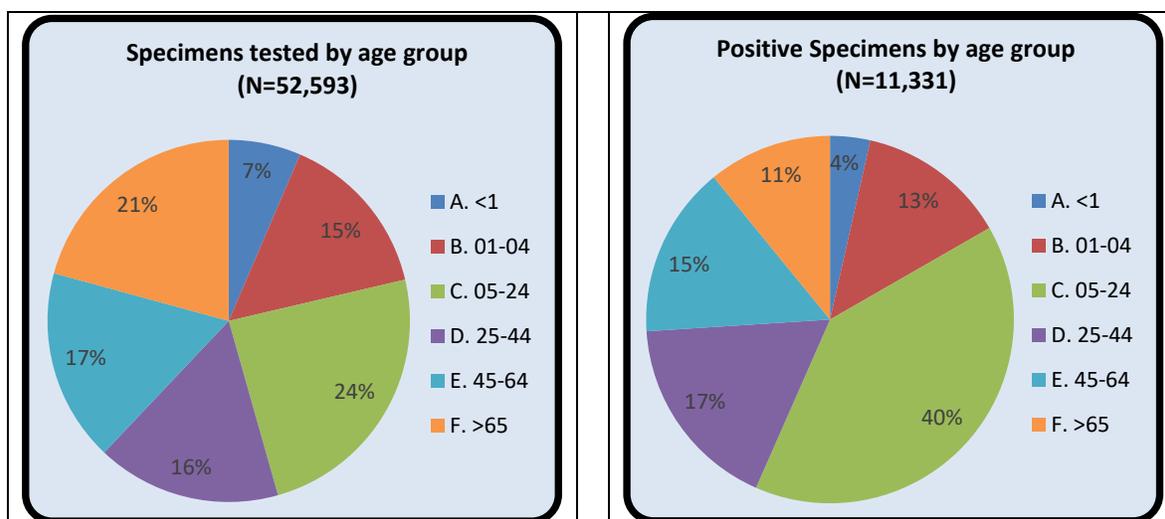
A. INFLUENZA:

- The following reflects laboratory findings for week 34 of the 2018–19 influenza season:
 - A total of **696** specimens have been tested statewide for influenza viruses (positive: 82 [**11.8%**]). (Season to date: 52,593 tested [**21.5%** positive])
 - 503 (72.3%) were screened only by rapid antigen tests with no confirmatory testing.
 - 193 (27.7%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 614 (88.2%) were negative.

<i>Influenza type</i>	<i>Current week 34 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	0 (0.0)	761 (6.7)
<i>Influenza A (H3)</i>	0 (0.0)	373 (3.3)
<i>Influenza A no subtyping</i>	8 (9.8)	8,575 (75.7)
<i>Influenza B (Yamagata)</i>	0 (0.0)	28 (0.3)
<i>Influenza B (Victoria)</i>	10 (12.2)	158 (1.4)
<i>Influenza B no genotyping</i>	64 (78.0)	1,436 (12.7)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

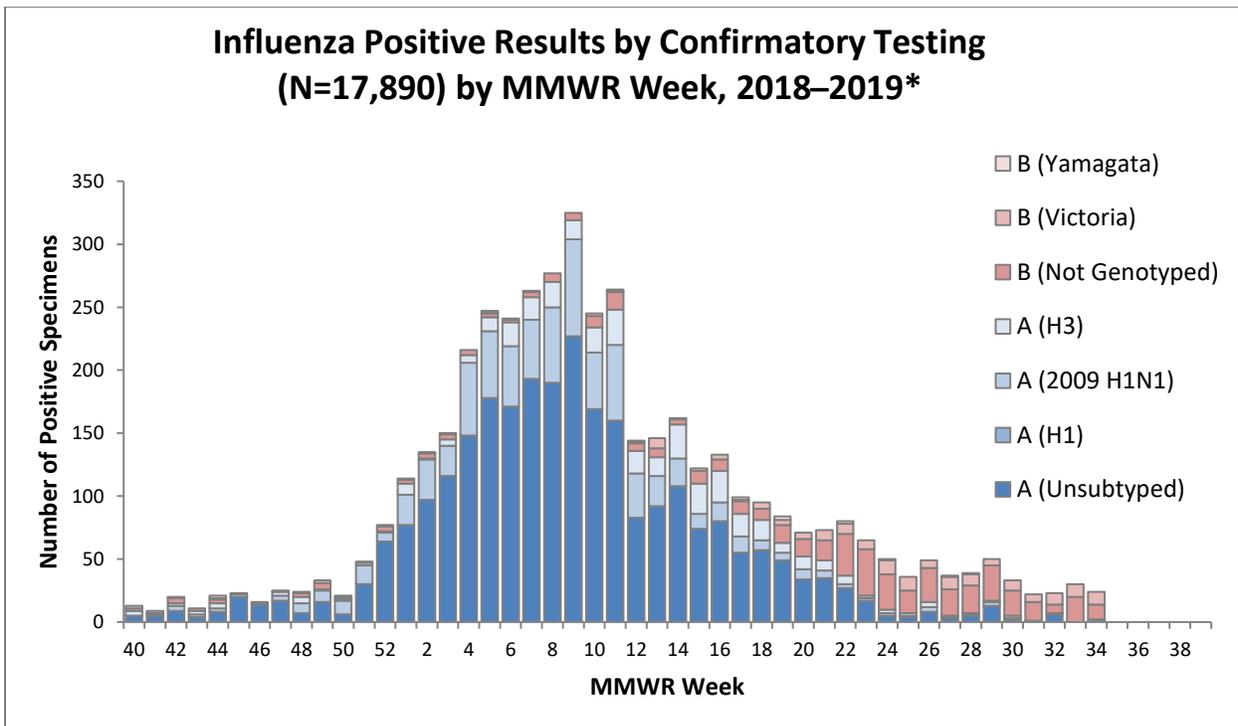
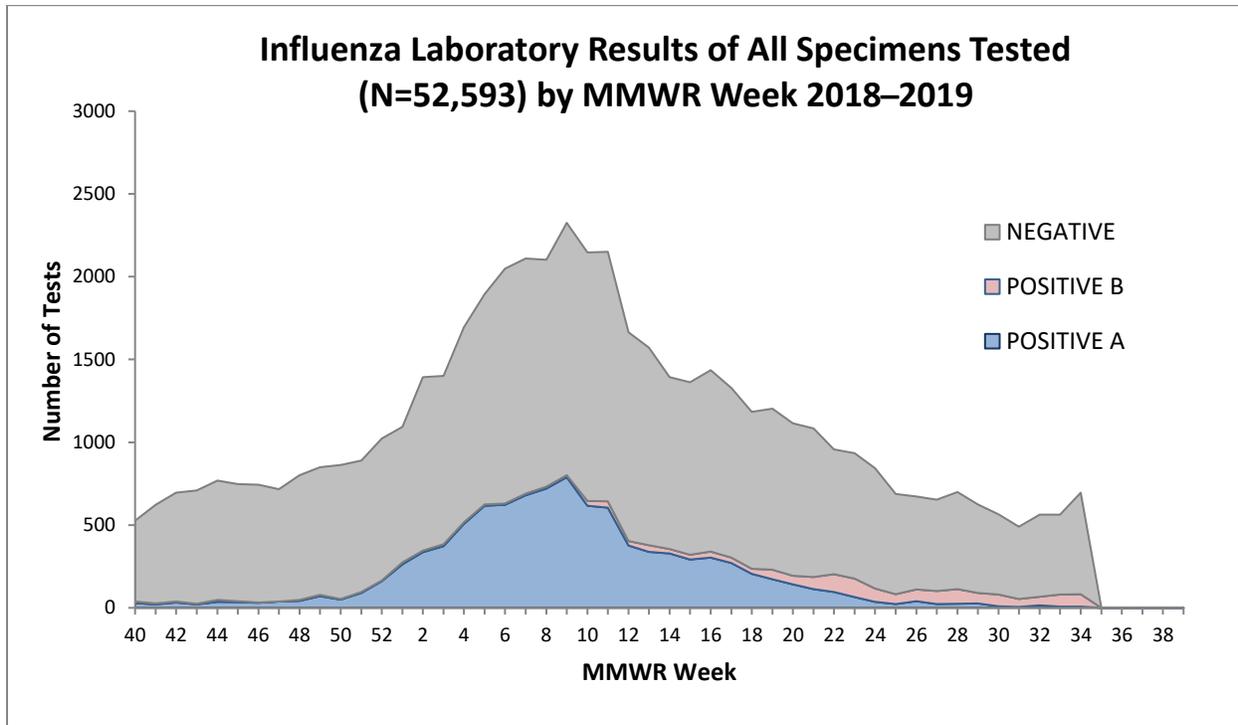


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



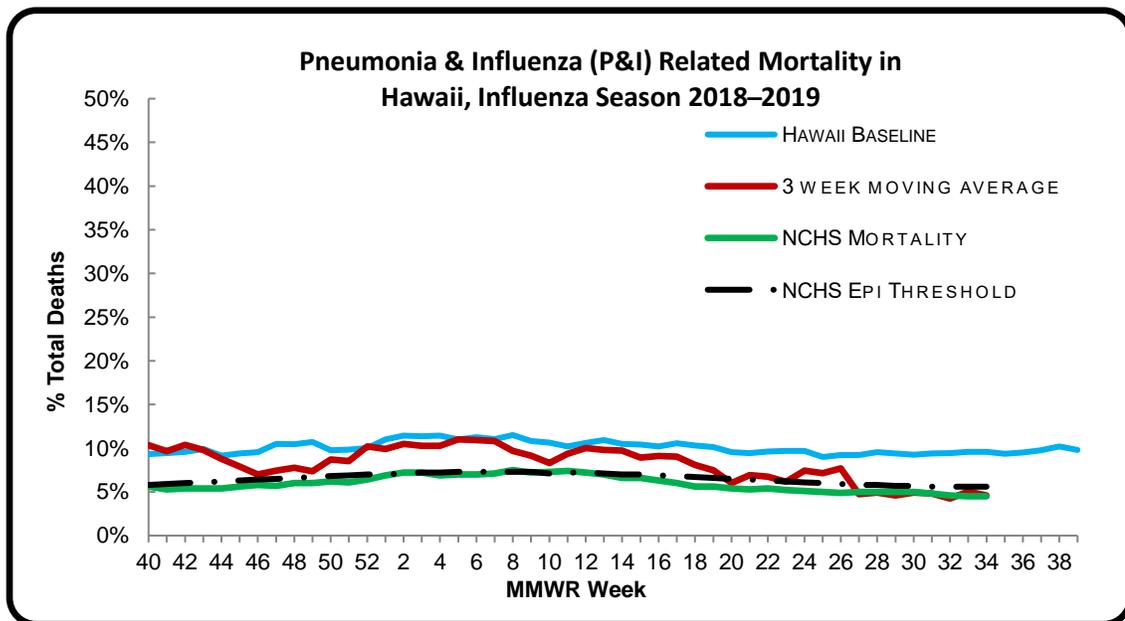
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 34 of the current influenza season:

- 3.5% of all deaths that occurred in Hawaii during week 34 were related to pneumonia or influenza. For the current season (season to date: 8.1%), there have been 10,467 deaths from any cause, 853 of which were due to P&I.
- The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (4.5%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.6%) (i.e., inside the 95% confidence interval) for week 34.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 34. (Season total: 129).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 34.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 35: AUGUST 25, 2019–AUGUST 31, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 35

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.3%	Higher than the previous week. Comparable to Hawaii’s historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 39 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	14.3%	Higher than the previous week. This number means that many, if not all, of the 85.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	21.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	4.1%	Lower than Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	1	

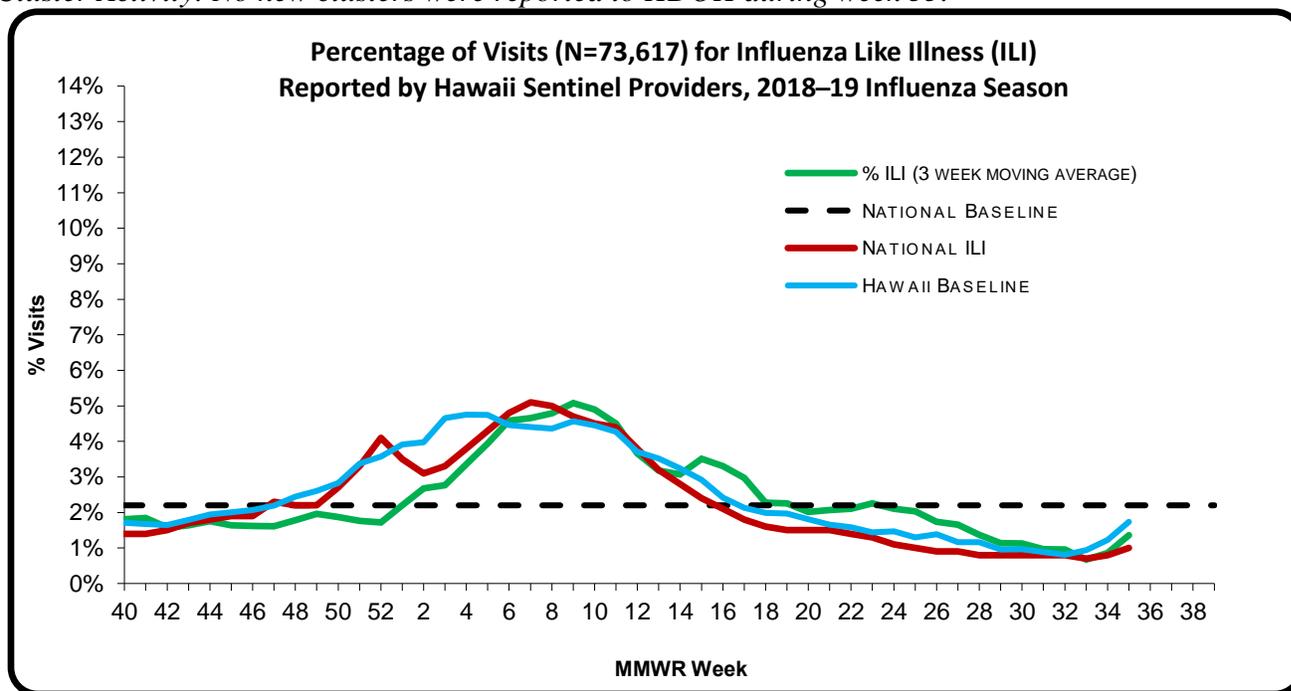
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 35** of the current influenza season:

- **2.3%** (season to date: **2.4%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (1.0%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵.
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 35.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

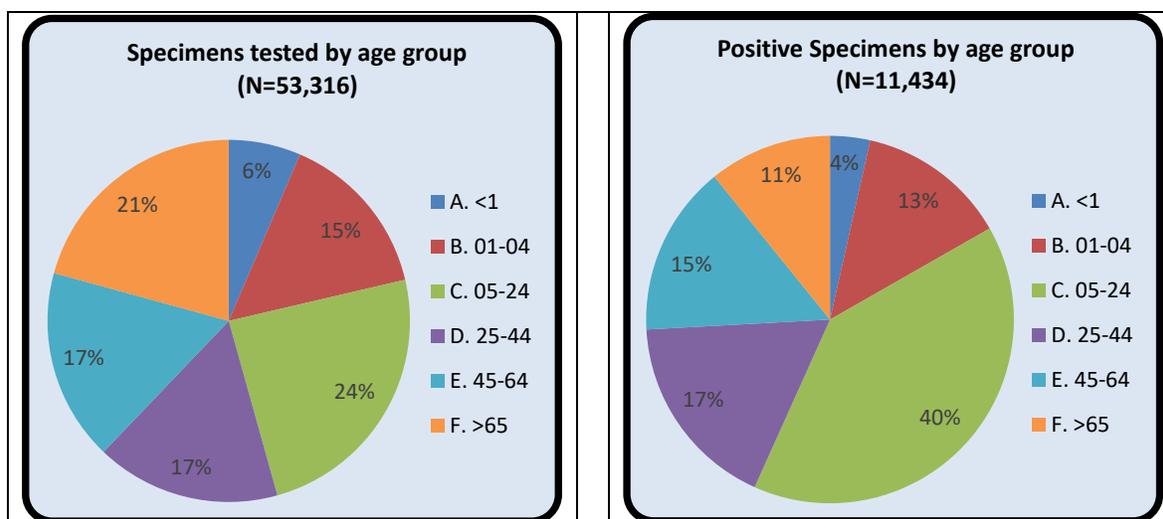
A. INFLUENZA:

- The following reflects laboratory findings for week 35 of the 2018–19 influenza season:
 - A total of 722 specimens have been tested statewide for influenza viruses (positive: 103 [14.3%]). (Season to date: 53,316 tested [21.4% positive])
 - 542 (75.1%) were screened only by rapid antigen tests with no confirmatory testing.
 - 180 (24.9%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 619 (85.7%) were negative.

Influenza type	Current week 35 (%)	Season to date (%)
Influenza A (H1) ⁷	0 (0.0)	761 (6.7)
Influenza A (H3)	2 (1.9)	376 (3.3)
Influenza A no subtyping	11 (10.7)	8,585 (75.1)
Influenza B (Yamagata)	0 (0.0)	28 (0.2)
Influenza B (Victoria)	2 (1.9)	160 (1.4)
Influenza B no genotyping	88 (85.4)	1,524 (13.3)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.

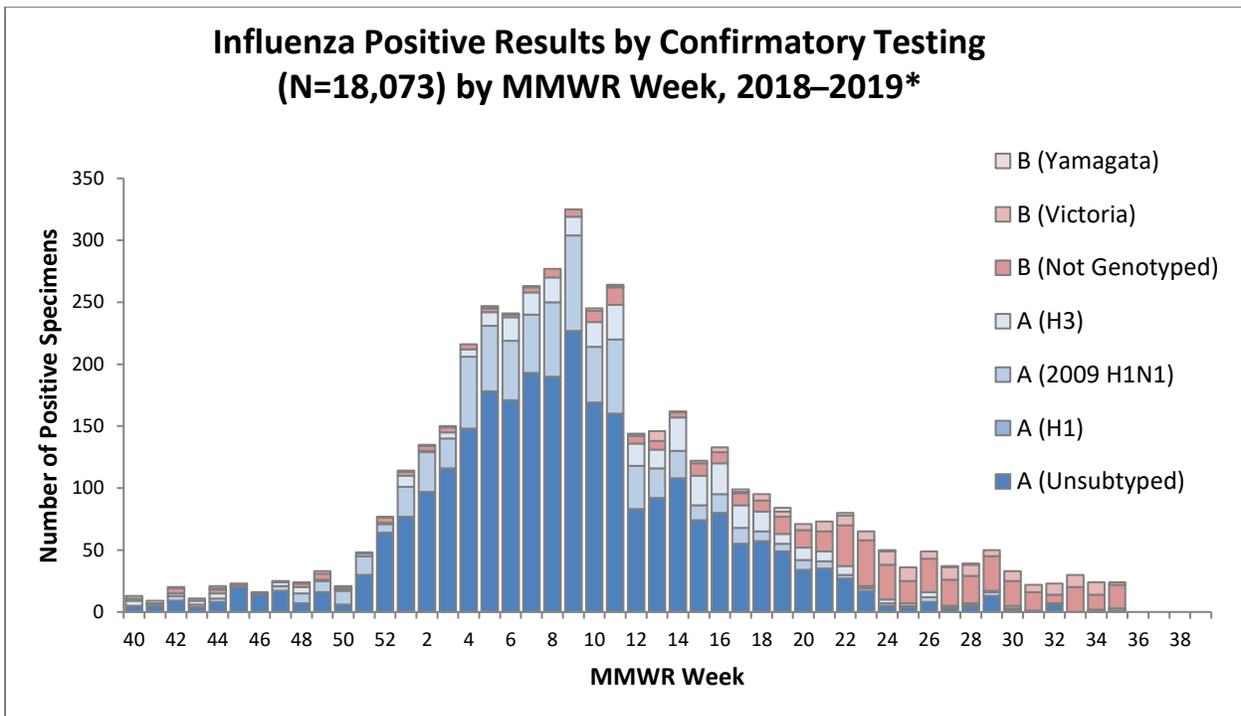
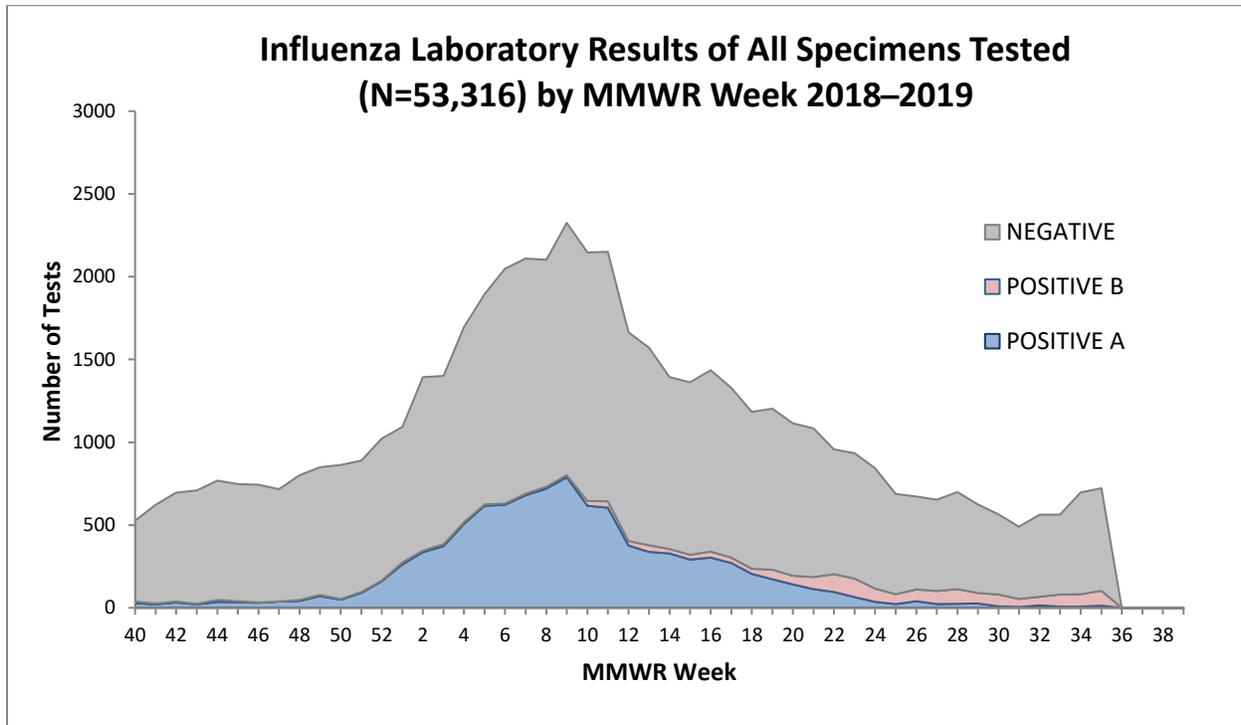


⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



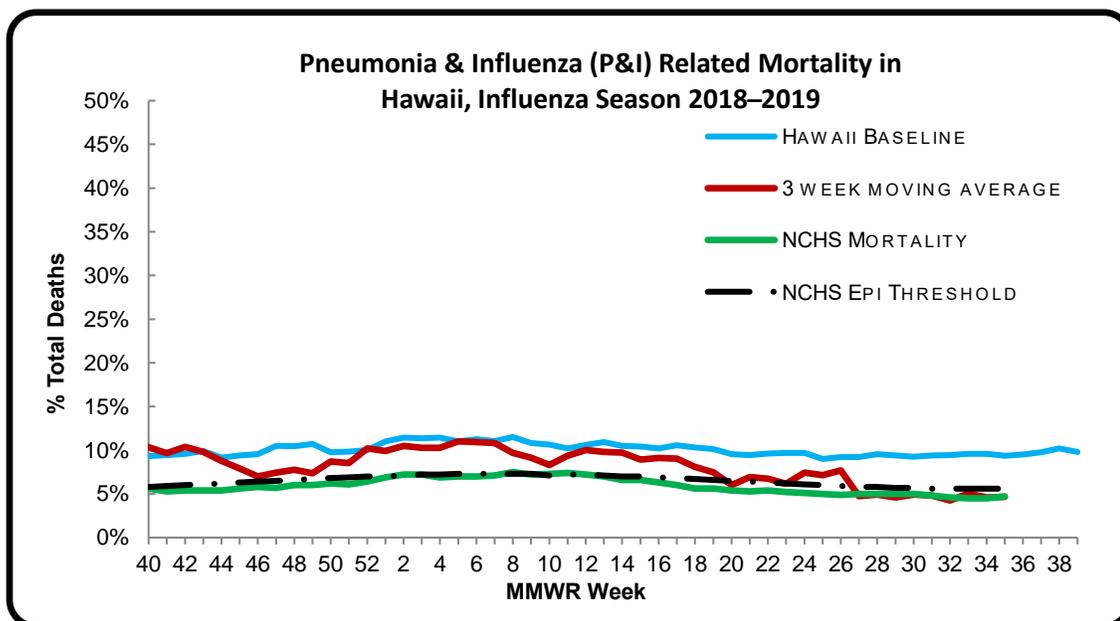
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P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 35 of the current influenza season:

- *4.1% of all deaths that occurred in Hawaii during week 35 were related to pneumonia or influenza. For the current season (season to date: 8.0%), there have been 10,919 deaths from any cause, 870 of which were due to P&I.*
- *The P&I rate was lower than the historical baseline in Hawaii⁸ (i.e., outside the 95% confidence interval).*
- *The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (4.7%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.6%) (i.e., inside the 95% confidence interval) for week 35.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, one influenza-associated pediatric deaths were reported to CDC during week 35. The death was associated with an influenza A (H3) virus and occurred during week 9 (week ending March 2, 2019). (Season total: 130).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013–2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

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IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

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A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

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Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 36: SEPTEMBER 1, 2019–SEPTEMBER 7, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 36

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.7%	Higher than the previous week. Comparable to Hawaii’s historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 40 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	12.0%	Lower than the previous week. This number means that many, if not all, of the 88.0% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	21.3%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	7.9%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	4	

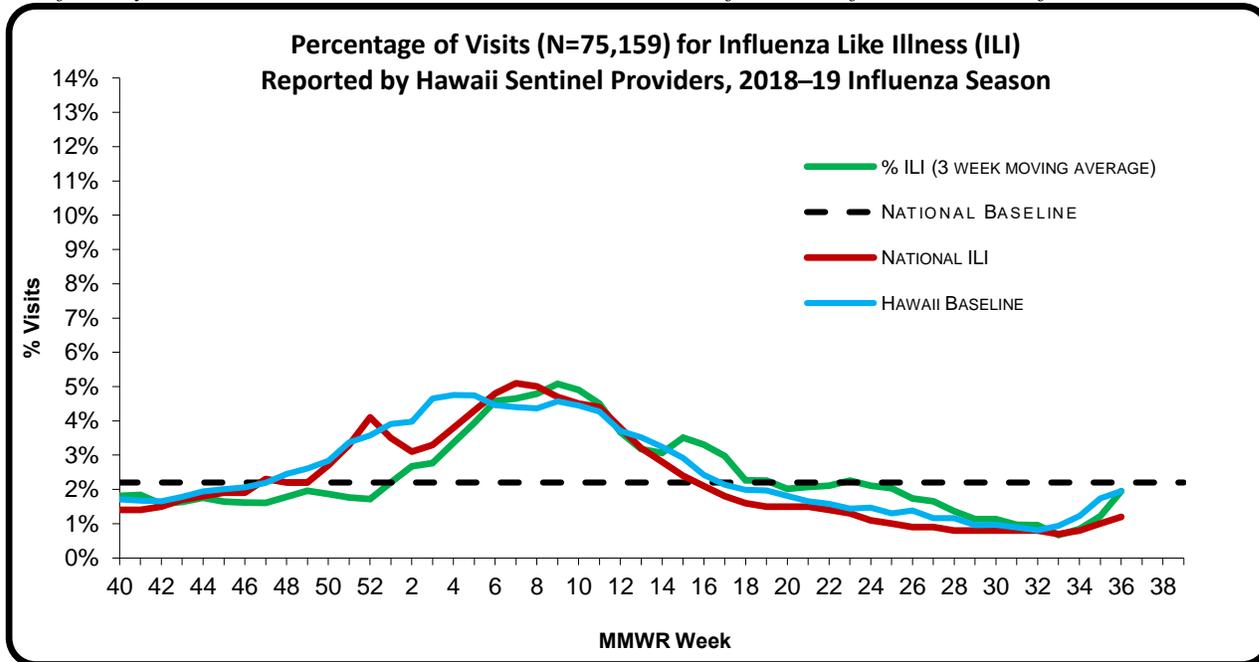
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 36 of the current influenza season:

- 2.7% (season to date: 2.4%) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii²⁻³ (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (1.2%) (i.e., outside the 95% confidence interval).
- Geographic Spread: Local Activity⁵.
- ILI Cluster Activity: One new cluster was reported to HDOH during week 36. This cluster occurred at a long-term care facility on Maui. This cluster did not include cases of either influenza A or influenza B virus.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

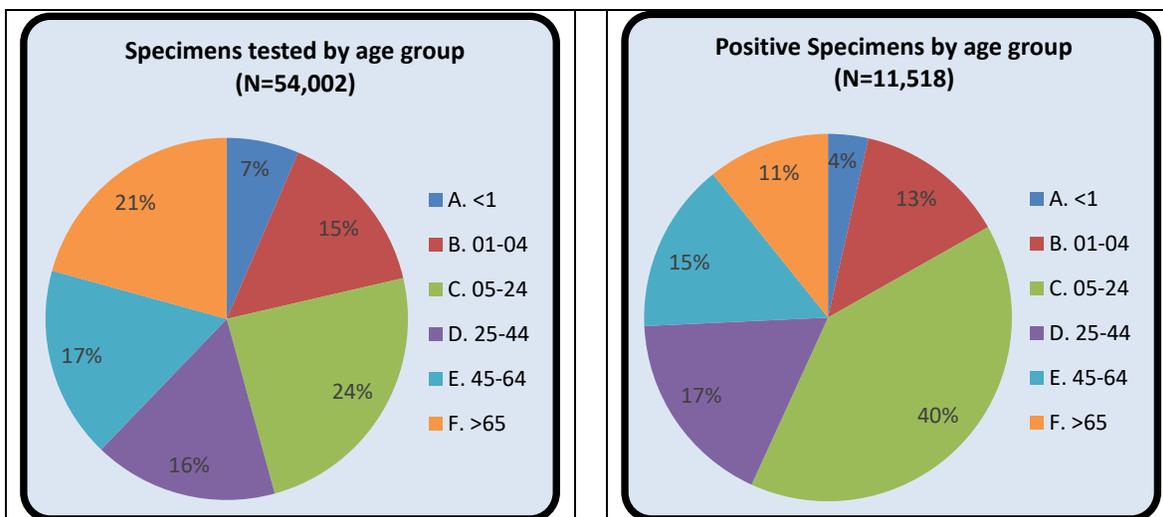
A. INFLUENZA:

- The following reflects laboratory findings for week 36 of the 2018–19 influenza season:
 - A total of **686** specimens have been tested statewide for influenza viruses (positive: 82 [12.0%]). (Season to date: 54,002 tested [21.3% positive])
 - 513 (74.8%) were screened only by rapid antigen tests with no confirmatory testing.
 - 173 (25.2%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 604 (88.0%) were negative.

<i>Influenza type</i>	<i>Current week 36 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	0 (0.0)	761 (6.6)
<i>Influenza A (H3)</i>	1 (1.2)	378 (3.3)
<i>Influenza A no subtyping</i>	8 (9.8)	8,592 (74.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	28 (0.2)
<i>Influenza B (Victoria)</i>	7 (8.5)	172 (1.5)
<i>Influenza B no genotyping</i>	66 (80.5)	1,587 (13.8)

1. AGE DISTRIBUTION

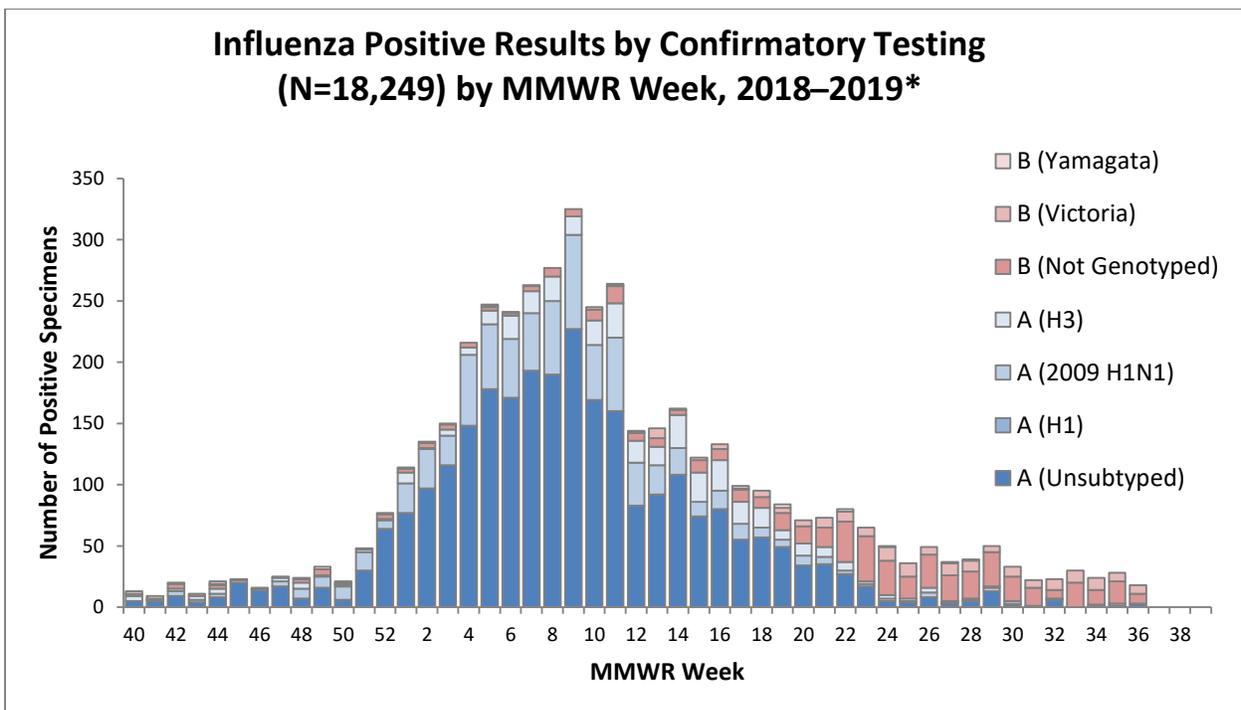
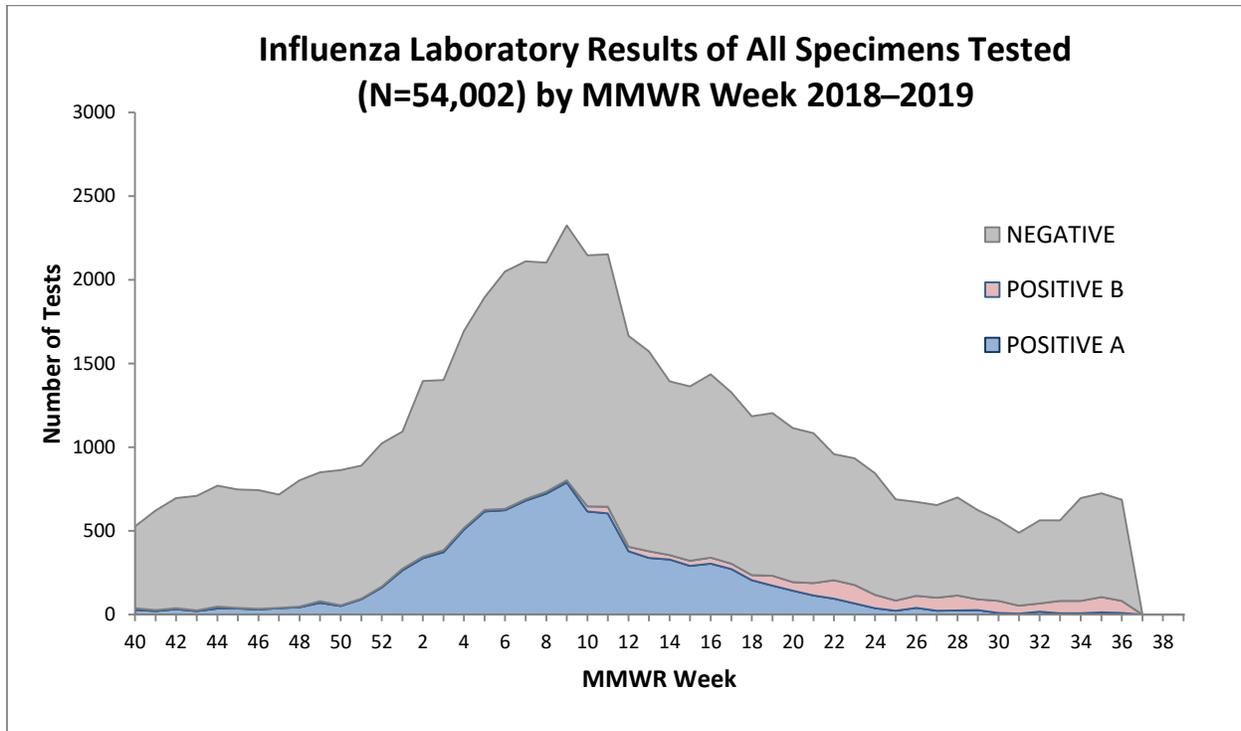
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2018–19 influenza season.



⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.
⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



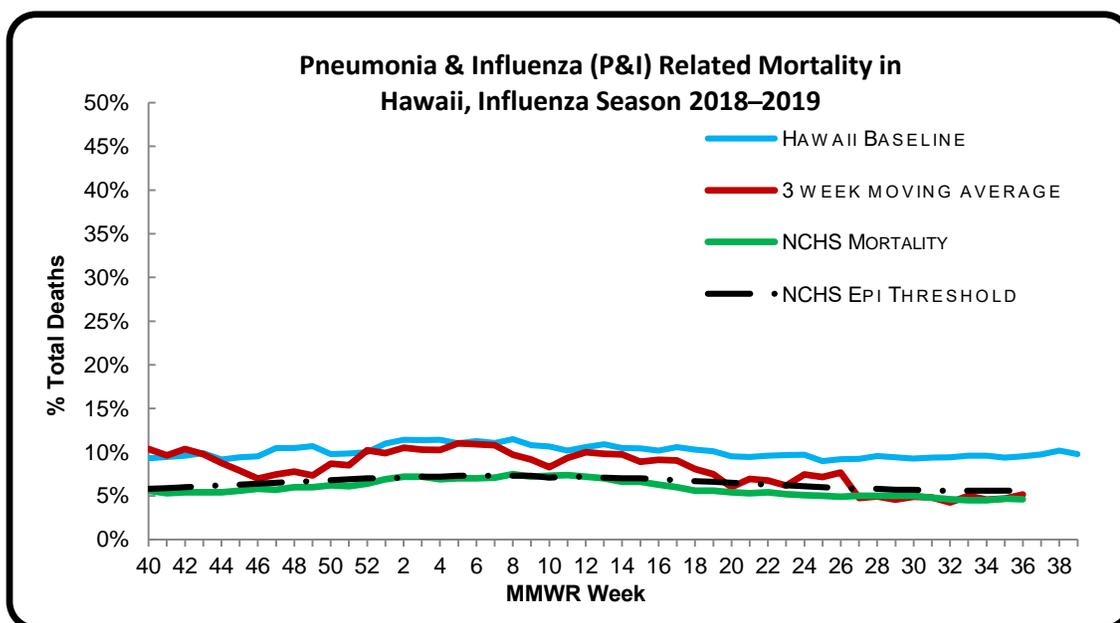
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 36 of the current influenza season:

- 7.9% of all deaths that occurred in Hawaii during week 36 were related to pneumonia or influenza. For the current season (season to date: 8.0%), there have been 11,133 deaths from any cause, 887 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁸ (i.e., inside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality⁹ (4.6%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.6%) (i.e., inside the 95% confidence interval) for week 36.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹⁰:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, four influenza-associated pediatric deaths were reported to CDC during week 36. One death was associated with an influenza B virus and occurred during week 3 (week ending January 19, 2019), One death was associated with an influenza A (H1N1)pdm09 virus and occurred during week 4 (week ending January 26,

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

⁹ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹⁰ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

2019), one death was associated with an influenza A (H3) virus and occurred during week 12 (week ending March 23, 2019), and one death was associated with an influenza A virus for which no subtyping was performed and occurred during week 17 (week ending April 27, 2019). (Season total: 134).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 36.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([h2ere](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 37: SEPTEMBER 8, 2019–SEPTEMBER 14, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 37

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.1%	Lower than the previous week. Comparable to Hawaii’s historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 41 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	11.0%	Lower than the previous week. This number means that many, if not all, of the 89.0% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	21.2%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	3.5%	Comparable to Hawaii’s historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	1	

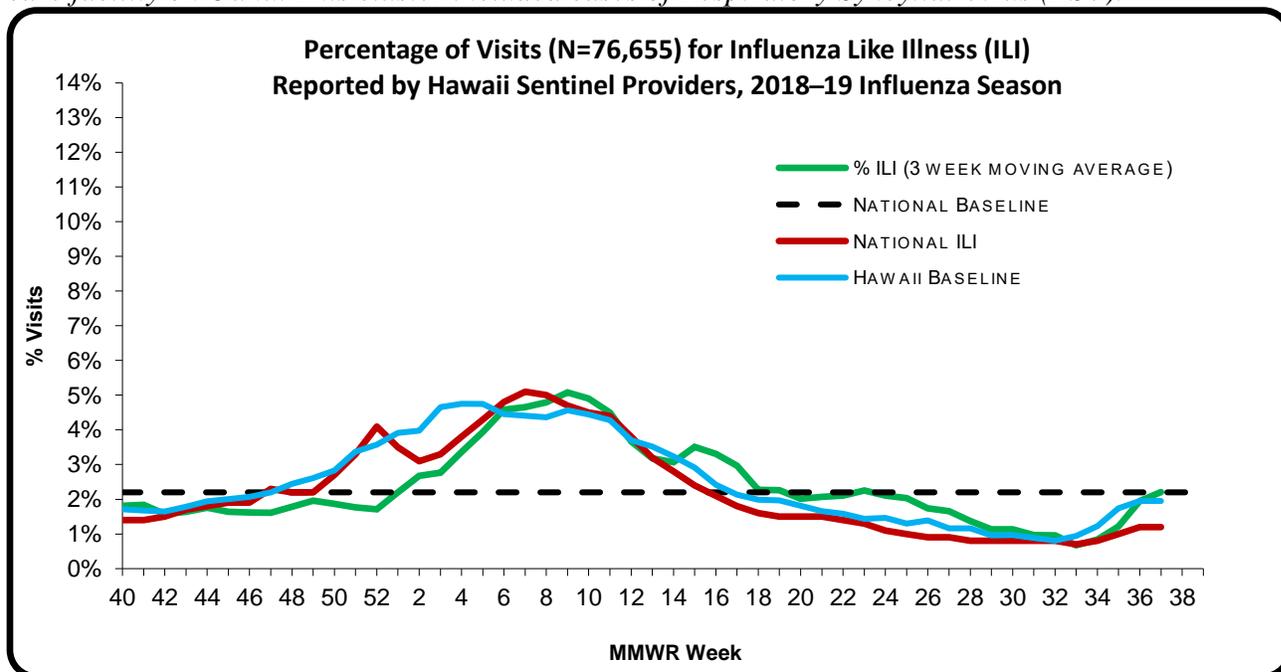
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For **week 37** of the current influenza season:

- **2.1%** (season to date: **2.4%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii^{2,3} (i.e., inside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (1.2%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Local Activity*⁵.
- *ILI Cluster Activity: One new cluster was reported to HDOH during week 37. This cluster occurred at a long-term care facility on Oahu. This cluster included cases of Respiratory Syncytial Virus (RSV).*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

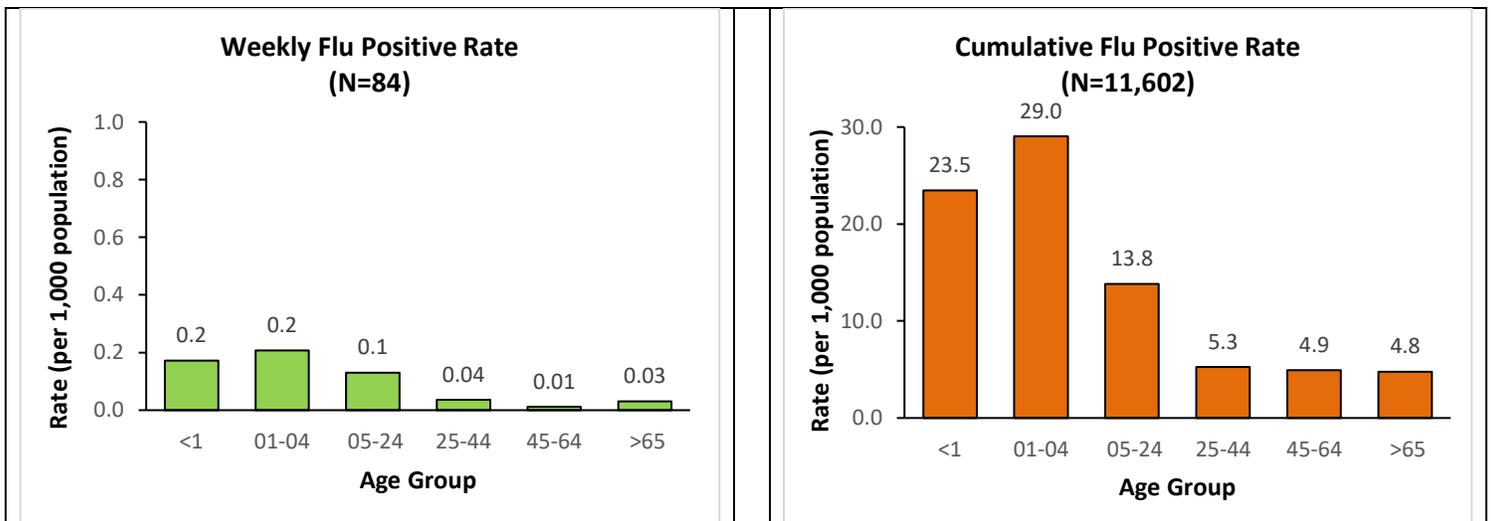
A. INFLUENZA:

- The following reflects laboratory findings for week 37 of the 2018–19 influenza season:
 - A total of **762 specimens** have been tested statewide for influenza viruses (positive: 84 [**11.0%**]). (Season to date: 54,764 tested [**21.2%** positive])
 - 543 (71.3%) were screened only by rapid antigen tests with no confirmatory testing.
 - 219 (28.7%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 678 (89.0%) were negative.

<i>Influenza type</i>	<i>Current week 37 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁷</i>	1 (1.2)	762 (6.6)
<i>Influenza A (H3)</i>	0 (0.0)	378 (3.3)
<i>Influenza A no subtyping</i>	22 (26.2)	8,614 (74.3)
<i>Influenza B (Yamagata)</i>	0 (0.0)	28 (0.2)
<i>Influenza B (Victoria)</i>	5 (6.0)	177 (1.5)
<i>Influenza B no genotyping</i>	56 (66.7)	1,643 (14.2)

1. AGE DISTRIBUTION

The charts below indicate the population-based rates of positive influenza cases in Hawaii by age group during the 2018–19 influenza season.⁸



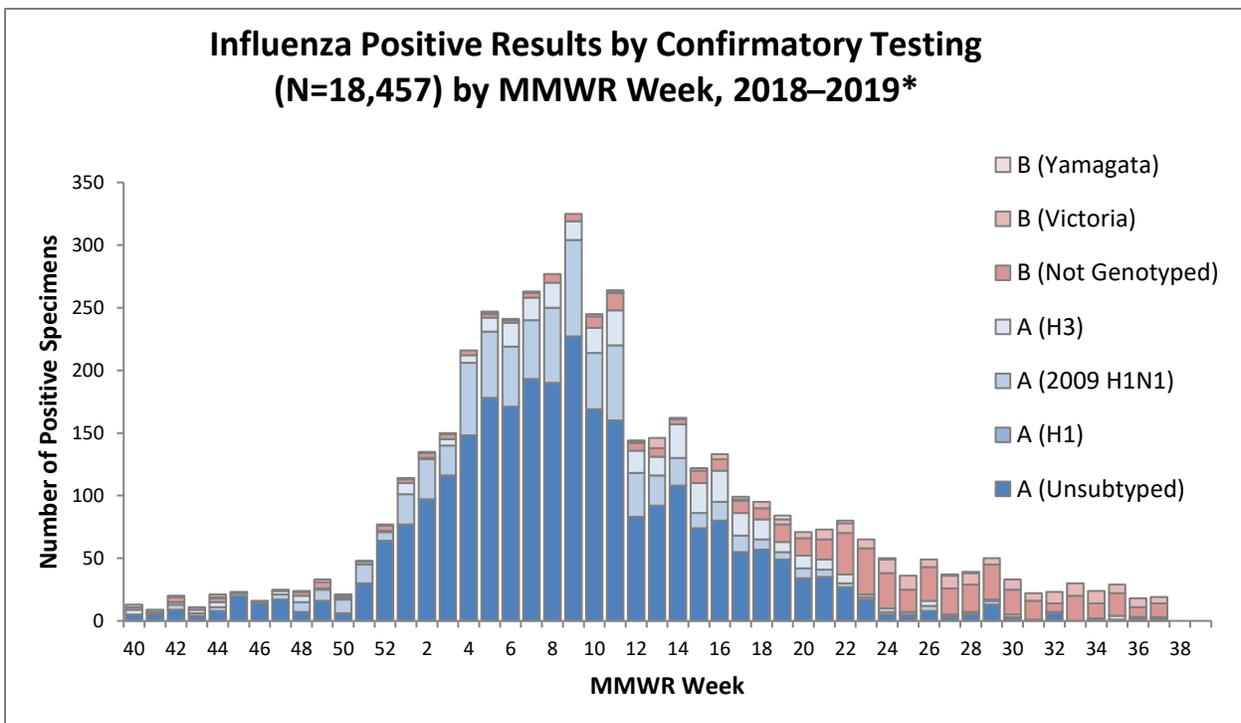
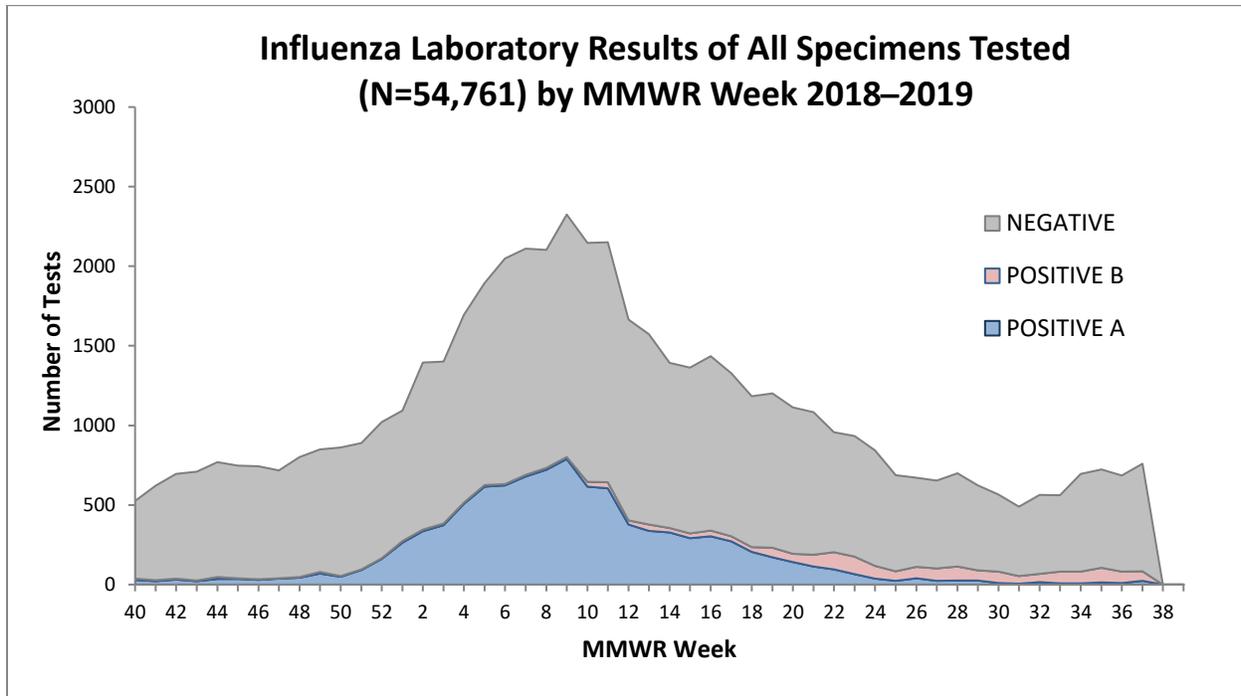
⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

⁸ This represents an estimate of population-based rates based on available data.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



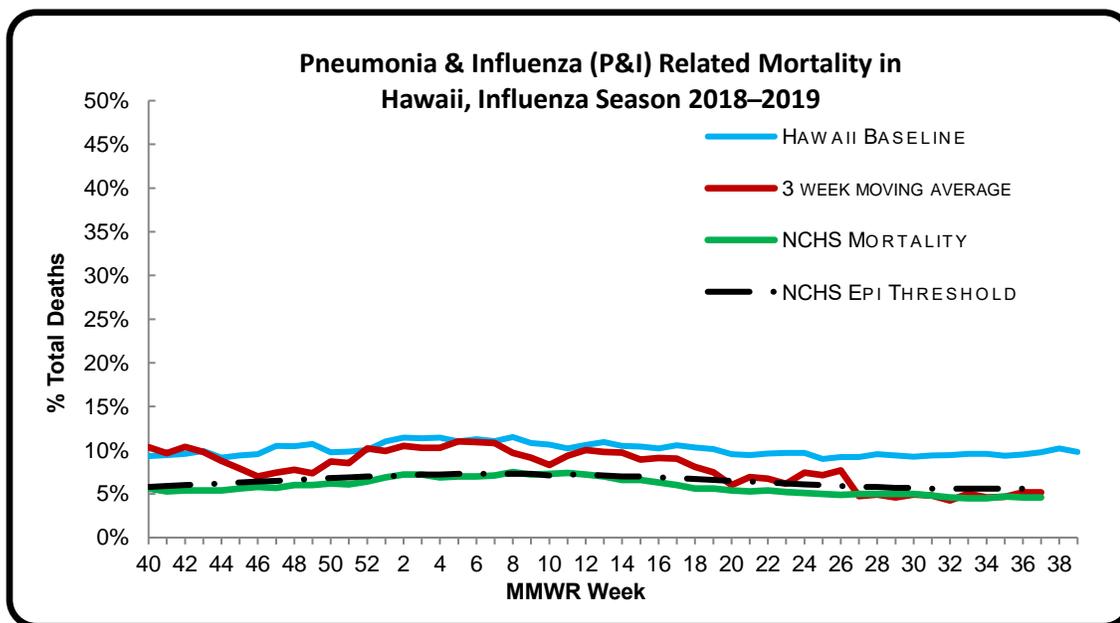
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 37 of the current influenza season:

- 3.5% of all deaths that occurred in Hawaii during week 37 were related to pneumonia or influenza. For the current season (season to date: 7.9%), there have been 11,394 deaths from any cause, 896 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁹ (i.e., inside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality¹⁰ (4.6%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.7%) (i.e., inside the 95% confidence interval) for week 37.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹¹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, one influenza-associated pediatric deaths were reported to CDC during week 37. The death was associated with an influenza A (H1N1)pdm09 virus and occurred during week 4 (week ending January 26, 2019). (Season total: 135).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

¹⁰ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹¹ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 37.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 38: SEPTEMBER 15, 2019–SEPTEMBER 21, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

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REPORT SNAPSHOT FOR WEEK 38

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.7%	Higher than the previous week. Higher than Hawaii's historical baseline, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 41 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	10.3%	Lower than the previous week. This number means that many, if not all, of the 89.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	21.0%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	7.0%	Comparable to Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	1	

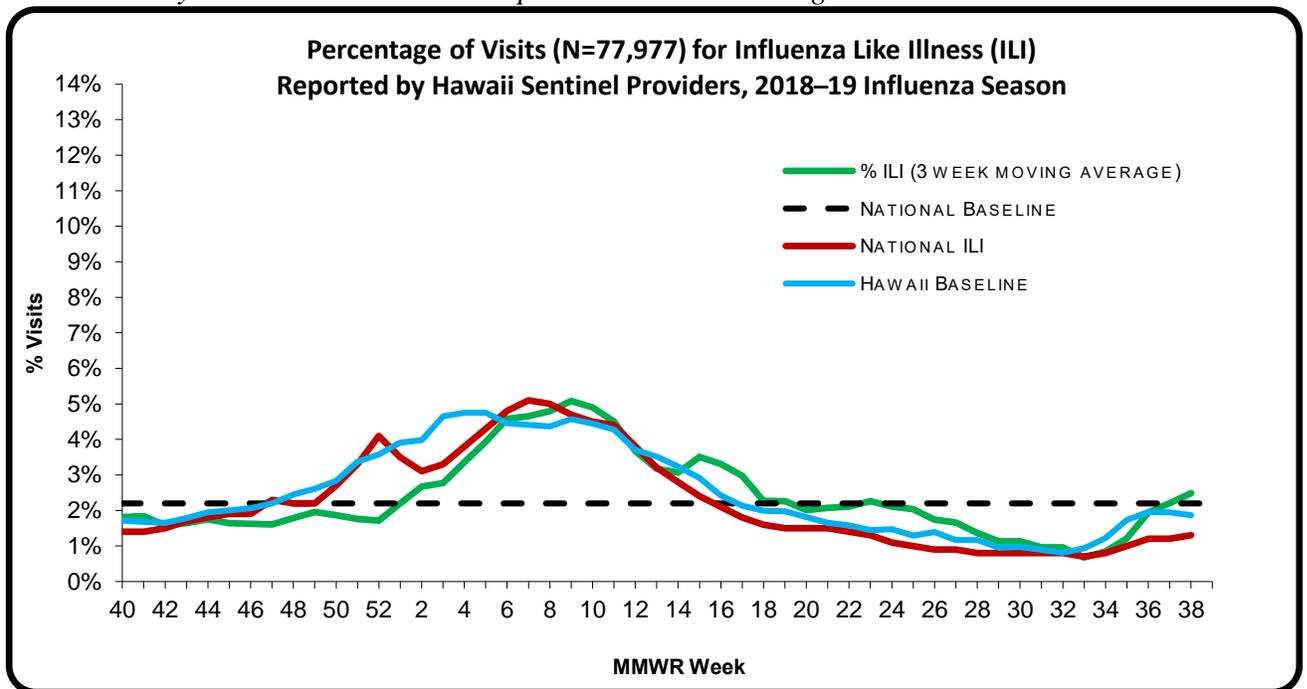
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For week 38 of the current influenza season:

- 2.7% (season to date: 2.4%) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were comparable to the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (1.3%) (i.e., outside the 95% confidence interval).
- Geographic Spread: Sporadic Activity⁵.
- ILI Cluster Activity: No new clusters were reported to HDOH during week 38.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

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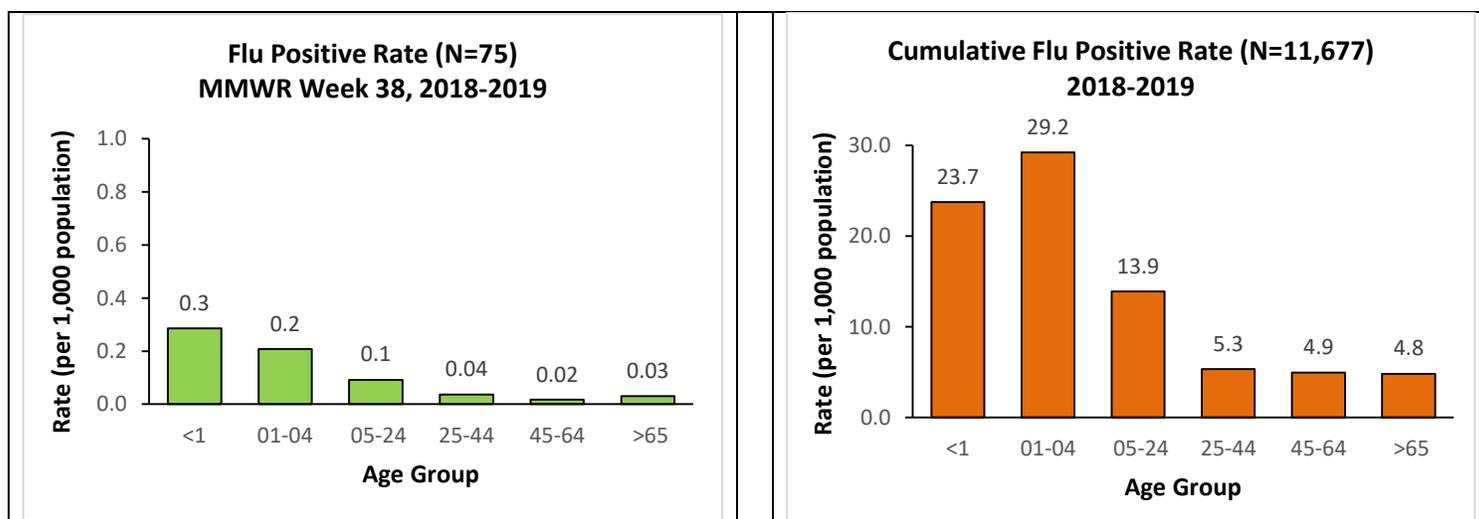
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 - 534 (73.5%) were screened only by rapid antigen tests with no confirmatory testing.
 - 193 (26.5%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 652 (89.7%) were negative.

Influenza type	Current week 38 (%)	Season to date (%)
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Influenza B (Yamagata)	0 (0.0)	28 (0.2)
Influenza B (Victoria)	8 (10.7)	186 (1.6)
Influenza B no genotyping	55 (73.3)	1,697 (14.5)

1. AGE DISTRIBUTION

The charts below indicate the population-based rates of positive influenza cases in Hawaii by age group during the 2018–19 influenza season.⁸



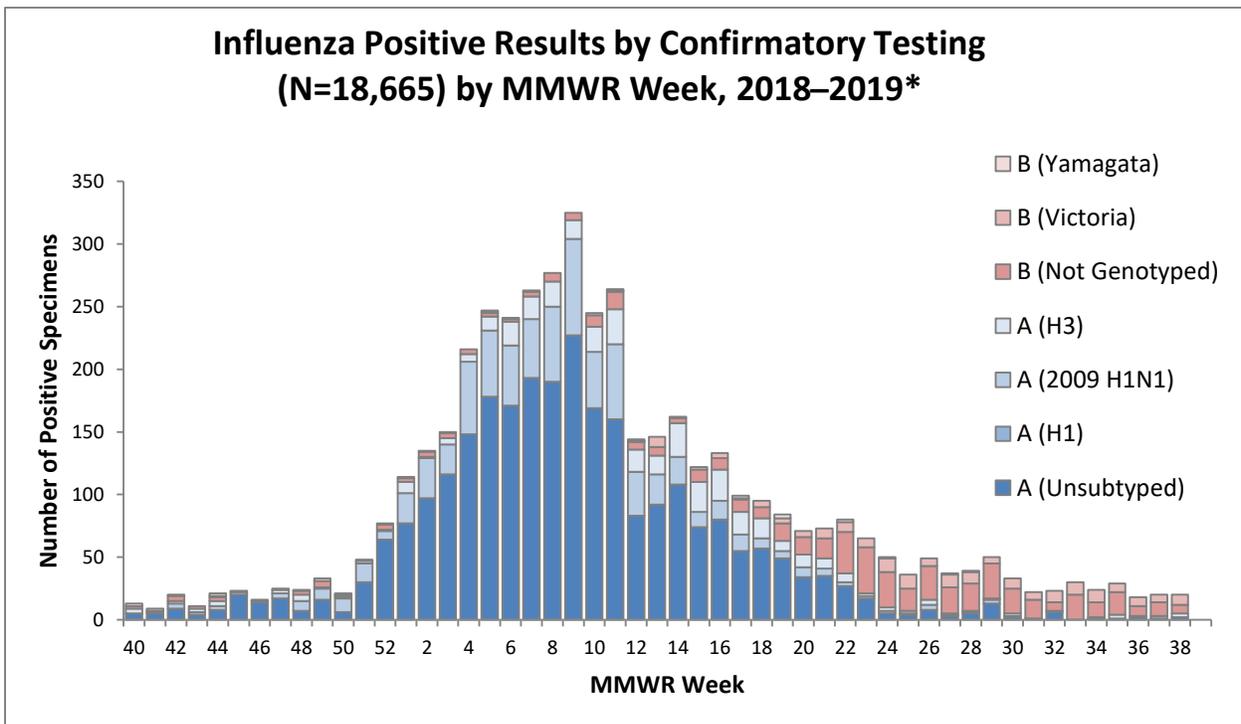
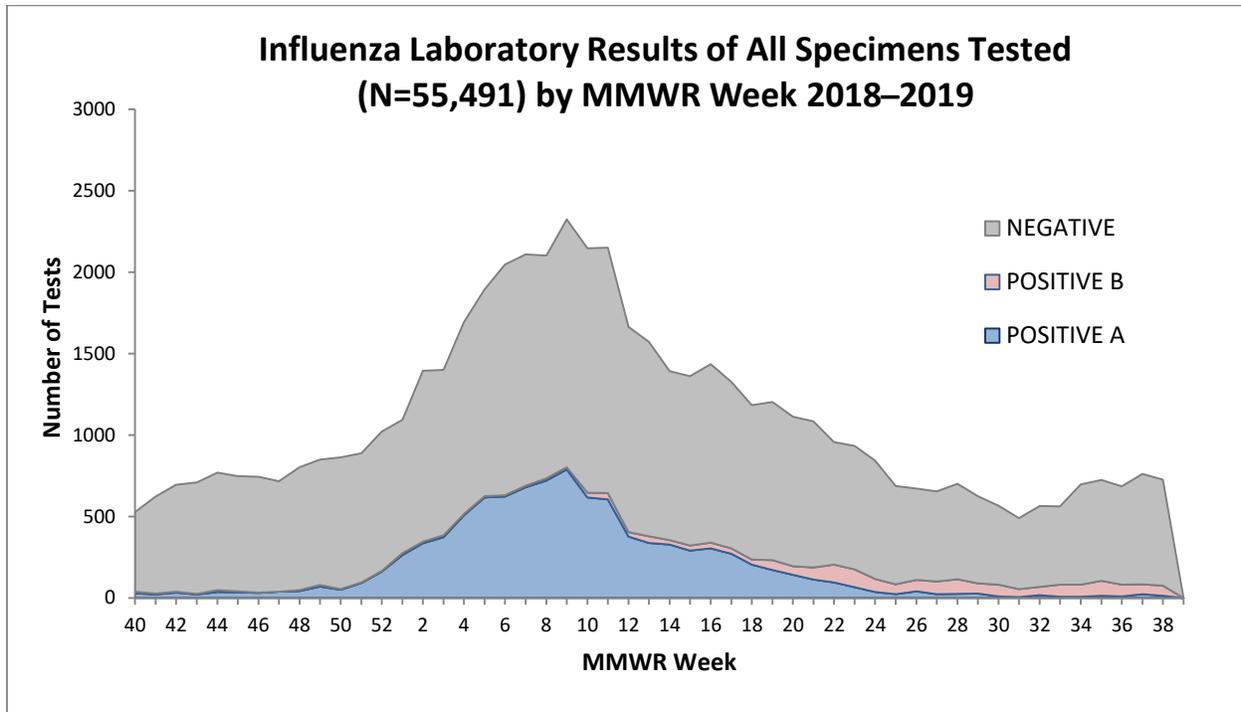
⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

⁸ This represents an estimate of population-based rates based on available data.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



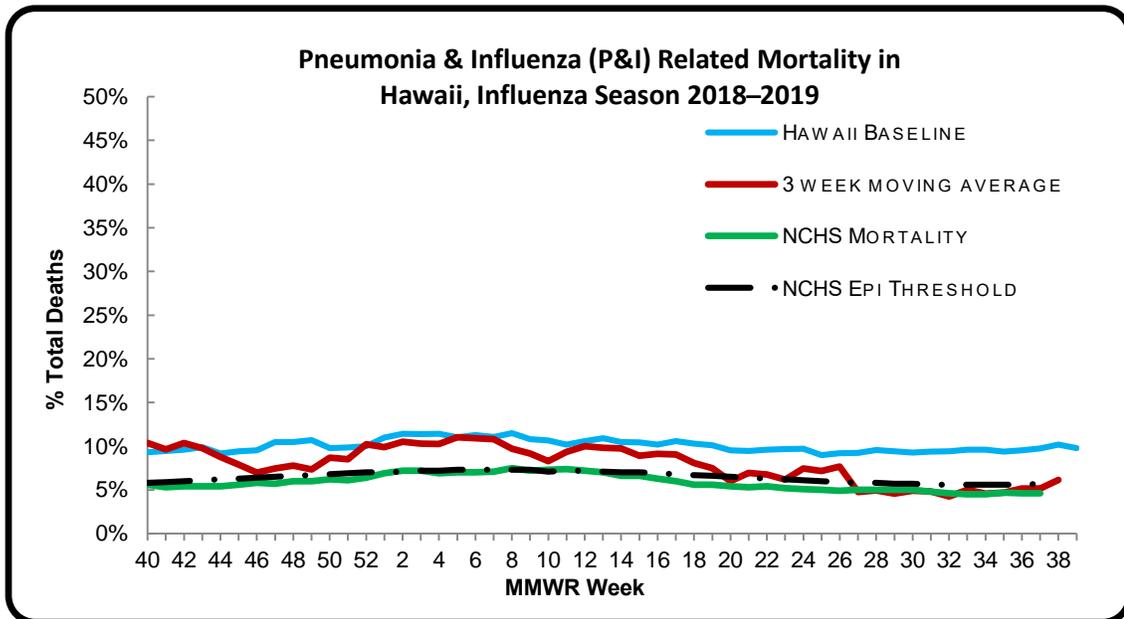
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 38 of the current influenza season:

- 7.0% of all deaths that occurred in Hawaii during week 38 were related to pneumonia or influenza. For the current season (season to date: 7.8%), there have been 11,594 deaths from any cause, 910 of which were due to P&I.
- The P&I rate was lower than the historical baseline in Hawaii⁹ (i.e., outside the 95% confidence interval).
- The Hawaii P&I rate was comparable to the CDC’s National Center for Health Statistics (NCHS) P&I mortality¹⁰ (5.0%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.7%) (i.e., inside the 95% confidence interval) for week 38.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹¹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, one influenza-associated pediatric deaths were reported to CDC during week 38. The death was associated with an influenza A (H3) virus and occurred during week 37 (week ending September 14, 2019). (Season total: 136).

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

¹⁰ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹¹ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with a novel influenza A (H1N1)v virus was reported to CDC during week 38.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **June 24, 2019**.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

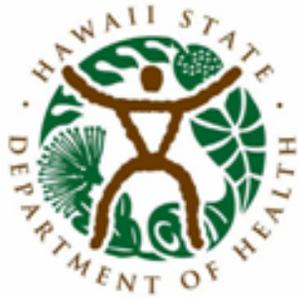
For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)¹

WEEK 39: SEPTEMBER 22, 2019–SEPTEMBER 28, 2019

OVERVIEW: The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

The data in this report reflects the 2018–19 influenza season which began the week ending October 6, 2018 (week 40¹ 2018) and will end the week ending on September 28, 2019 (week 39 2019).

REPORT SNAPSHOT FOR WEEK 39

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.2%	Higher than the previous week. Higher than Hawaii's historical baseline, higher than the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 41 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	11.7%	Higher than the previous week. This number means that many, if not all, of the 88.3% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	20.9%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	4.5%	Lower than Hawaii's historical baseline, comparable to the national epidemic threshold and comparable to the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

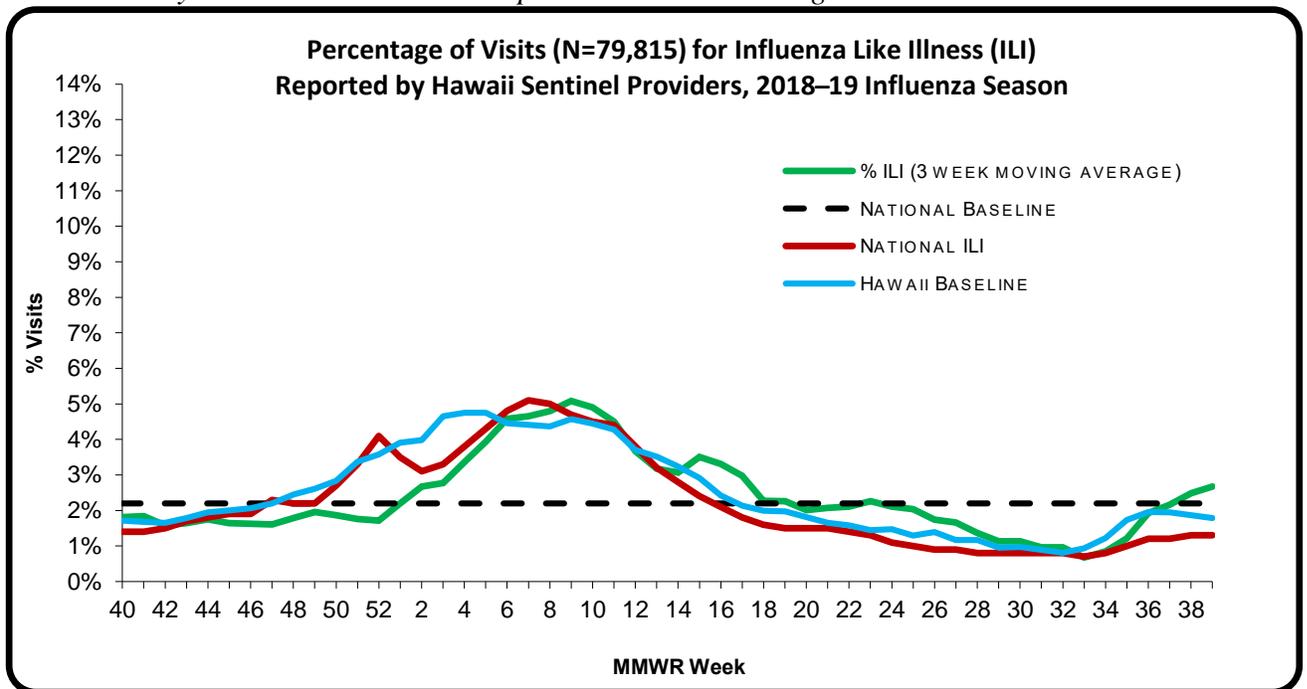
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. **See appendix 2 for interpretation of MMWR weeks.** Data reported will begin on week 40, the traditional start date of flu season.

INFLUENZA SURVEILLANCE

I. INFLUENZA-LIKE ILLNESS (ILI): HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 39 of the current influenza season:

- **3.2%** (season to date: **2.4%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were higher than the historical baseline in Hawaii^{2,3} (i.e., outside the 95% confidence interval).
- Hawaii’s ILI outpatient visits were higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and higher than the national ILI rate (1.3%) (i.e., outside the 95% confidence interval).
- *Geographic Spread: Sporadic Activity*⁵.
- *ILI Cluster Activity: No new clusters were reported to HDOH during week 39.*



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2013–2014, 2014–2015, 2015–2016, 2016–2017, and 2017–2018).

³ This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

⁴ The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

⁵ The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity. Sporadic: no clusters reported to HDOH, Local: one or more clusters reported on one island, Regional: clusters reported on more than one island, Widespread: clusters reported on all islands. Hawaii does not report No Activity, as flu circulates year-round in Hawaii.

II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁶ are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

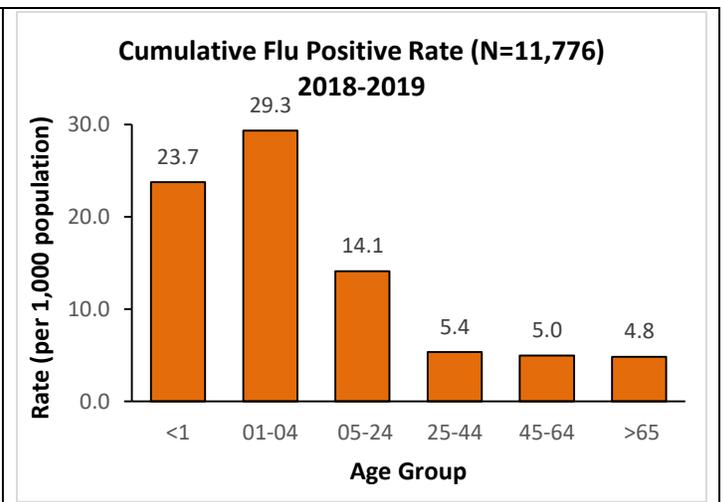
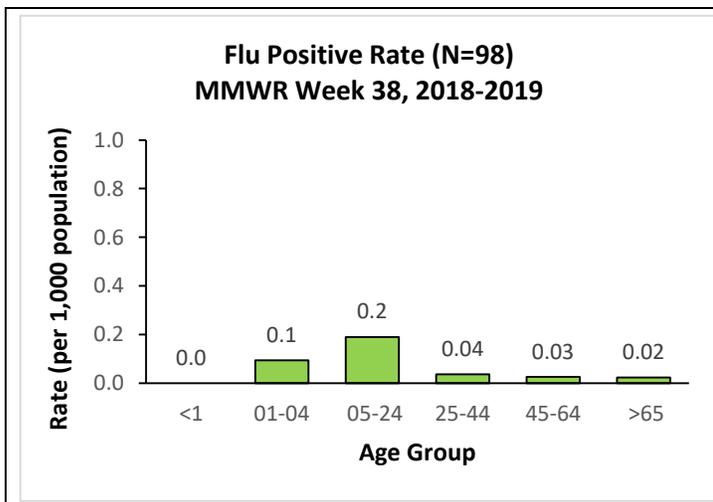
A. INFLUENZA:

- The following reflects laboratory findings for week 39 of the 2018–19 influenza season:
 - A total of **840** specimens have been tested statewide for influenza viruses (positive: 98 [**11.7%**]). (Season to date: 56,332 tested [**20.9%** positive])
 - 620 (73.8%) were screened only by rapid antigen tests with no confirmatory testing.
 - 220 (26.2%) underwent confirmatory testing (either RT-PCR or viral culture).
 - 742 (88.3%) were negative.

Influenza type	Current week 39 (%)	Season to date (%)
Influenza A (H1) ⁷	2 (2.0)	767 (6.5)
Influenza A (H3)	1 (1.0)	382 (3.2)
Influenza A no subtyping	6 (6.1)	8,627 (73.3)
Influenza B (Yamagata)	0 (0.0)	28 (0.2)
Influenza B (Victoria)	8 (8.2)	195 (1.7)
Influenza B no genotyping	81 (82.7)	1,777 (15.1)

1. AGE DISTRIBUTION

The charts below indicate the population-based rates of positive influenza cases in Hawaii by age group during the 2018–19 influenza season.⁸



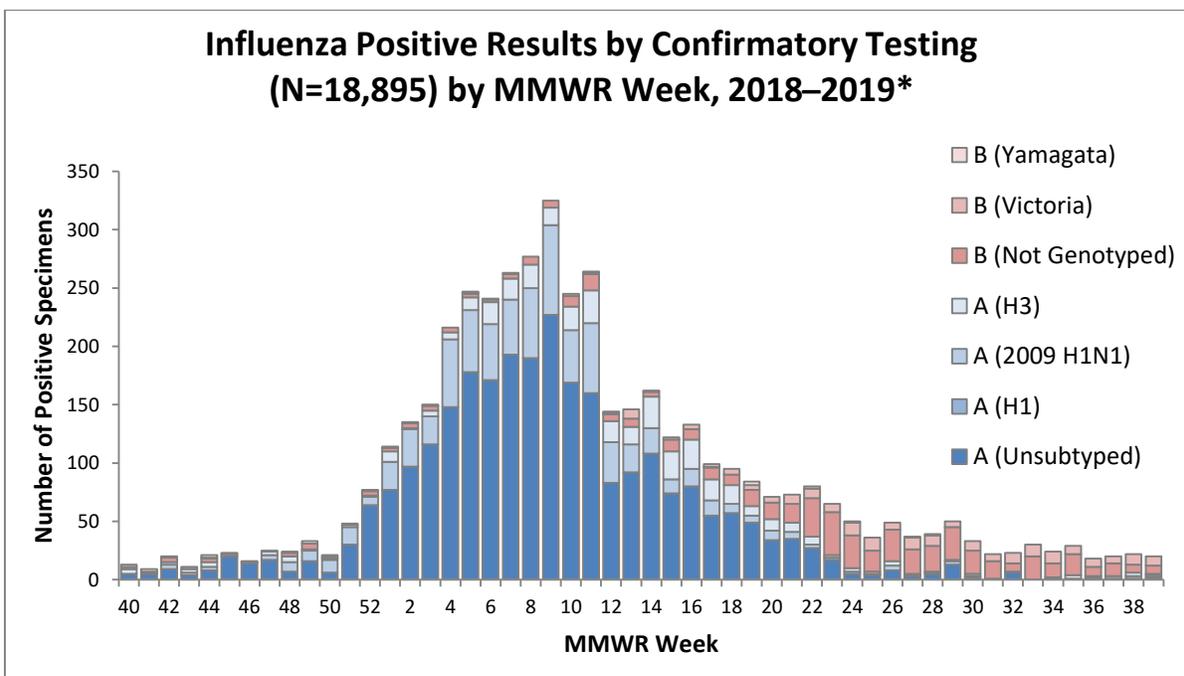
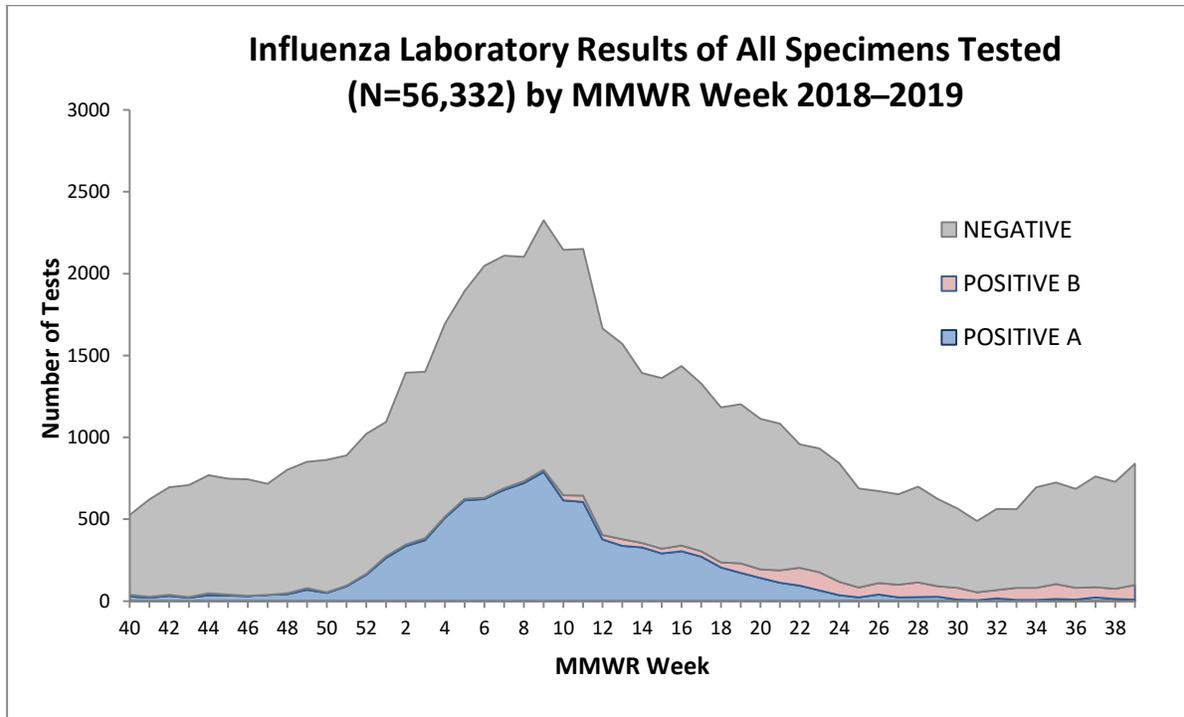
⁶ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁷ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

⁸ This represents an estimate of population-based rates based on available data.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2018–2019 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



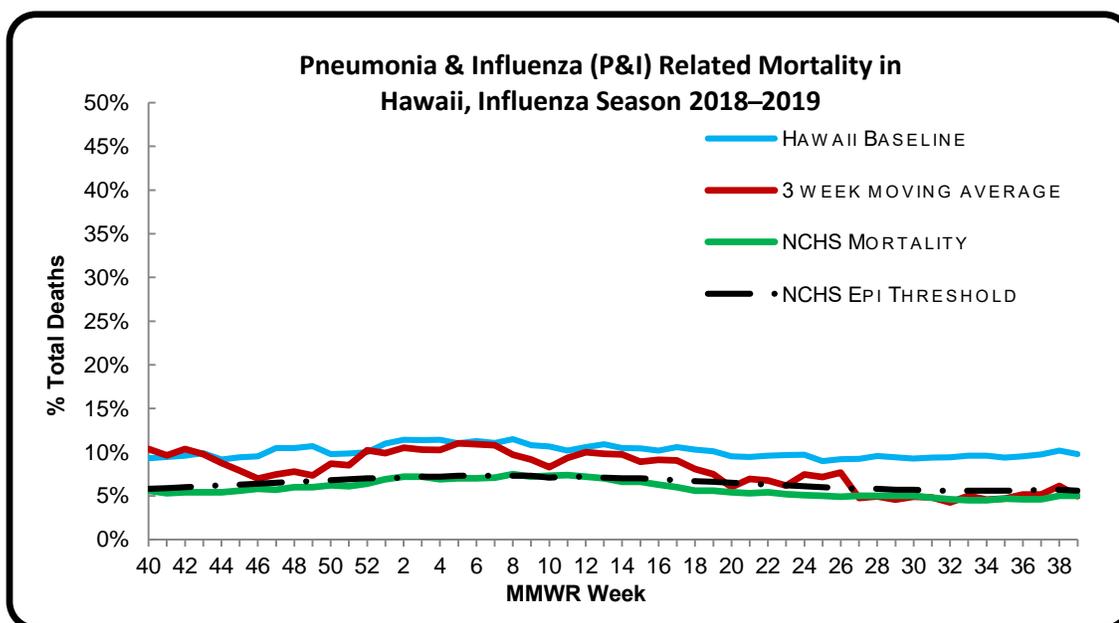
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC through the National Center for Health Statistics (NCHS) using death certificate data. Each week the HDOH OHSM reports specific data from Honolulu to the CDC. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 39 of the current influenza season:

- *4.5% of all deaths that occurred in Hawaii during week 39 were related to pneumonia or influenza. For the current season (season to date: 7.8%), there have been 11,839 deaths from any cause, 921 of which were due to P&I.*
- *The P&I rate was lower than the historical baseline in Hawaii⁹ (i.e., outside the 95% confidence interval).*
- *The Hawaii P&I rate was comparable to the CDC's National Center for Health Statistics (NCHS) P&I mortality¹⁰ (5.0%) (i.e., inside the 95% confidence interval) and comparable to the national epidemic threshold (5.6%) (i.e., inside the 95% confidence interval) for week 39.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS¹¹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2018–2019 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 39. During weeks 21–39, 25 pediatric deaths were reported; 5 occurred during those weeks. Among the 5 deaths that occurred after

⁸ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding 10 flu seasons of historical data (2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018).

¹⁰ Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week

¹¹ Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

week 20, 2 were influenza A viruses that were not subtyped, 1 was an influenza A (H1N1)pdm09 influenza virus, 1 was an influenza A(H3) virus, and 1 was an influenza B/Victoria lineage virus. (Season total: 136).

IV. INFLUENZA WATCH: As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

A. VARIANT VIRUSES:

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2018–2019 influenza season.*
- *One human infection with a novel influenza A virus, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2018–2019 influenza season.*
 - *No new human infections with novel influenza A (H1N1)v virus were reported to CDC during week 39.*

B. AVIAN (OR BIRD) INFLUENZA:

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15th, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries. Since 2013, a total of 1,568 laboratory-confirmed cases of human infection with H7N9 viruses, including at least 613 deaths, have been reported to WHO. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **September 27, 2019**. Since the last update, one new laboratory-confirmed human case of influenza A (H5N6) virus infection was reported to WHO from China. This case was hospitalized with severe pneumonia. Exposure was most likely chilled meat that originated in China.

V. INFLUENZA VACCINE: Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. COMPOSITION OF THE 2018–2019 INFLUENZA VACCINE:

The composition of the 2018–2019 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2018–2019 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus, and a B/Colorado/06/2017-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

APPENDIX 1: ADDITIONAL INFORMATION

For more information regarding local and national influenza surveillance programs, visit the following sites.

Centers for Disease Control and Prevention	General Influenza National ILI and P&I Data Vaccine Virus Selection
Flu.gov	General Influenza Information
HDOH Flu and Pneumonia	General Influenza Surveillance To find out more information or join the sentinel physician program, email the Influenza Surveillance Coordinator
World Health Organization	General Global and Local Influenza Avian Influenza

APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

MMWR WEEK	2015	2016	2017	2018	2019
1	1/10/2015	1/9/2016	1/7/2017	1/6/2018	1/5/2019
2	1/17/2015	1/16/2016	1/14/2017	1/13/2018	1/12/2019
3	1/24/2015	1/23/2016	1/21/2017	1/20/2018	1/19/2019
4	1/31/2015	1/30/2016	1/28/2017	1/27/2018	1/26/2019
5	2/7/2015	2/6/2016	2/4/2017	2/3/2018	2/2/2019
6	2/14/2015	2/13/2016	2/11/2017	2/10/2018	2/9/2019
7	2/21/2015	2/20/2016	2/18/2017	2/17/2018	2/16/2019
8	2/28/2015	2/27/2016	2/25/2017	2/24/2018	2/23/2019
9	3/7/2015	3/5/2016	3/4/2017	3/3/2018	3/2/2019
10	3/14/2015	3/12/2016	3/11/2017	3/10/2018	3/9/2019
11	3/21/2015	3/19/2016	3/18/2017	3/17/2018	3/16/2019
12	3/28/2015	3/26/2016	3/25/2017	3/24/2018	3/23/2019
13	4/4/2015	4/2/2016	4/1/2017	3/31/2018	3/30/2019
14	4/11/2015	4/9/2016	4/8/2017	4/7/2018	4/6/2019
15	4/18/2015	4/16/2016	4/15/2017	4/14/2018	4/13/2019
16	4/25/2015	4/23/2016	4/22/2017	4/21/2018	4/20/2019
17	5/2/2015	4/30/2016	4/29/2017	4/28/2018	4/27/2019
18	5/9/2015	5/7/2016	5/6/2017	5/5/2018	5/4/2019
19	5/16/2015	5/14/2016	5/13/2017	5/12/2018	5/11/2019
20	5/23/2015	5/21/2016	5/20/2017	5/19/2018	5/18/2019
21	5/30/2015	5/28/2016	5/27/2017	5/26/2018	5/25/2019
22	6/6/2015	6/4/2016	6/3/2017	6/2/2018	6/1/2019
23	6/13/2015	6/11/2016	6/10/2017	6/9/2018	6/8/2019
24	6/20/2015	6/18/2016	6/17/2017	6/16/2018	6/15/2019
25	6/27/2015	6/25/2016	6/24/2017	6/23/2018	6/22/2019
26	7/4/2015	7/2/2016	7/1/2017	6/30/2018	6/29/2019
27	7/11/2015	7/9/2016	7/8/2017	7/7/2018	7/6/2019
28	7/18/2015	7/16/2016	7/15/2017	7/14/2018	7/13/2019
29	7/25/2015	7/23/2016	7/22/2017	7/21/2018	7/20/2019
30	8/1/2015	7/30/2016	7/29/2017	7/28/2018	7/27/2019
31	8/8/2015	8/6/2016	8/5/2017	8/4/2018	8/3/2019
32	8/15/2015	8/13/2016	8/12/2017	8/11/2018	8/10/2019
33	8/22/2015	8/20/2016	8/19/2017	8/18/2018	8/17/2019
34	8/29/2015	8/27/2016	8/26/2017	8/25/2018	8/24/2019
35	9/5/2015	9/3/2016	9/2/2017	9/1/2018	8/31/2019
36	9/12/2015	9/10/2016	9/9/2017	9/8/2018	9/7/2019
37	9/19/2015	9/17/2016	9/16/2017	9/15/2018	9/14/2019
38	9/26/2015	9/24/2016	9/23/2017	9/22/2018	9/21/2019
39	10/3/2015	10/1/2016	9/30/2017	9/29/2018	9/28/2019
40	10/10/2015	10/8/2016	10/7/2017	10/6/2018	10/5/2019
41	10/17/2015	10/15/2016	10/14/2017	10/13/2018	10/12/2019
42	10/24/2015	10/22/2016	10/21/2017	10/20/2018	10/19/2019
43	10/31/2015	10/29/2016	10/28/2017	10/27/2018	10/26/2019
44	11/7/2015	11/5/2016	11/4/2017	11/3/2018	11/2/2019
45	11/14/2015	11/12/2016	11/11/2017	11/10/2018	11/9/2019
46	11/21/2015	11/19/2016	11/18/2017	11/17/2018	11/16/2019
47	11/28/2015	11/26/2016	11/25/2017	11/24/2018	11/23/2019
48	12/5/2015	12/3/2016	12/2/2017	12/1/2018	11/30/2019
49	12/12/2015	12/10/2016	12/9/2017	12/8/2018	12/7/2019
50	12/19/2015	12/17/2016	12/16/2017	12/15/2018	12/14/2019
51	12/26/2015	12/24/2016	12/23/2017	12/22/2018	12/21/2019
52	1/2/2016	12/31/2016	12/30/2017	12/29/2018	12/28/2019