

HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 40: OCTOBER 2, 2016 – OCTOBER 8, 2016

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.**

REPORT SNAPSHOT FOR WEEK 40

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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; comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 0 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	6.3%	Comparable to the historical baseline for Hawaii, the national epidemic threshold, and the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	6.3%	Lower than the previous week. This number means that many, if not all, of the 93.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	6.3%	

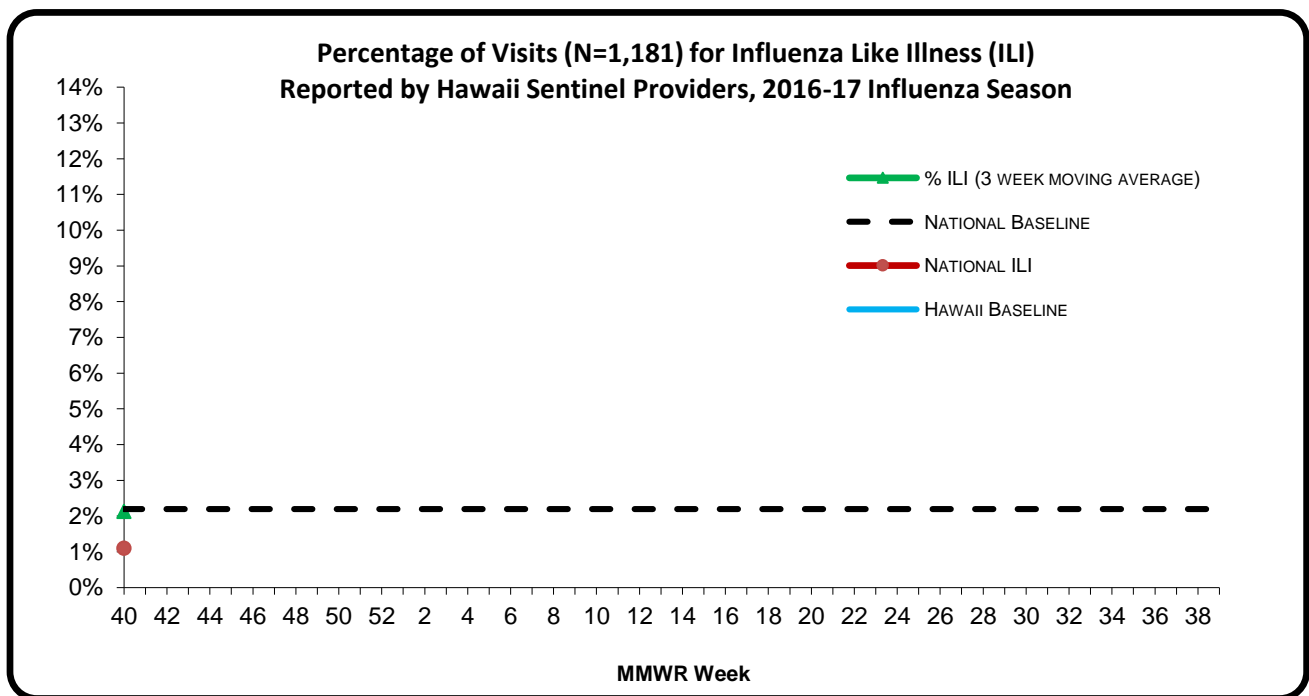
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 2.3% (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 comparable the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and higher than the national ILI rate (1.1%) (i.e., outside the 95% confidence interval).
- ILI Cluster Activity: No clusters were reported to HDOH during week 40.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

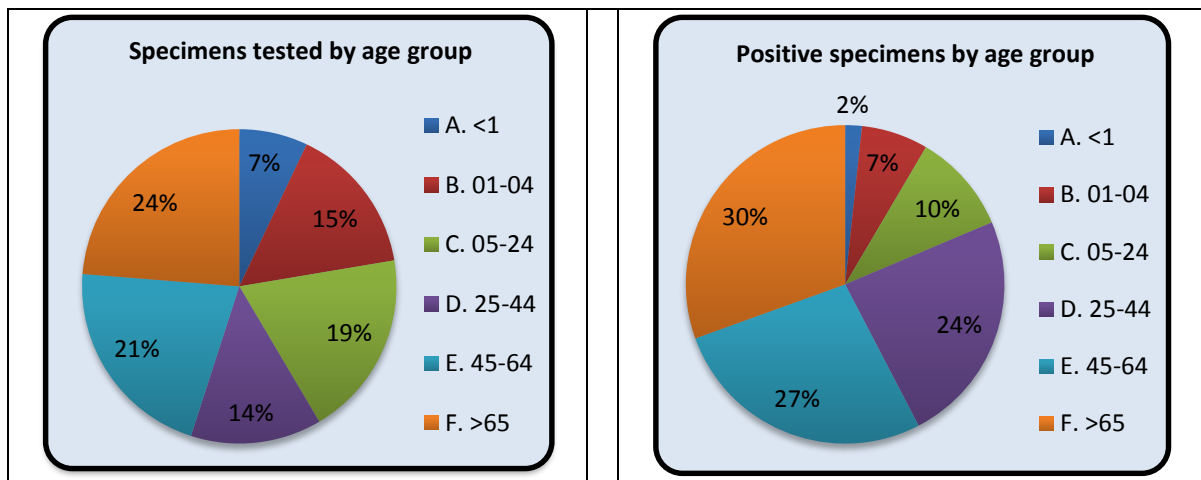
A. INFLUENZA:

- The following reflects laboratory findings for week 40 of the 2016-17 flu season:
 - A total of 935 specimens have been tested statewide for influenza viruses (positive: 59 [6.3%]). (Season to date: 935 tested [6.3% positive])
 - 492 (52.6%) were screened only by rapid antigen tests with no confirmatory testing
 - 443 (47.4%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 876 (93.7%) were negative.

Influenza type	Current week 40 (%)	Season to date (%)
2009 H1N1	0 (0.0)	0 (0.0)
Influenza A (H3)	2 (3.4)	2 (3.4)
Influenza A no subtyping	51 (86.4)	51 (86.4)
Influenza B (Yamagata)	0 (0.0)	0 (0.0)
Influenza B (Victoria)	0 (0.0)	0 (0.0)
Influenza B no genotyping	6 (10.2)	6 (10.2)

1. AGE DISTRIBUTION

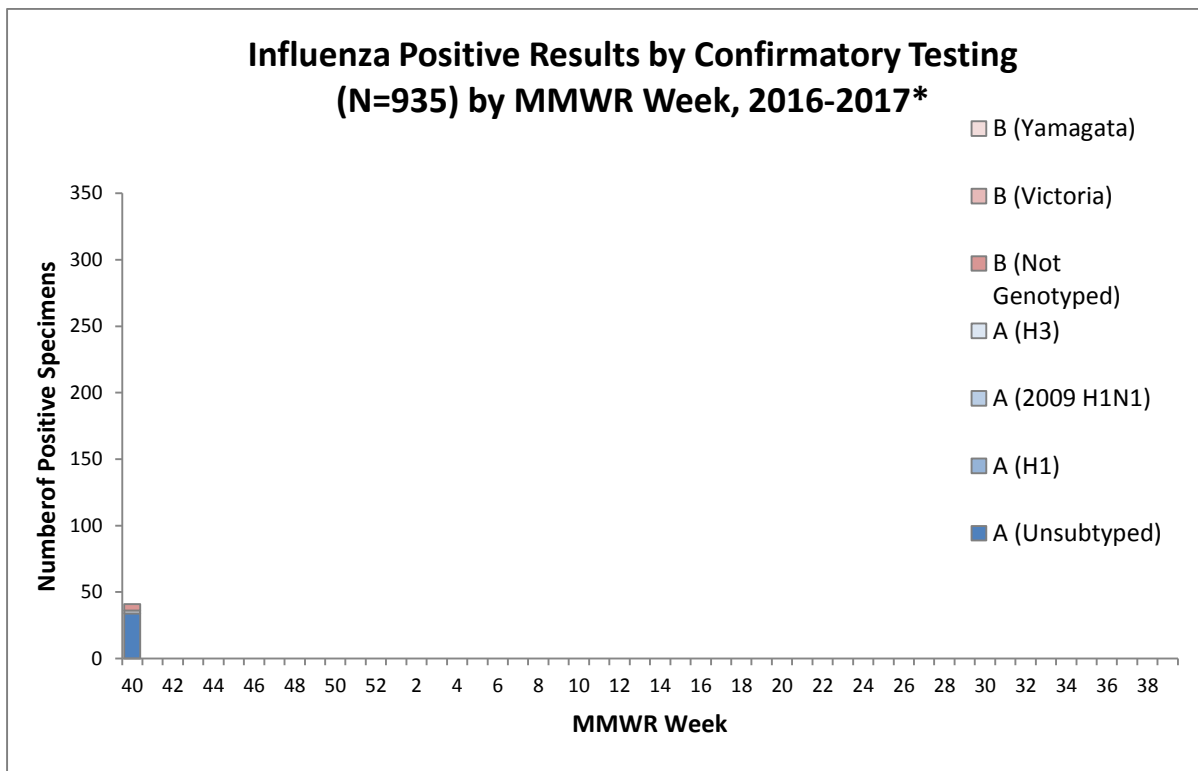
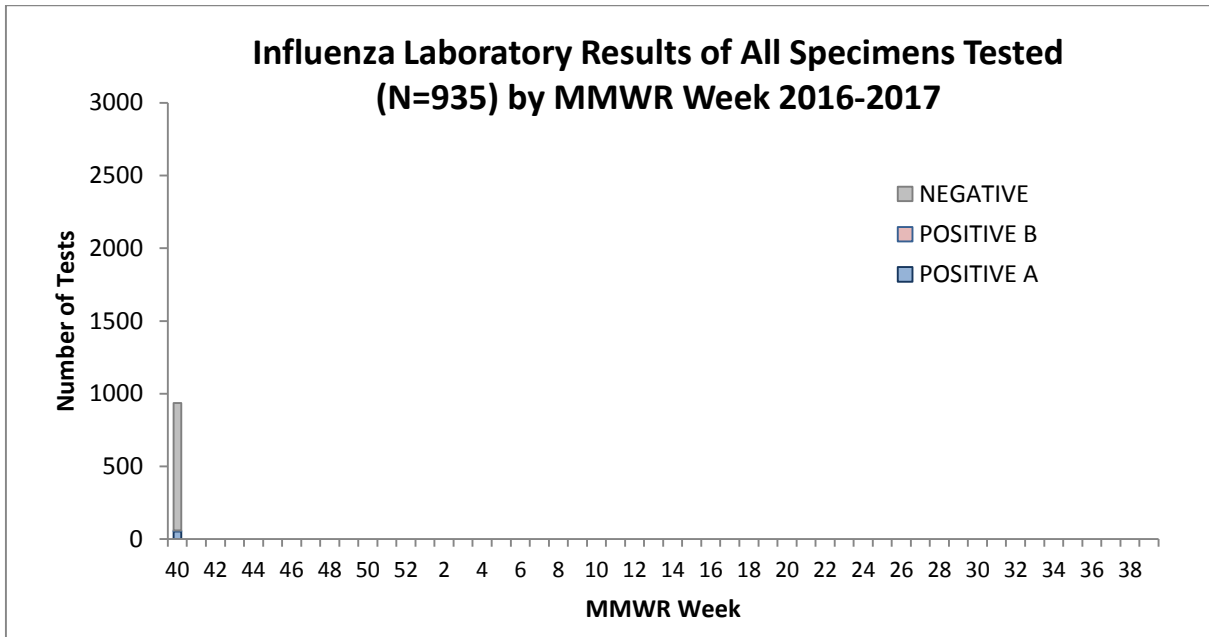
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.



⁵ 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.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2016–2017 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).

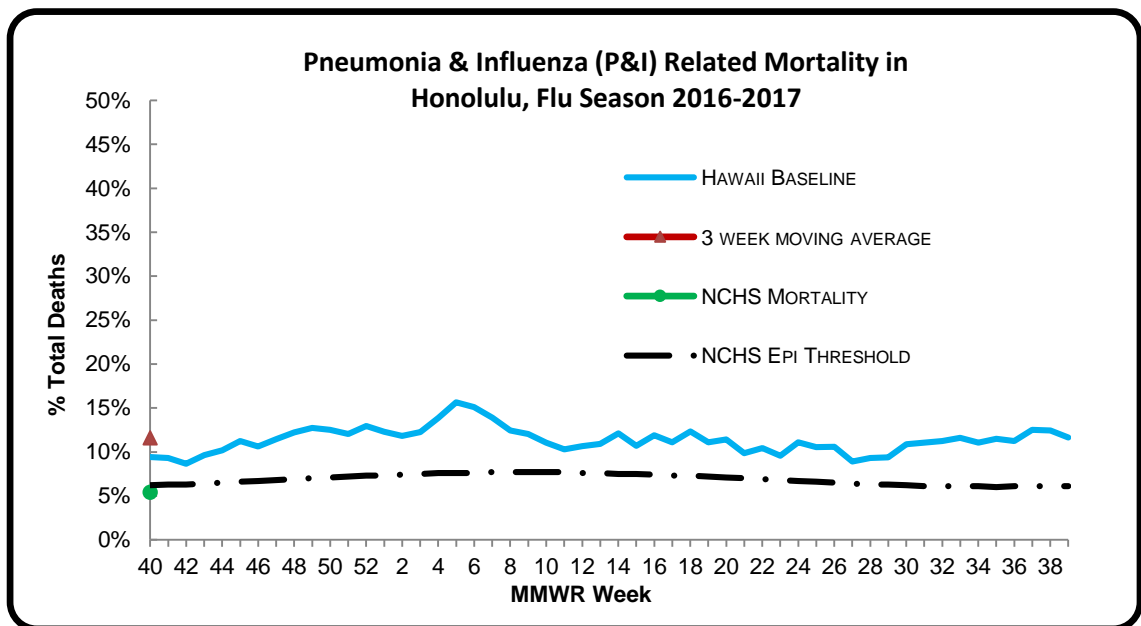


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **6.3%** of all deaths that occurred in Honolulu during week 40 were related to pneumonia or influenza. For the current season (season to date: **6.3%**), there have been 95 deaths from any cause, 6 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁶ (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 mortality⁷ (5.4%) (i.e., inside the 95% confidence interval) and comparable to the epidemic threshold (6.3%) (i.e., inside the 95% confidence interval).



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁸:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 40. (Season total: 0).

⁶ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁷ 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

⁸ 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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 **October 3, 2016**.

APPENDIX 1: ADDITIONAL INFORMATION

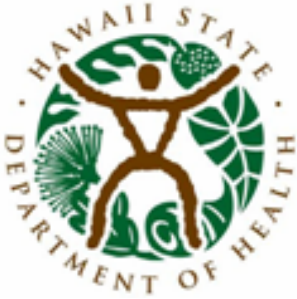
For more information regarding local and national influenza surveillance programs, visit the following sites.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 41: OCTOBER 9, 2016 – OCTOBER 15, 2016

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.**

REPORT SNAPSHOT FOR WEEK 41

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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, the national ILI rate, and the national baseline.
Number of ILI clusters reported to HDOH	0	There has been a total of 0 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	7.0%	Comparable to the historical baseline for Hawaii, the national epidemic threshold, and the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	5.8%	Lower than the previous week. This number means that many, if not all, of the 94.2% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	6.1%	

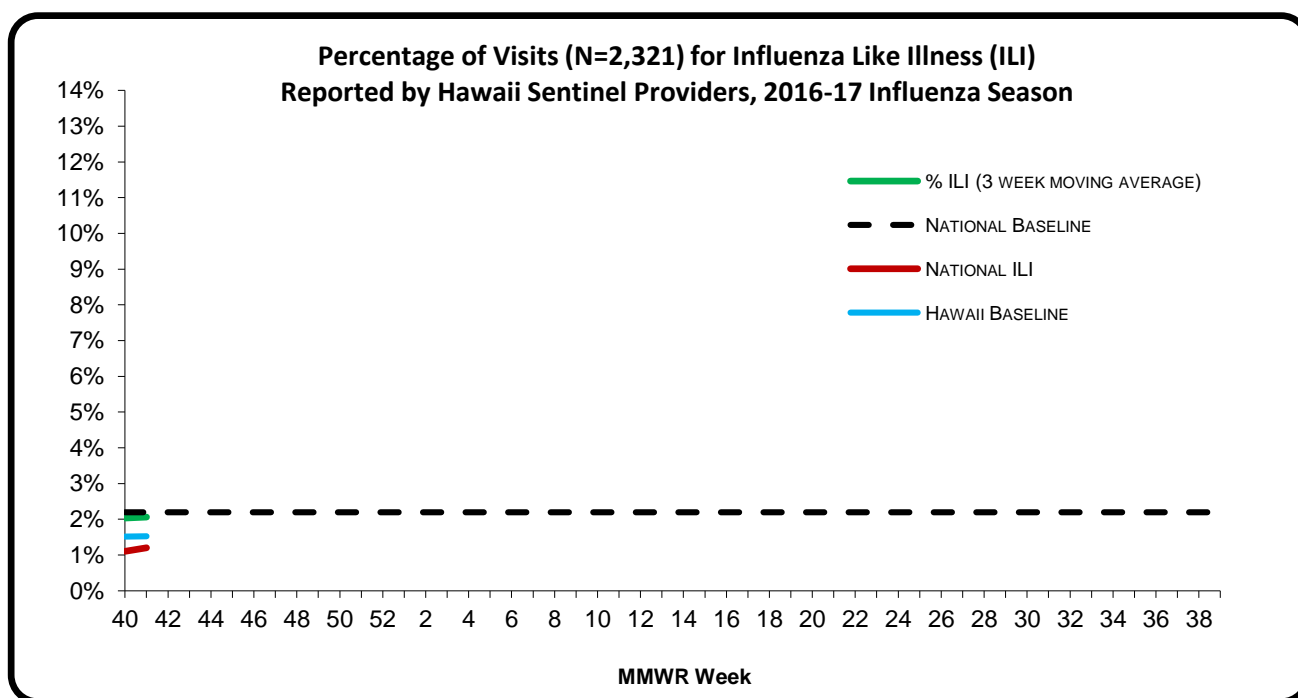
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INFLUENZA SURVEILLANCE

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 41 of the current influenza season:

- 1.8% (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 the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and the national ILI rate (1.2%) (i.e., inside the 95% confidence interval).
- ILI Cluster Activity: No 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

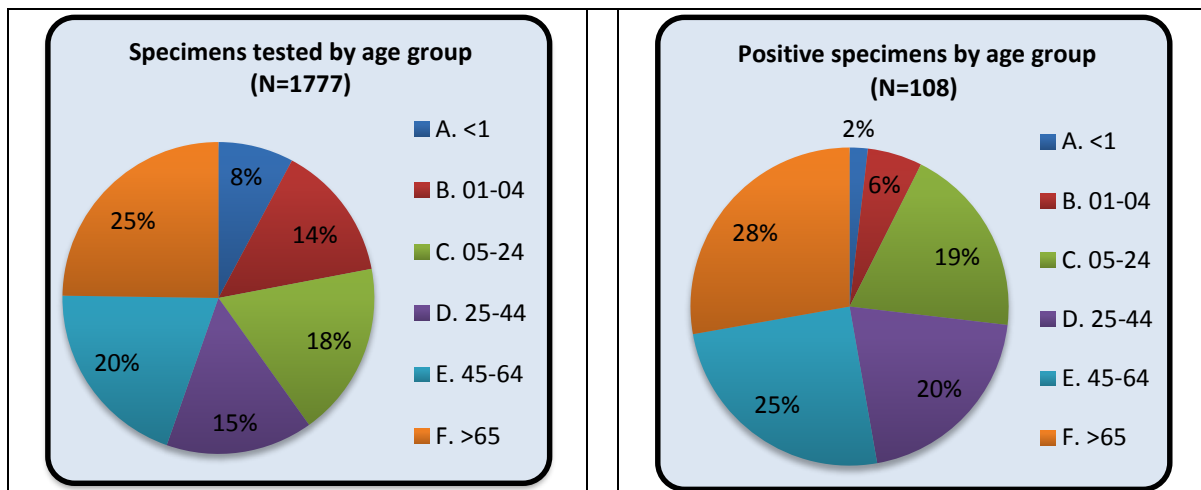
A. INFLUENZA:

- The following reflects laboratory findings for week 41 of the 2016-17 influenza season:
 - A total of **841** specimens have been tested statewide for influenza viruses (positive: **49** [5.8%]). (Season to date: **1777** tested [6.1% positive])
 - 443 (52.7%) were screened only by rapid antigen tests with no confirmatory testing
 - 398 (47.3%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 792 (94.2%) were negative.

<i>Influenza type</i>	<i>Current week 41 (%)</i>	<i>Season to date (%)</i>
2009 H1N1	1 (2.0)	1 (0.9)
Influenza A (H3)	0 (0.0)	2 (1.9)
Influenza A no subtyping	39 (79.6)	90 (83.3)
Influenza B (Yamagata)	0 (0.0)	0 (0.0)
Influenza B (Victoria)	0 (0.0)	0 (0.0)
Influenza B no genotyping	9 (18.4)	15 (13.9)

1. AGE DISTRIBUTION

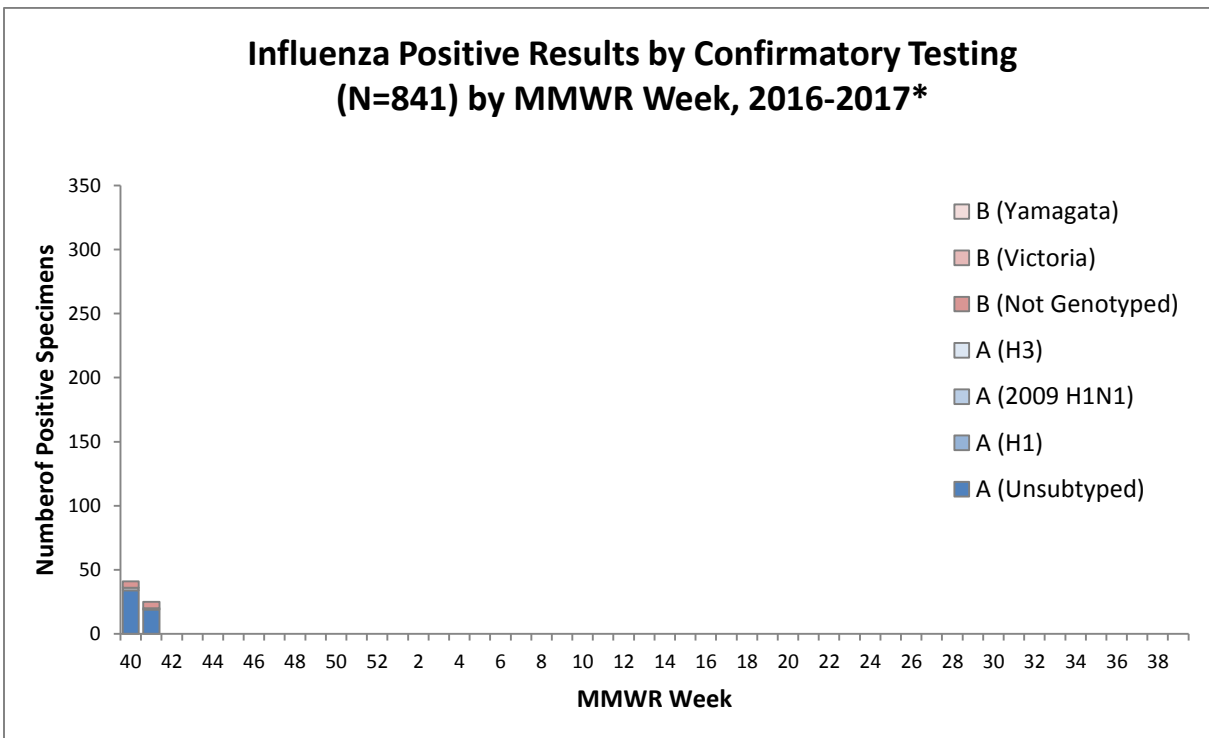
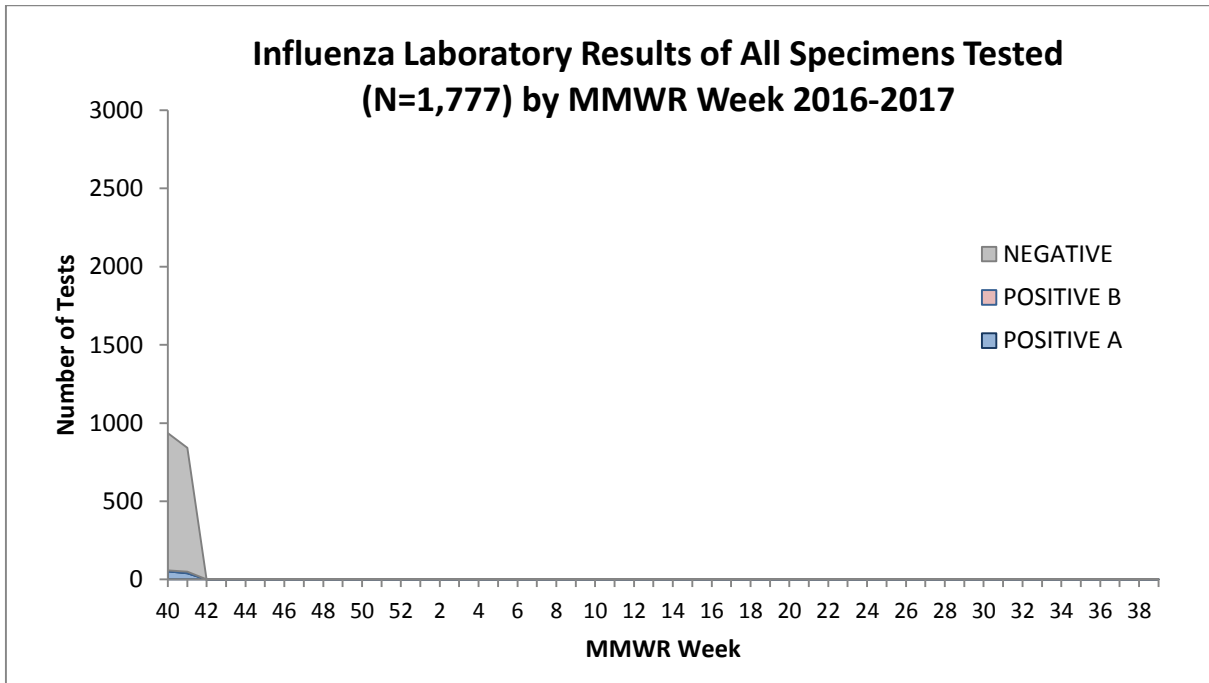
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.



⁵ 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.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2016–2017 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).

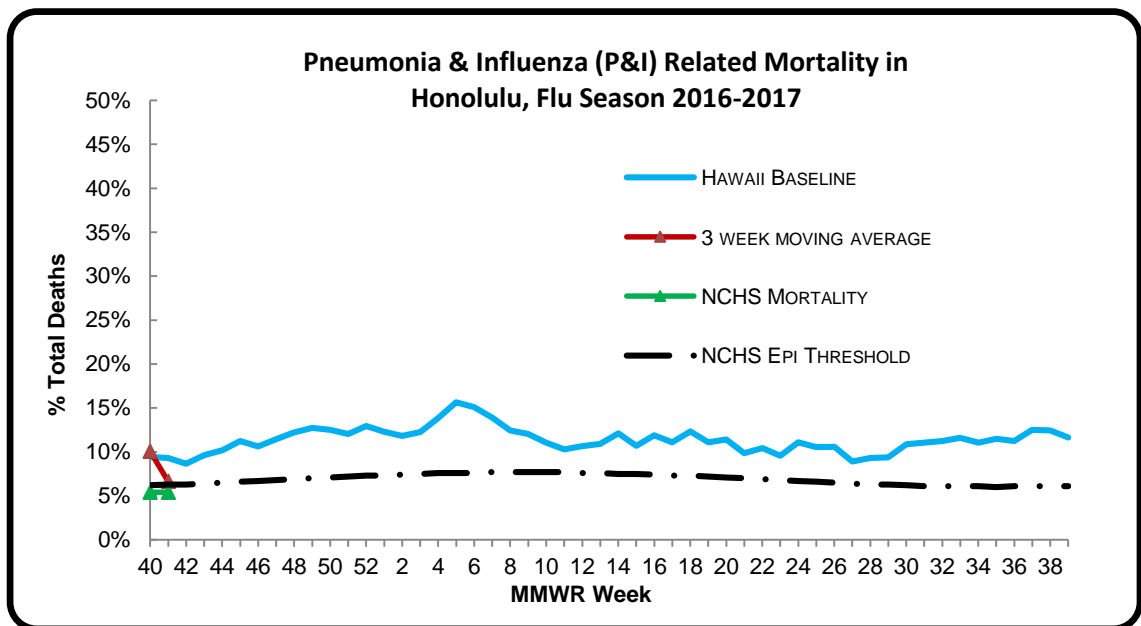


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **7.0%** of all deaths that occurred in Honolulu during week 41 were related to pneumonia or influenza. For the current season (season to date: **6.6%**), there have been 181 deaths from any cause, 12 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁶ (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 mortality⁷ (5.4%) (i.e., inside the 95% confidence interval) and comparable to the epidemic threshold (6.4%) (i.e., inside the 95% confidence interval).



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁸:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 41. (Season total: 0).

⁶ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁷ 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

⁸ 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.

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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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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](#)).

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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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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 42: OCTOBER 16, 2016 – OCTOBER 22, 2016

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.**

REPORT SNAPSHOT FOR WEEK 42

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.0%	Higher than the previous week; comparable to Hawaii’s historical baseline, the national ILI rate, and the national baseline.
Number of ILI clusters reported to HDOH	1	There has been a total of 1 cluster this season.

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

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	5.8%	

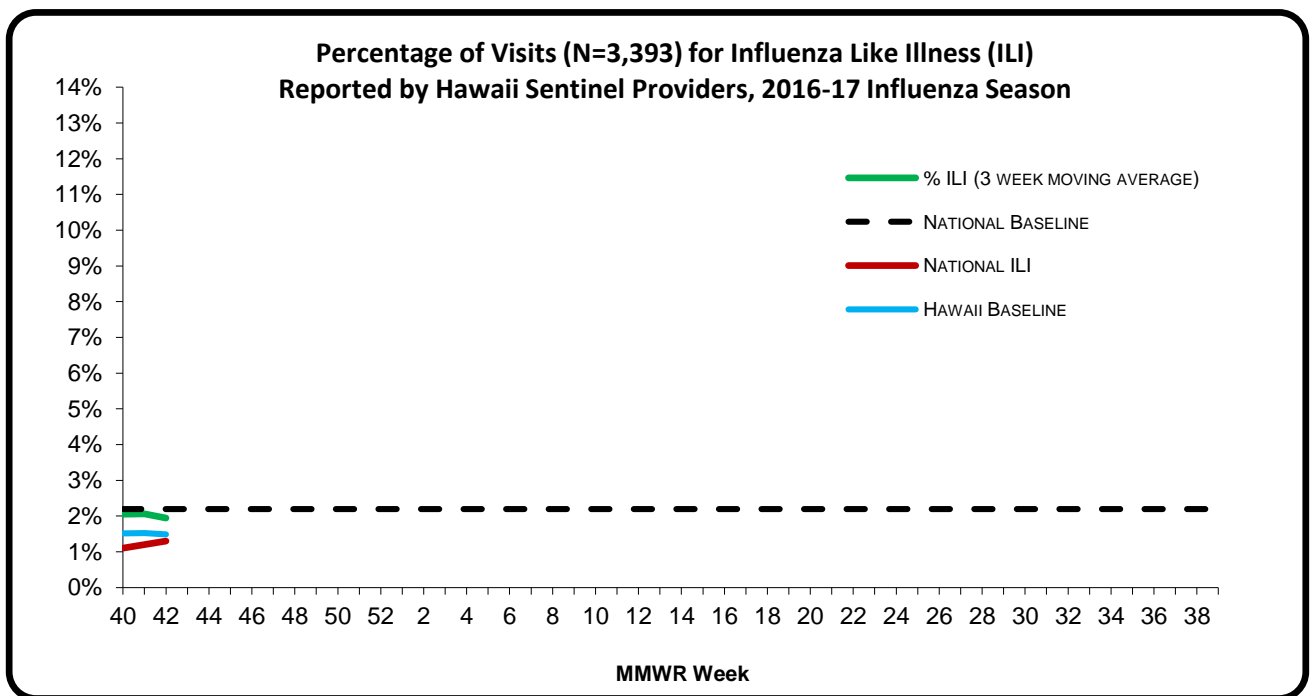
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 2.0% (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 the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and the national ILI rate (1.3%) (i.e., inside the 95% confidence interval).
- ILI Cluster Activity: One cluster was reported to HDOH during week 42. The cluster occurred at a hospital on Oahu and had confirmed 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

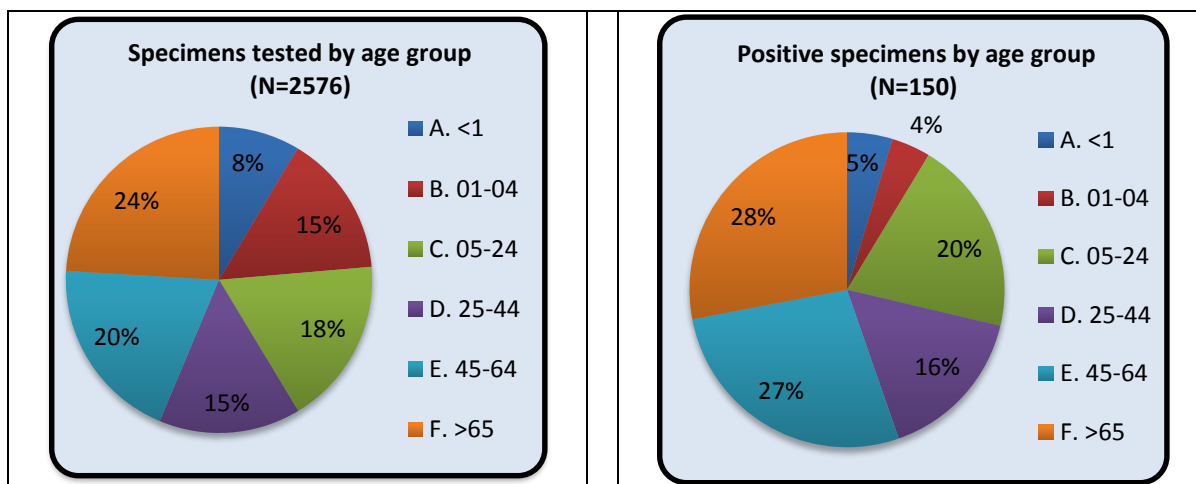
A. INFLUENZA:

- The following reflects laboratory findings for week 42 of the 2016-17 influenza season:
 - A total of **806** specimens have been tested statewide for influenza viruses (positive: **42** [5.2%]). (Season to date: **2,576** tested [5.8% positive])
 - 528 (65.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 278 (34.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 764 (94.8%) were negative.

<i>Influenza type</i>	<i>Current week 42 (%)</i>	<i>Season to date (%)</i>
2009 H1N1	0 (0.0)	1 (0.7)
Influenza A (H3)	0 (0.0)	2 (1.3)
Influenza A no subtyping	33 (78.6)	123 (82.0)
Influenza B (Yamagata)	0 (0.0)	0 (0.0)
Influenza B (Victoria)	0 (0.0)	0 (0.0)
Influenza B no genotyping	9 (21.4)	24 (16.0)

1. AGE DISTRIBUTION

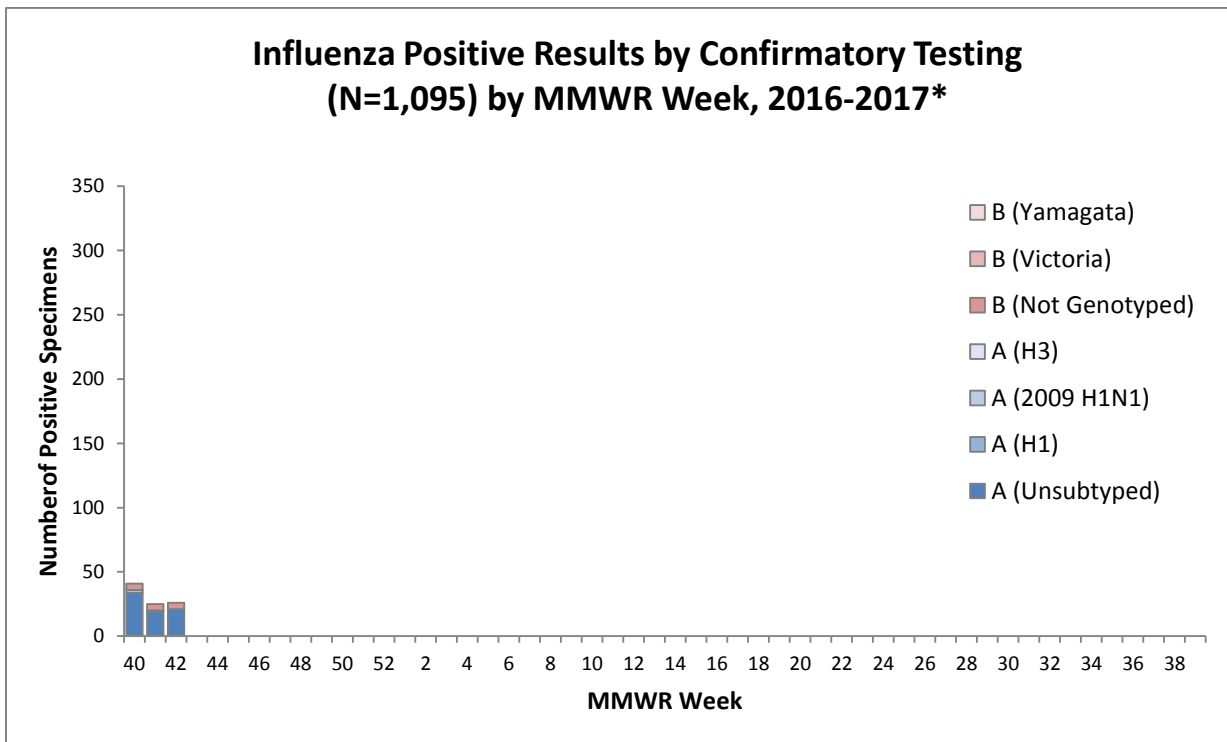
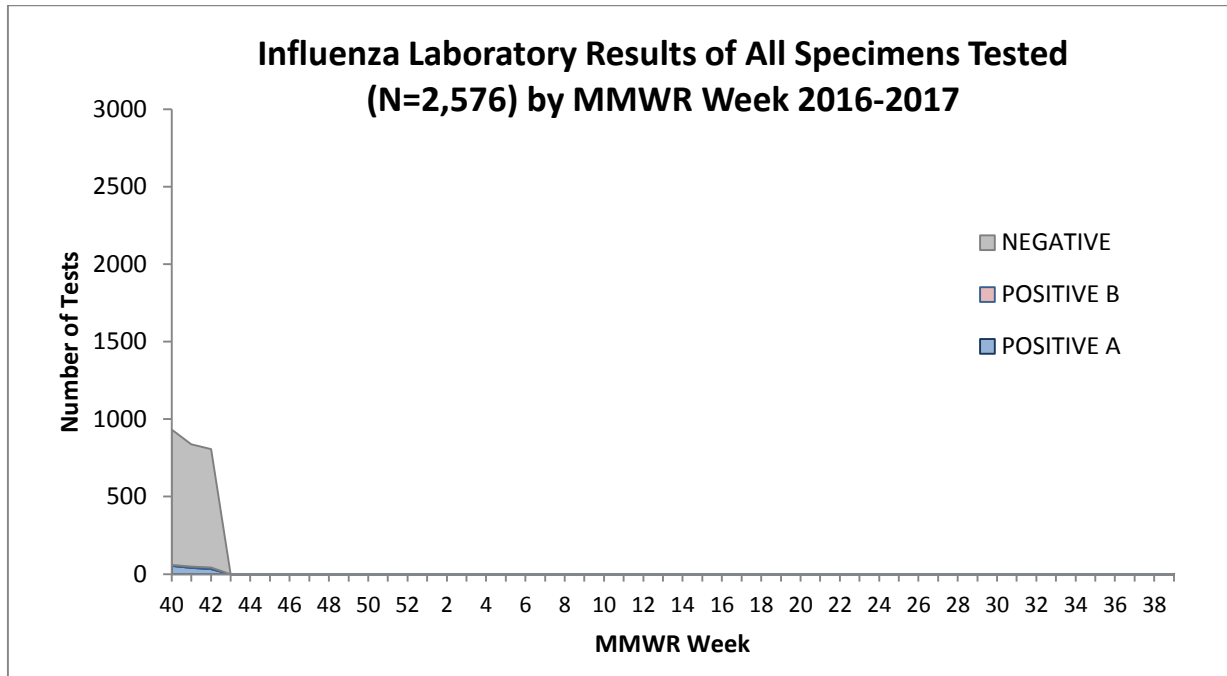
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.



⁵ 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.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2016–2017 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).

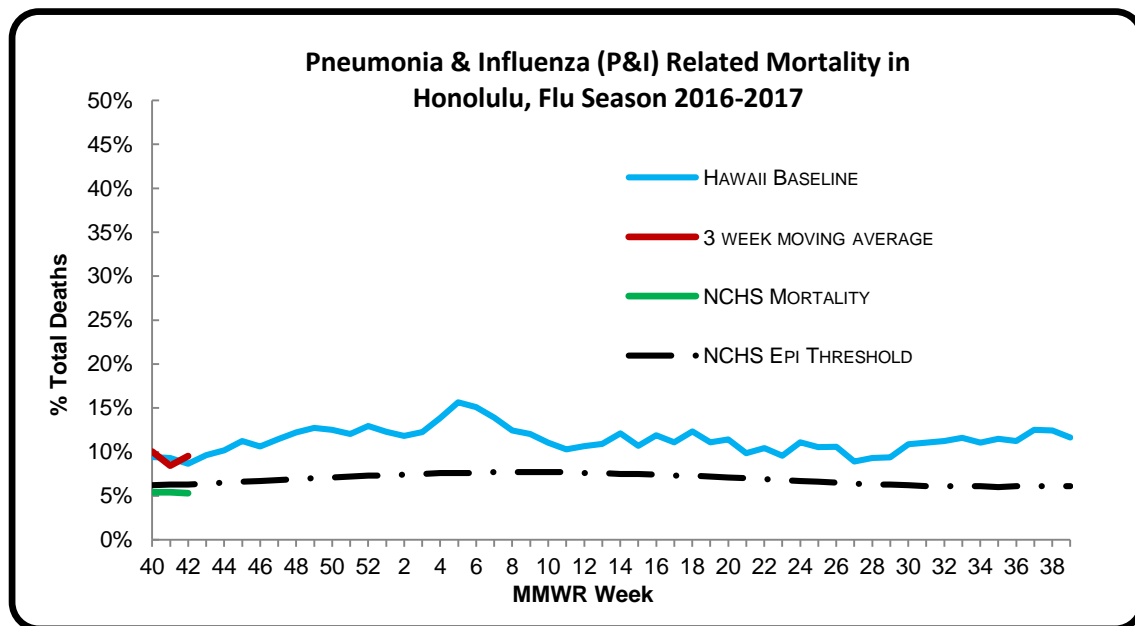


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *12.1% of all deaths that occurred in Honolulu during week 42 were related to pneumonia or influenza. For the current season (season to date: 8.3%), there have been 264 deaths from any cause, 22 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁶ (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 mortality⁷(5.3%) (i.e., inside the 95% confidence interval) and comparable to the epidemic threshold (6.5%) (i.e., inside the 95% confidence interval).*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁸:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 42. (Season total: 0).

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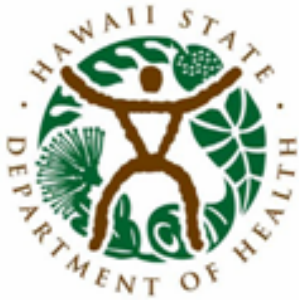
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47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 43: OCTOBER 23, 2016 – OCTOBER 29, 2016

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.**

REPORT SNAPSHOT FOR WEEK 43

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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, Hawaii’s historical baseline, and the national baseline; comparable to the national ILI rate.
Number of ILI clusters reported to HDOH	1	There have been 2 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	12.3%	Comparable to the historical baseline for Hawaii and the national epidemic threshold; Higher than the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	5.7%	Higher than the previous week. This number means that many, if not all, of the 94.3% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	6.3%	

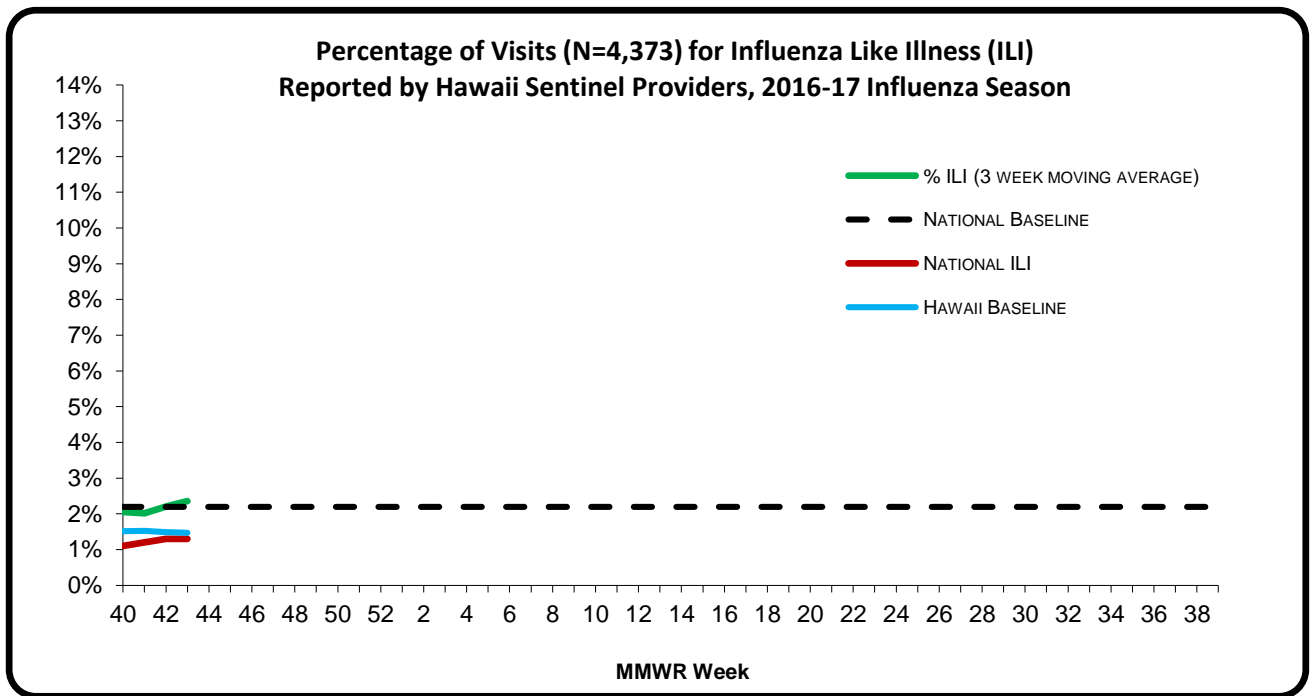
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 2.8% (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 the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) but higher than the national ILI rate (1.3%) (i.e., outside the 95% confidence interval).
- ILI Cluster Activity: One influenza-like illness cluster was reported to HDOH during week 43. The cluster occurred at a long term care facility on Oahu and had cases who tested negative for influenza.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

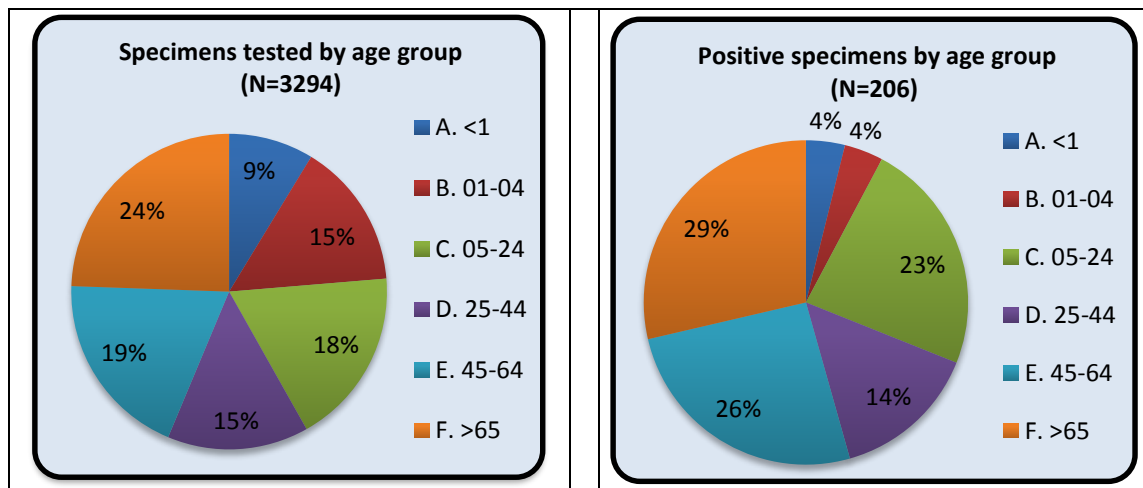
A. INFLUENZA:

- The following reflects laboratory findings for week 43 of the 2016-17 influenza season:
 - A total of **704** specimens have been tested statewide for influenza viruses (positive: **40** [5.7%]). (Season to date: **3,294** tested [6.3% positive])
 - 430 (61.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 274 (38.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 664 (94.3%) were negative.

<i>Influenza type</i>	<i>Current week 43 (%)</i>	<i>Season to date (%)</i>
<i>2009 H1N1</i>	0 (0.0)	7 (3.4)
<i>Influenza A (H3)</i>	5 (12.5)	29 (14.1)
<i>Influenza A no subtyping</i>	28 (70.0)	137 (66.5)
<i>Influenza B (Yamagata)</i>	0 (0.0)	4 (1.9)
<i>Influenza B (Victoria)</i>	0 (0.0)	1 (0.5)
<i>Influenza B no genotyping</i>	7 (17.5)	28 (13.6)

1. AGE DISTRIBUTION

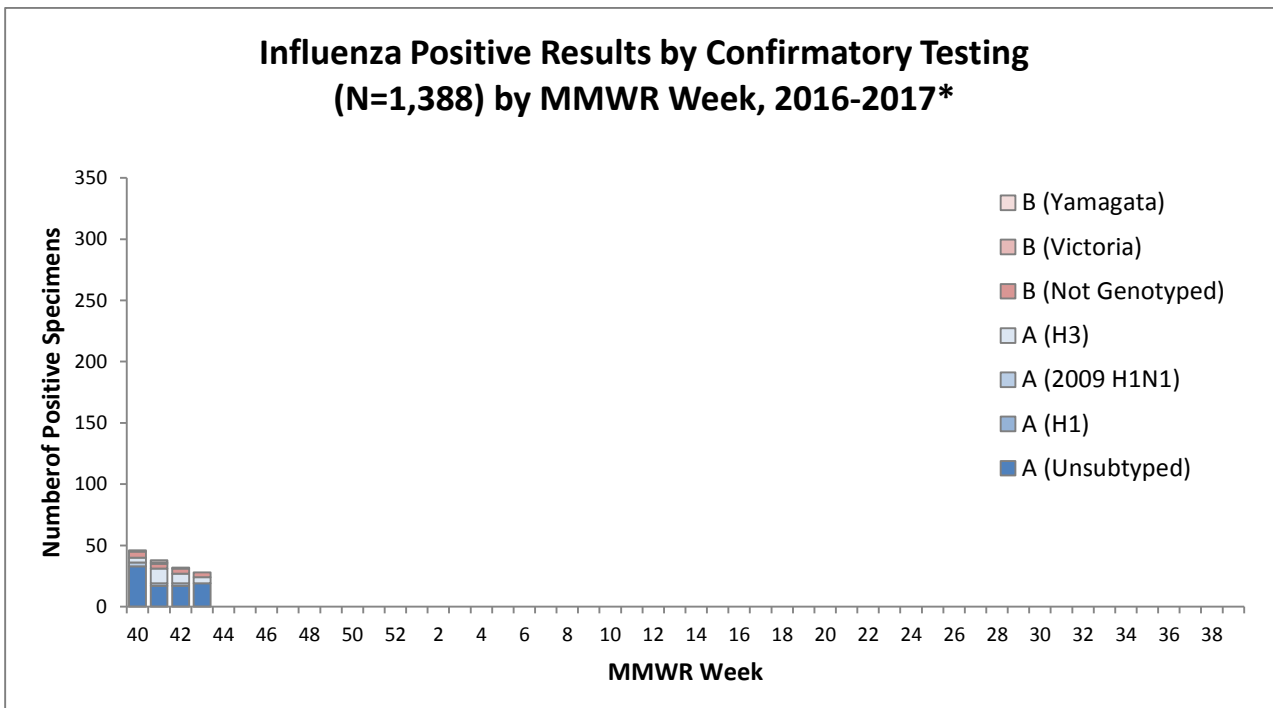
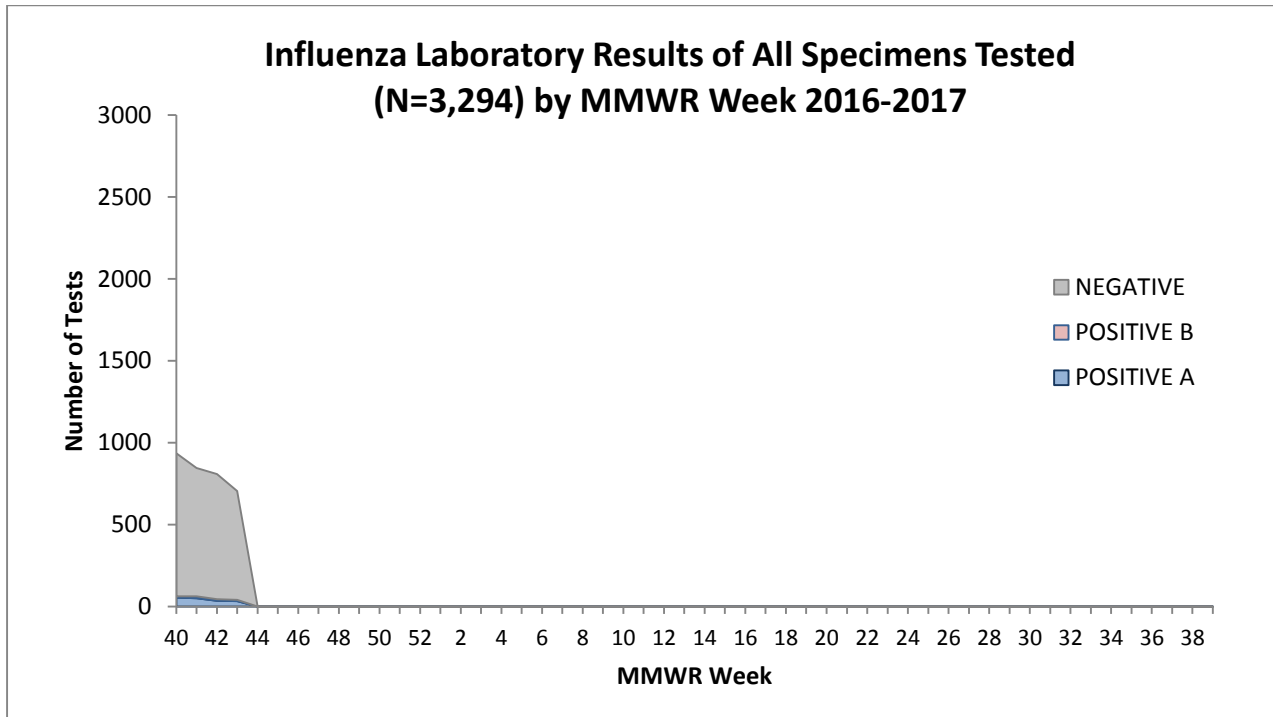
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.



⁵ 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.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2016–2017 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).

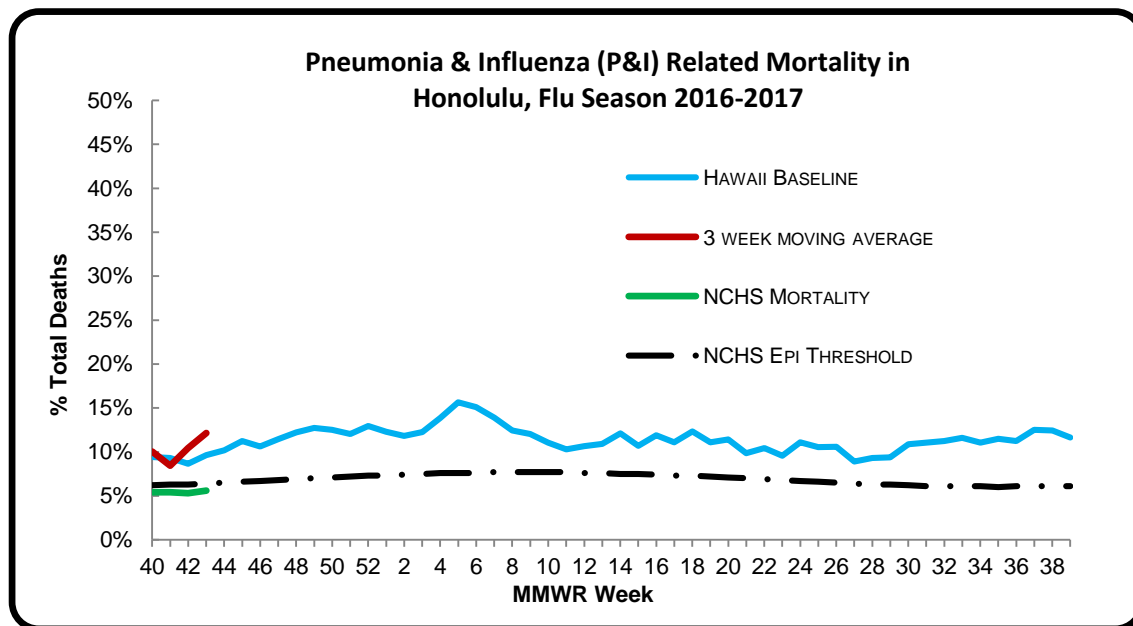


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *12.3% of all deaths that occurred in Honolulu during week 43 were related to pneumonia or influenza. For the current season (season to date: 9.5%), there have been 370 deaths from any cause, 35 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁶ (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 mortality⁷ (5.6%) (i.e., outside the 95% confidence interval) but comparable to the epidemic threshold (6.5%) (i.e., inside the 95% confidence interval).*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁸:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 43. (Season total: 0).

⁶ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁷ 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

⁸ 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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 **October 3, 2016**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 44: OCTOBER 30, 2016 – NOVEMBER 5, 2016

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.**

REPORT SNAPSHOT FOR WEEK 44

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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, Hawaii’s historical baseline, and the national baseline; comparable to the national ILI rate.
Number of ILI clusters reported to HDOH	2	There have been 3 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	11.6%	Comparable to the historical baseline for Hawaii, the national epidemic threshold, and the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	7.3%	Higher than the previous week. This number means that many, if not all, of the 92.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	6.4%	

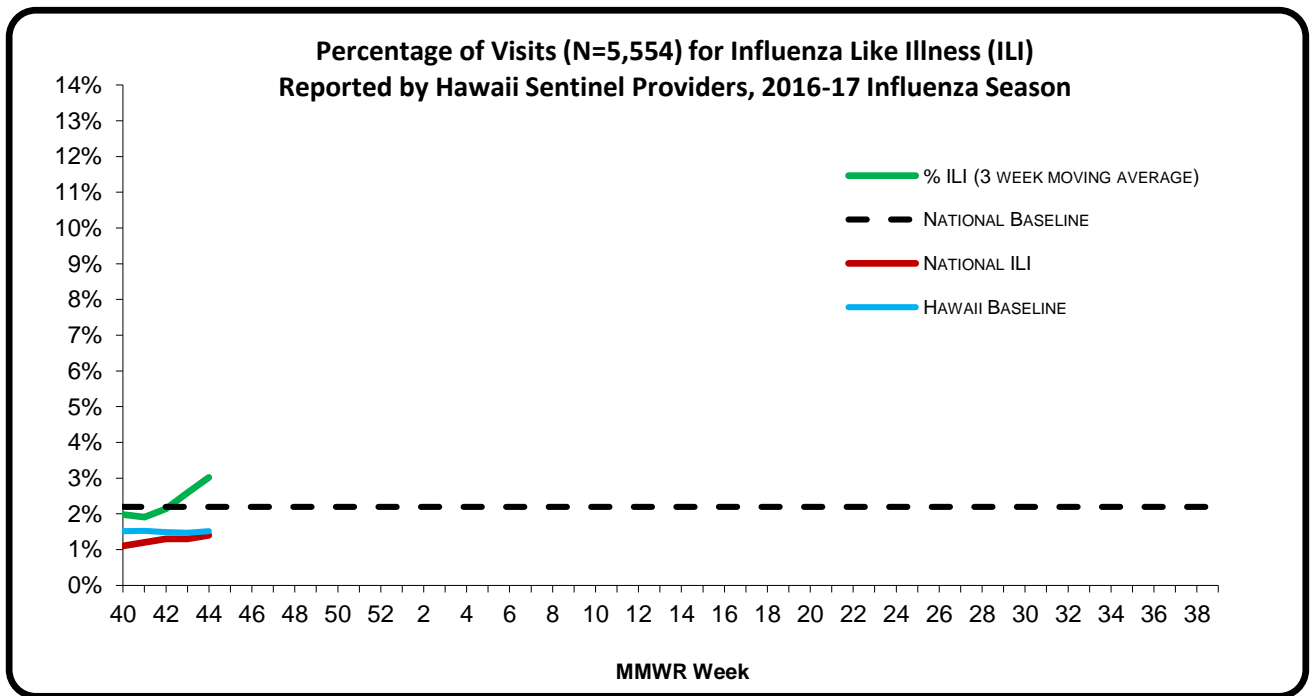
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 3.2% (season to date: 2.3%) 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 the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) but higher than the national ILI rate (1.4%) (i.e., outside the 95% confidence interval).
- ILI Cluster Activity: Two influenza-like illness clusters were reported to HDOH during week 44. Both clusters occurred at different long term care facilities on Oahu and 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

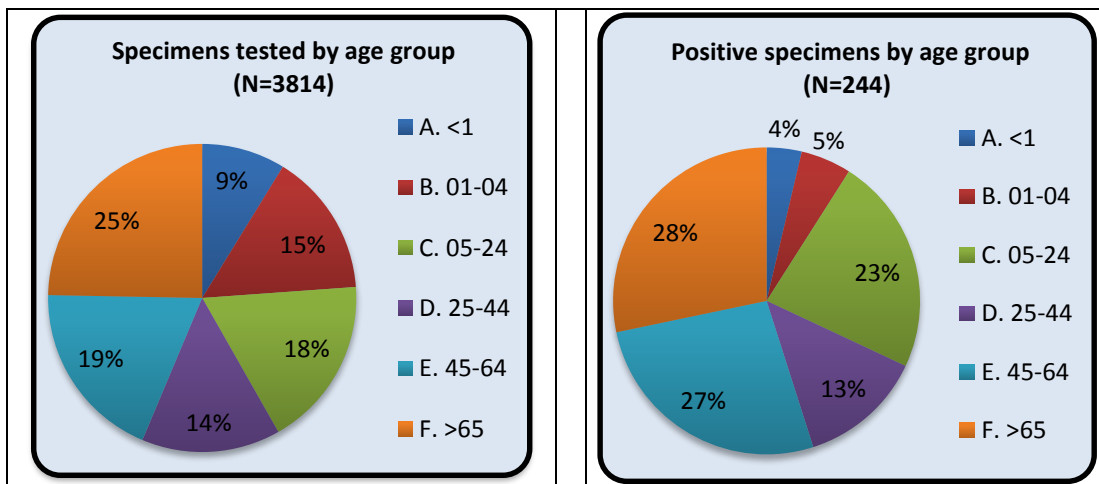
A. INFLUENZA:

- The following reflects laboratory findings for week 44 of the 2016-17 influenza season:
 - A total of 520 specimens have been tested statewide for influenza viruses (positive: 38 [7.3%]). (Season to date: 3,814 tested [6.4% positive])
 - 257 (49.4%) were screened only by rapid antigen tests with no confirmatory testing
 - 263 (50.6%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 482 (92.7%) were negative.

<i>Influenza type</i>	<i>Current week 44 (%)</i>	<i>Season to date (%)</i>
<i>2009 H1N1</i>	0 (0.0)	7 (2.9)
<i>Influenza A (H3)</i>	0 (0.0)	29 (11.9)
<i>Influenza A no subtyping</i>	35 (92.1)	172 (70.5)
<i>Influenza B (Yamagata)</i>	0 (0.0)	4 (1.6)
<i>Influenza B (Victoria)</i>	0 (0.0)	1 (0.4)
<i>Influenza B no genotyping</i>	3 (7.9)	31 (12.7)

1. AGE DISTRIBUTION

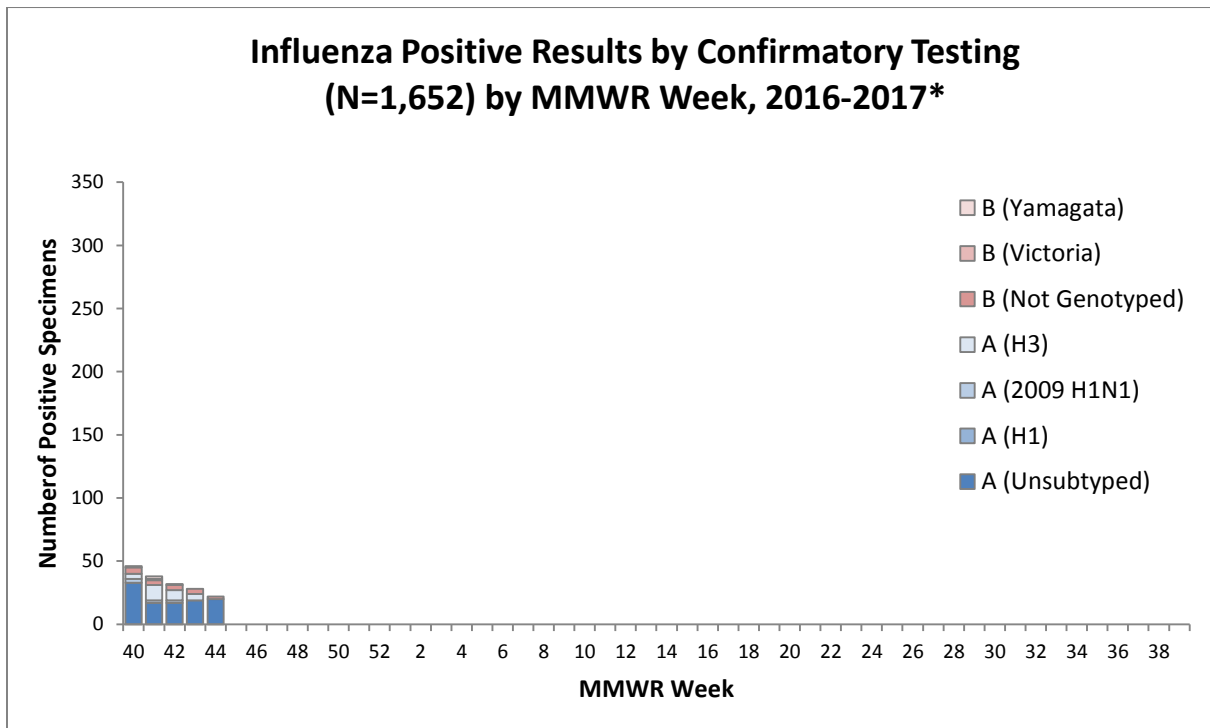
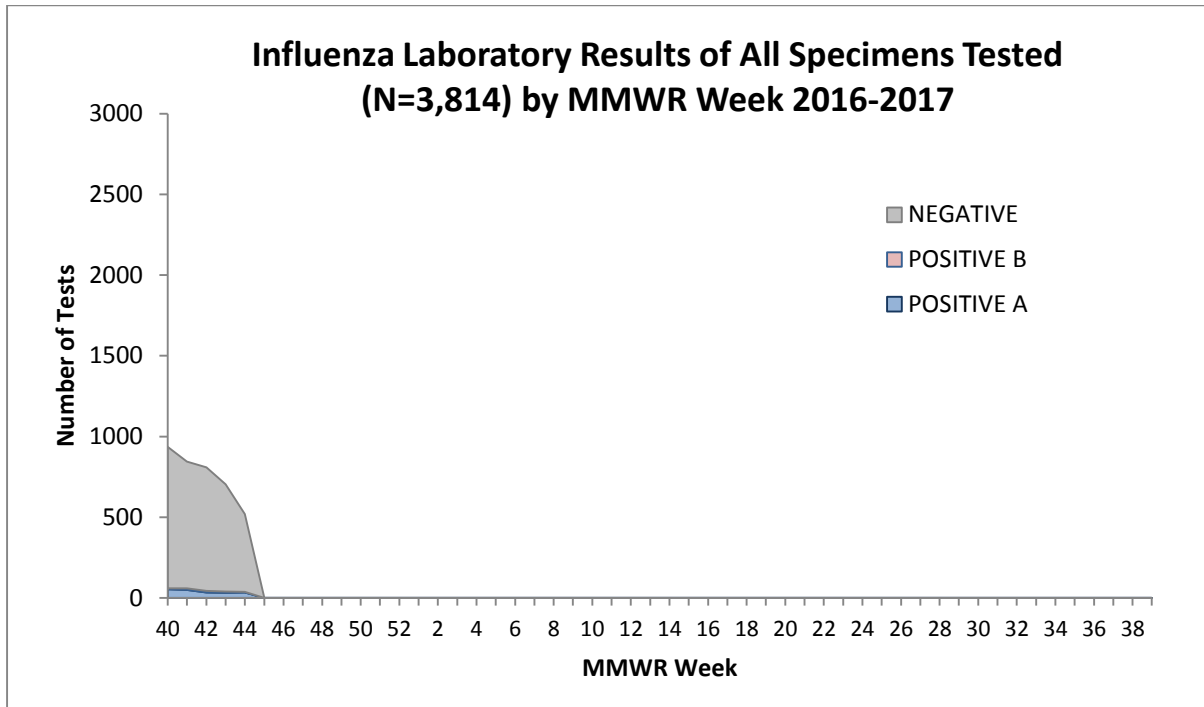
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.



⁵ 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.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2016–2017 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).

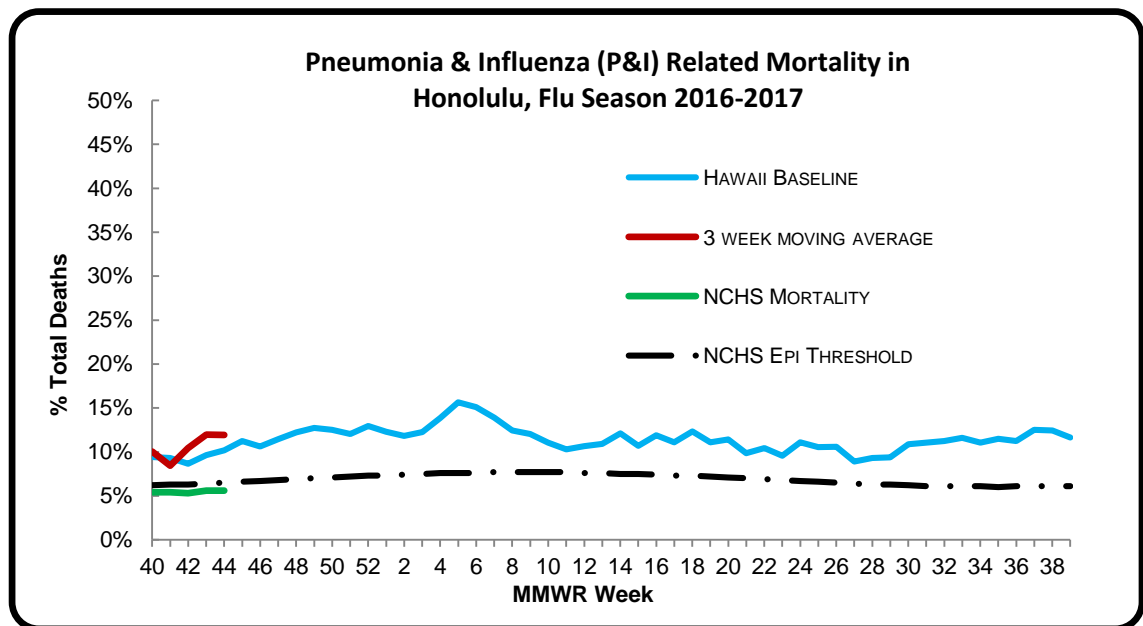


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **11.6%** of all deaths that occurred in Honolulu during week 44 were related to pneumonia or influenza. For the current season (season to date: **9.9%**), there have been 465 deaths from any cause, 46 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁶ (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 mortality⁷ (5.6%) (i.e., inside the 95% confidence interval) and the epidemic threshold (6.6%) (i.e., inside the 95% confidence interval).



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁸:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 44. (Season total: 0).

⁶ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁷ 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

⁸ 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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 **October 3, 2016**.

APPENDIX 1: ADDITIONAL INFORMATION

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

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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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39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
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49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 45: NOVEMBER 6, 2016 – NOVEMBER 12, 2016

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.**

REPORT SNAPSHOT FOR WEEK 45

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.8%	Lower than the previous week; Higher than Hawaii’s historical baseline and the national ILI rate; comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 3 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	11.4%	Comparable to the historical baseline for Hawaii, the national epidemic threshold, and the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	10.9%	Higher 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	7.0%	

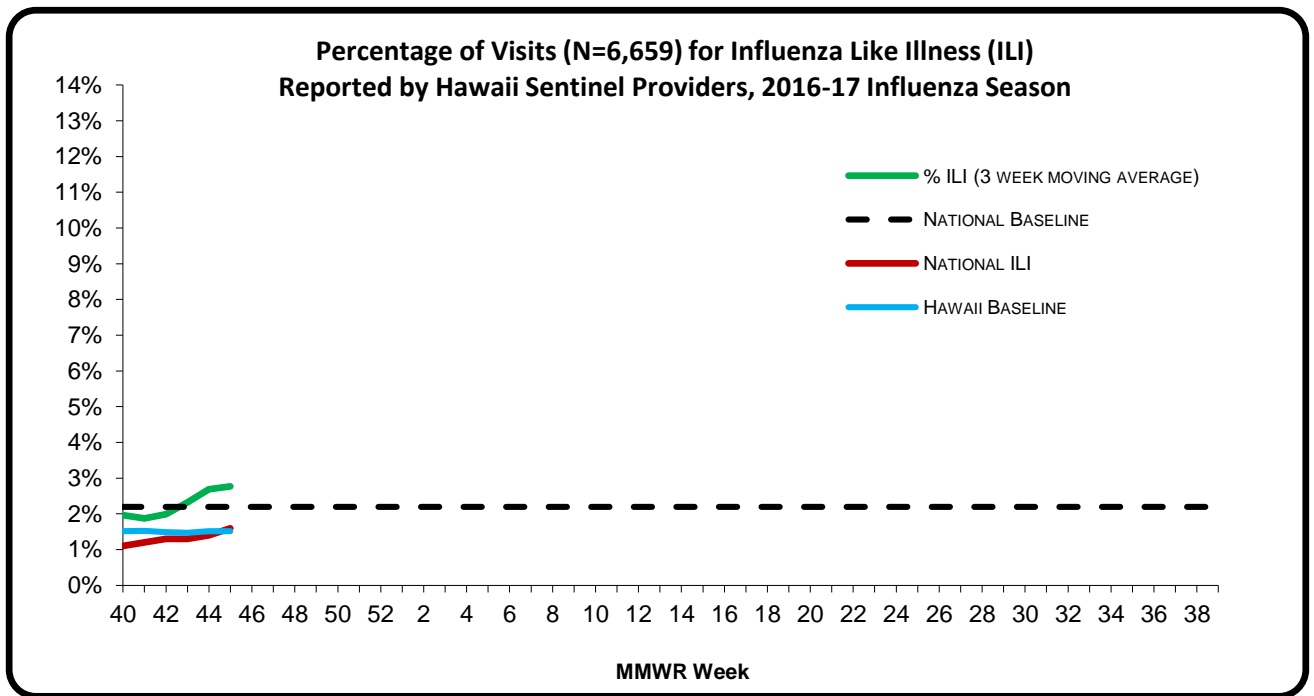
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 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 the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) but higher than the national ILI rate (1.6%) (i.e., outside the 95% confidence interval).
- ILI Cluster Activity: No 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

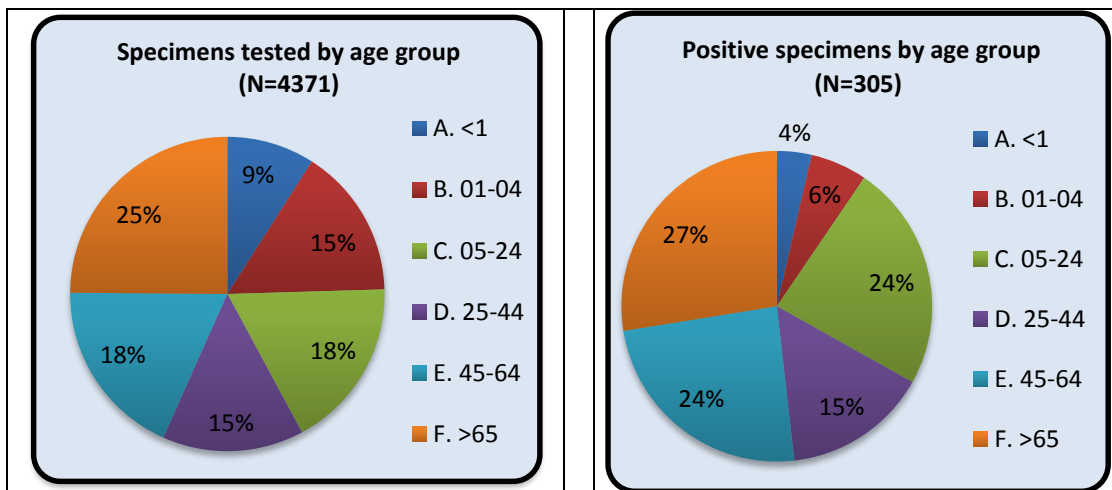
A. INFLUENZA:

- The following reflects laboratory findings for week 45 of the 2016-17 influenza season:
 - A total of 558 specimens have been tested statewide for influenza viruses (positive: 61 [10.9%]). (Season to date: 4,371 tested [7.0% positive])
 - 320 (57.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 238 (42.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 497 (89.1%) were negative.

Influenza type	Current week 45 (%)	Season to date (%)
2009 H1N1	0 (0.0)	7 (2.3)
Influenza A (H3)	0 (0.0)	29 (9.5)
Influenza A no subtyping	59 (96.7)	231 (75.7)
Influenza B (Yamagata)	0 (0.0)	4 (1.3)
Influenza B (Victoria)	1 (1.6)	2 (0.7)
Influenza B no genotyping	1 (1.6)	32 (10.5)

1. AGE DISTRIBUTION

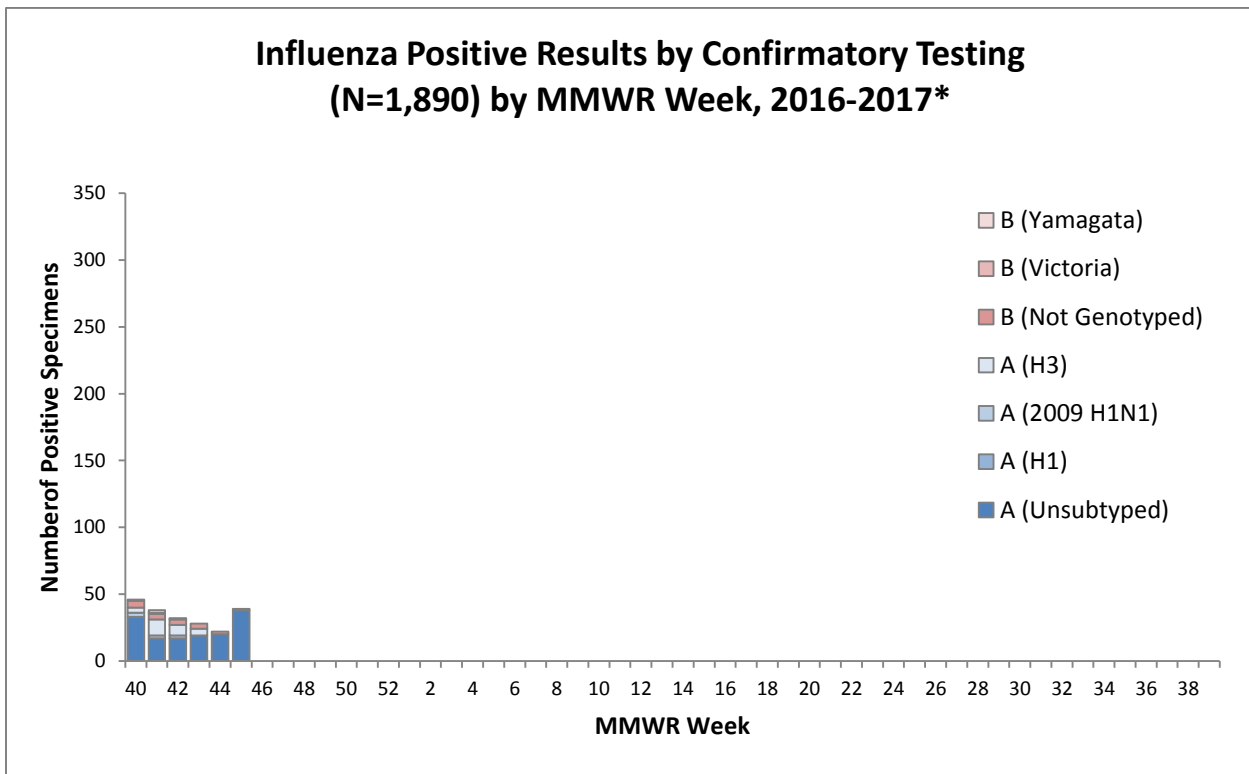
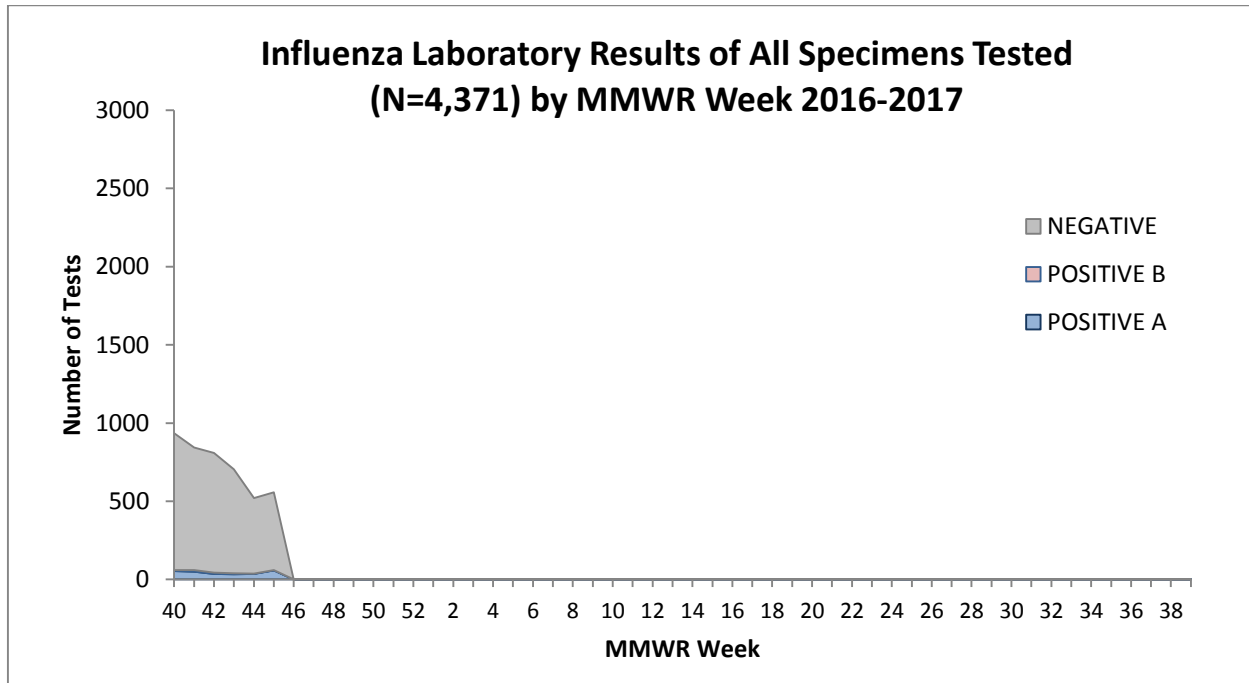
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.



⁵ 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.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2016–2017 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).

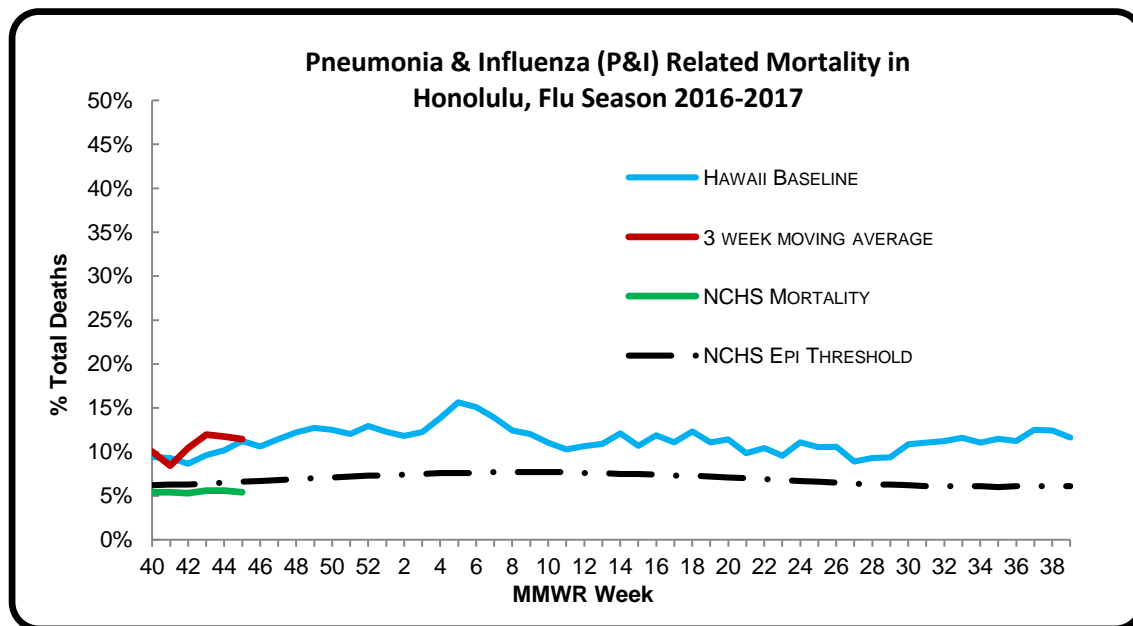


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **11.4%** of all deaths that occurred in Honolulu during week 45 were related to pneumonia or influenza. For the current season (season to date: **10.1%**), there have been 553 deaths from any cause, 56 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁶ (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 mortality⁷ (5.4%) (i.e., inside the 95% confidence interval) and the epidemic threshold (6.7%) (i.e., inside the 95% confidence interval).



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁸:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 45. (Season total: 0).

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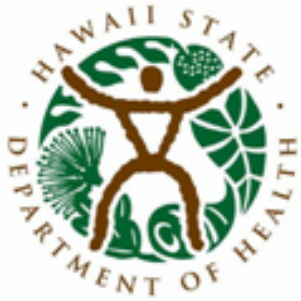
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36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 46: NOVEMBER 13, 2016 – NOVEMBER 19, 2016

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.**

REPORT SNAPSHOT FOR WEEK 46

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.4%	Lower than the previous week; comparable to Hawaii’s historical baseline, the national baseline, and the national ILI rate.
Number of ILI clusters reported to HDOH	0	There have been 4 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	15.7%	Comparable to the historical baseline for Hawaii; higher than the national epidemic threshold and the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	12.0%	Higher 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	8.0%	

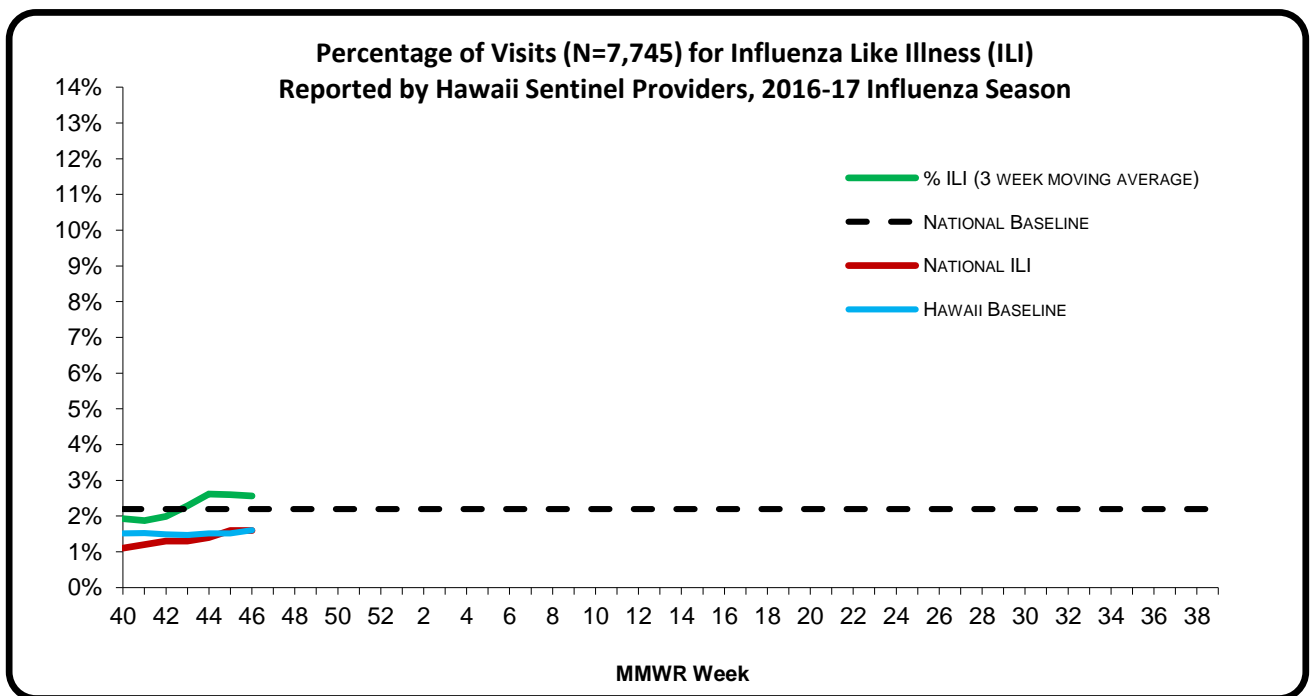
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **2.4%** (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 comparable the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and the national ILI rate (1.6%) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** No 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

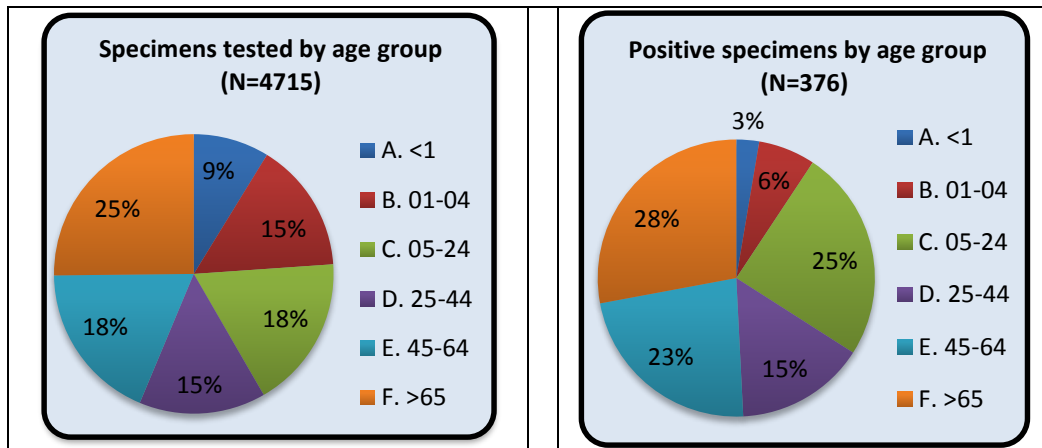
A. INFLUENZA:

- The following reflects laboratory findings for week 46 of the 2016-17 influenza season:
 - A total of 524 specimens have been tested statewide for influenza viruses (positive: 63 [12.0%]). (Season to date: 4,715 tested [8.0% positive])
 - 270 (51.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 254 (48.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 461 (88.0%) were negative.

Influenza type	Current week 46 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	9 (2.4)
Influenza A (H3)	3 (4.8)	57 (15.2)
Influenza A no subtyping	50 (79.4)	261 (69.4)
Influenza B (Yamagata)	3 (4.8)	11 (2.9)
Influenza B (Victoria)	0 (0.0)	4 (1.1)
Influenza B no genotyping	7 (11.1)	34 (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 2016–17 influenza season.

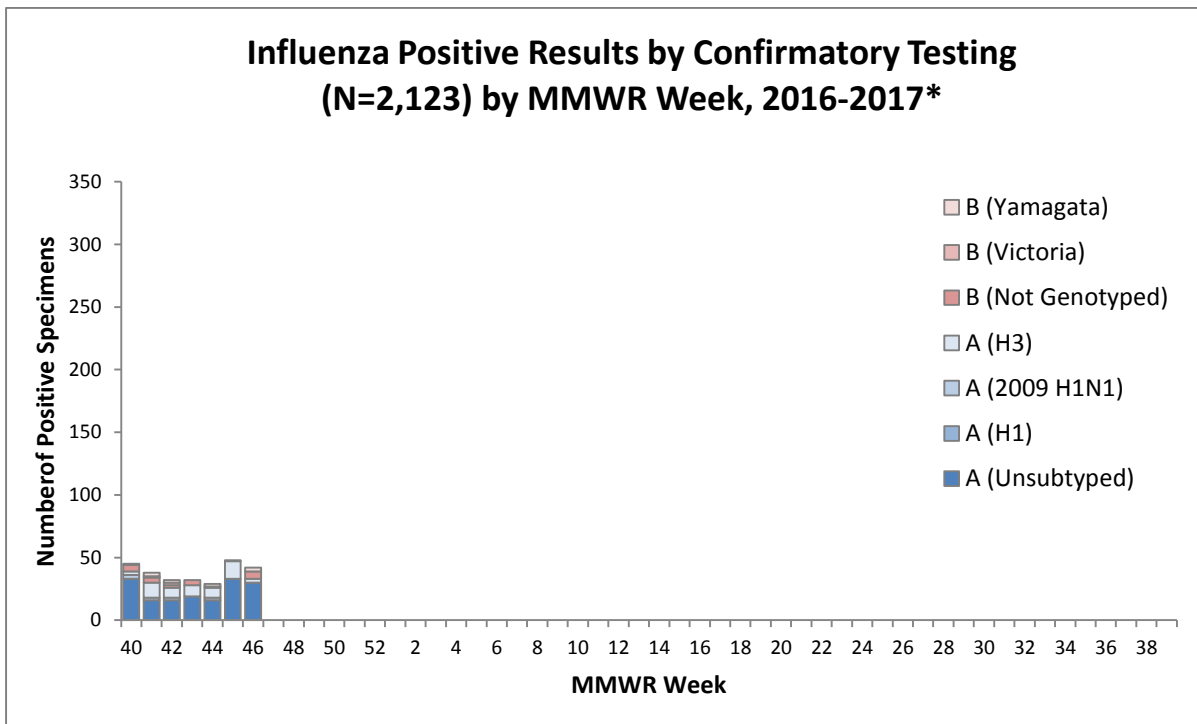
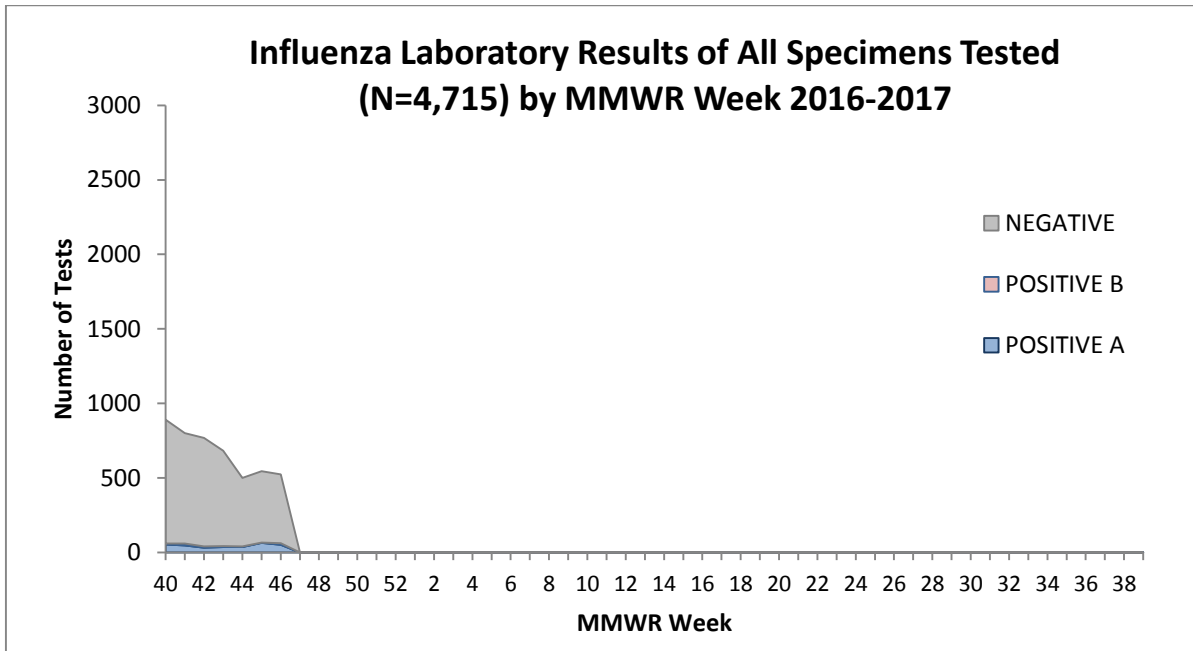


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

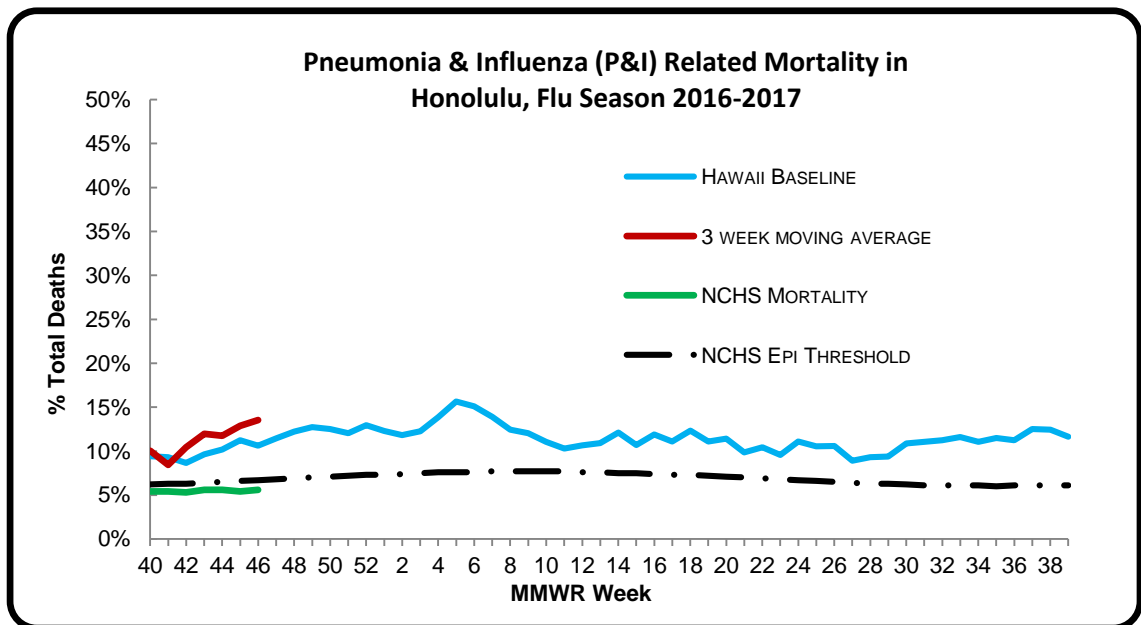


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *15.7% of all deaths that occurred in Honolulu during week 46 were related to pneumonia or influenza. For the current season (season to date: 10.8%), there have been 623 deaths from any cause, 67 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (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 mortality⁸ (5.6%) (i.e., outside the 95% confidence interval) and the epidemic threshold (6.8%) (i.e., outside the 95% confidence interval).*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 46. (Season total: 0).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 21, 2016**. Since the last update, one new lab-confirmed case of H5N6 was reported from China. The case remains hospitalized in critical condition and the investigation of the source of exposure is ongoing. Two new laboratory confirmed cases of H7N9 were also reported from China. One case had known exposure to live poultry; no exposure history is available for the second case.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
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43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 47: NOVEMBER 20, 2016 – NOVEMBER 26, 2016

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.**

REPORT SNAPSHOT FOR WEEK 47

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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, Hawaii's historical baseline, and the national ILI rate; comparable to the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 5 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	13.2%	Comparable to the historical baseline for Hawaii and the national epidemic threshold; higher than and the NCHS average.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	11.2%	Lower than the previous week. This number means that many, if not all, of the 88.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	8.3%	

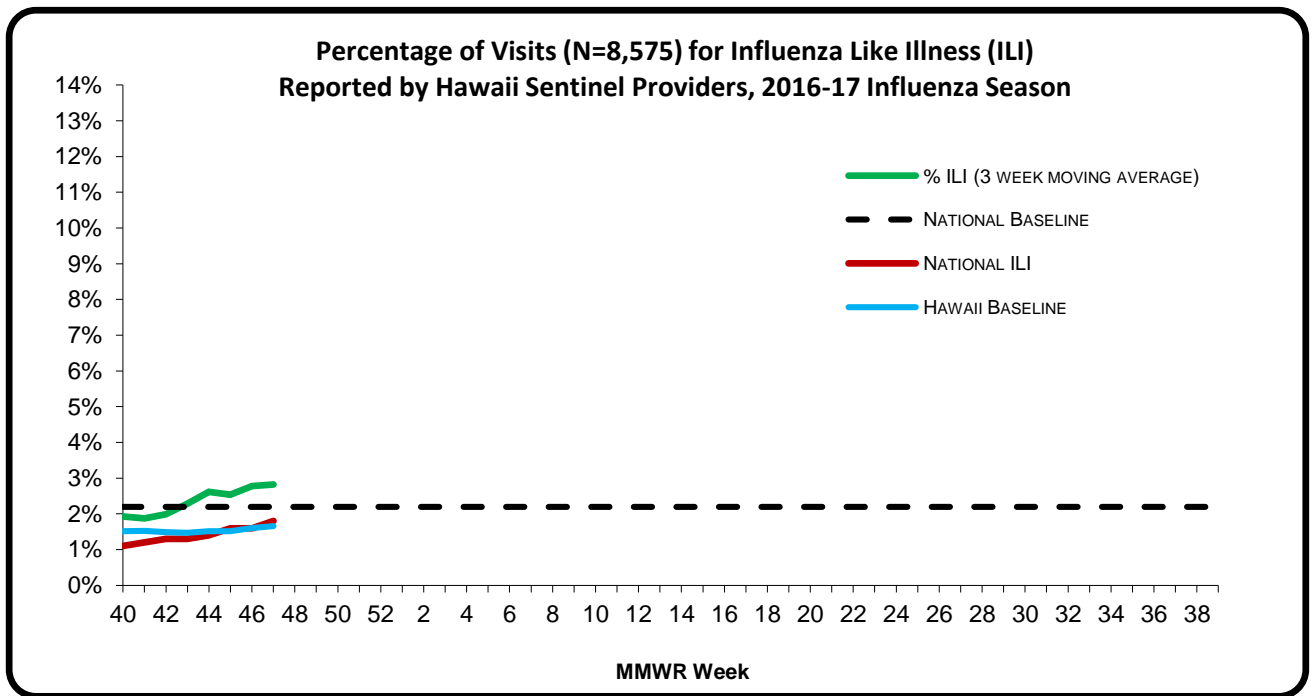
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INFLUENZA SURVEILLANCE

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 47** of the current influenza season:

- **3.4%** (season to date: **2.3%**) 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 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).
- **ILI Cluster Activity:** One cluster was reported to HDOH during week 47. The cluster occurred at a senior living center and had confirmed 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

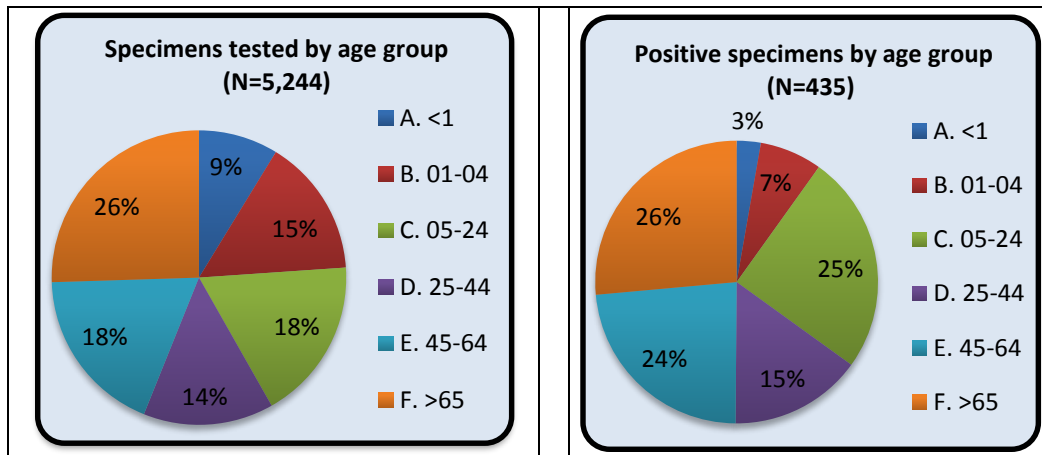
A. INFLUENZA:

- The following reflects laboratory findings for week 47 of the 2016-17 influenza season:
 - A total of 529 specimens have been tested statewide for influenza viruses (positive: 59 [11.2%]). (Season to date: 5,244 tested [8.3% positive])
 - 319 (60.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 210 (39.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 470 (88.8%) were negative.

Influenza type	Current week 47 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	9 (2.1)
Influenza A (H3)	3 (5.0)	60 (13.8)
Influenza A no subtyping	50 (84.8)	311 (71.5)
Influenza B (Yamagata)	0 (0.0)	11 (2.5)
Influenza B (Victoria)	0 (0.0)	4 (1.0)
Influenza B no genotyping	6 (10.2)	40 (9.2)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

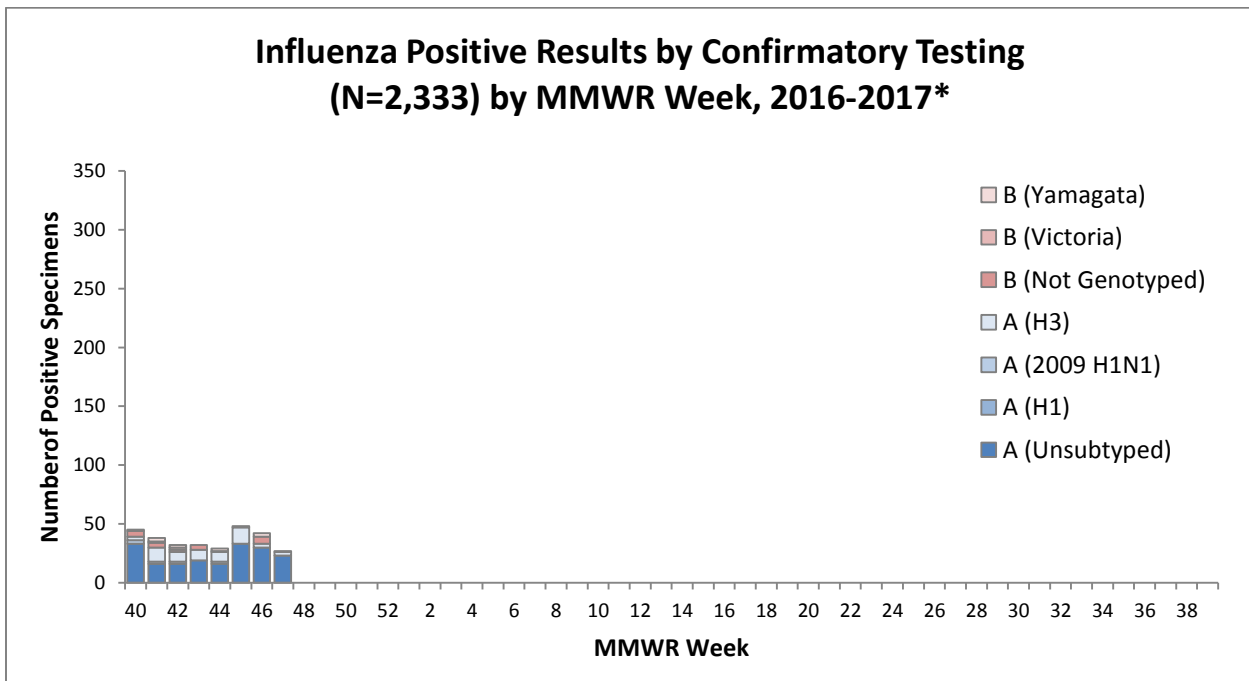
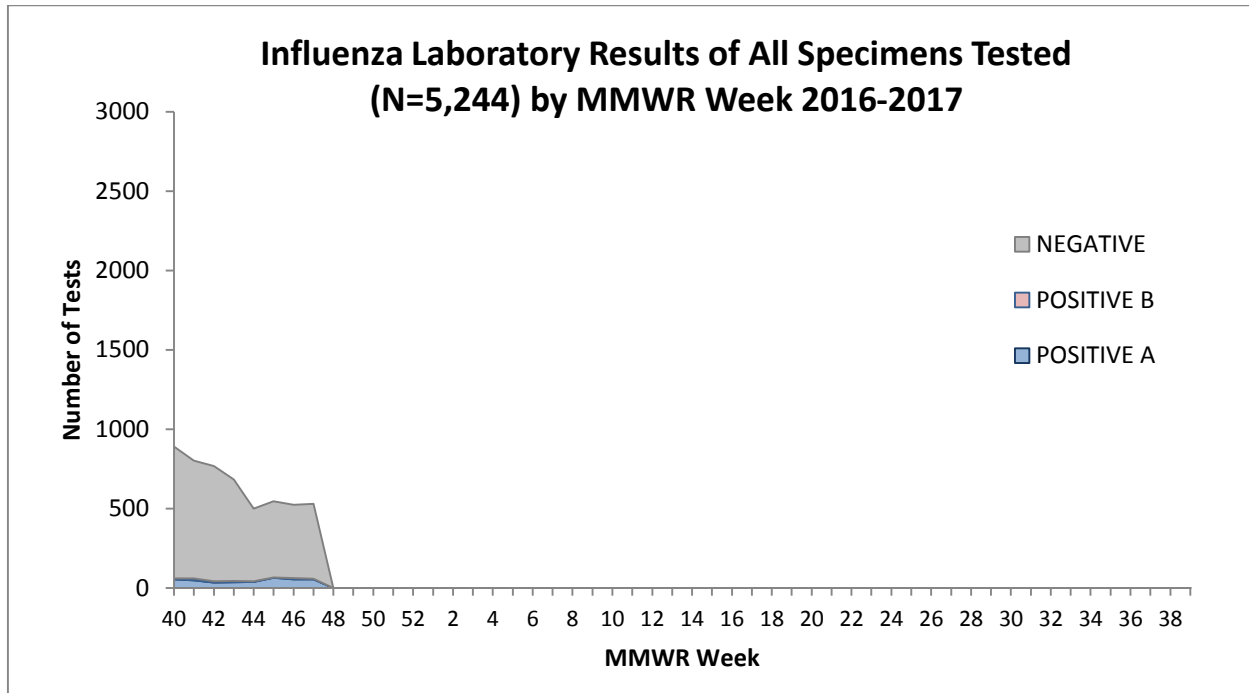


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

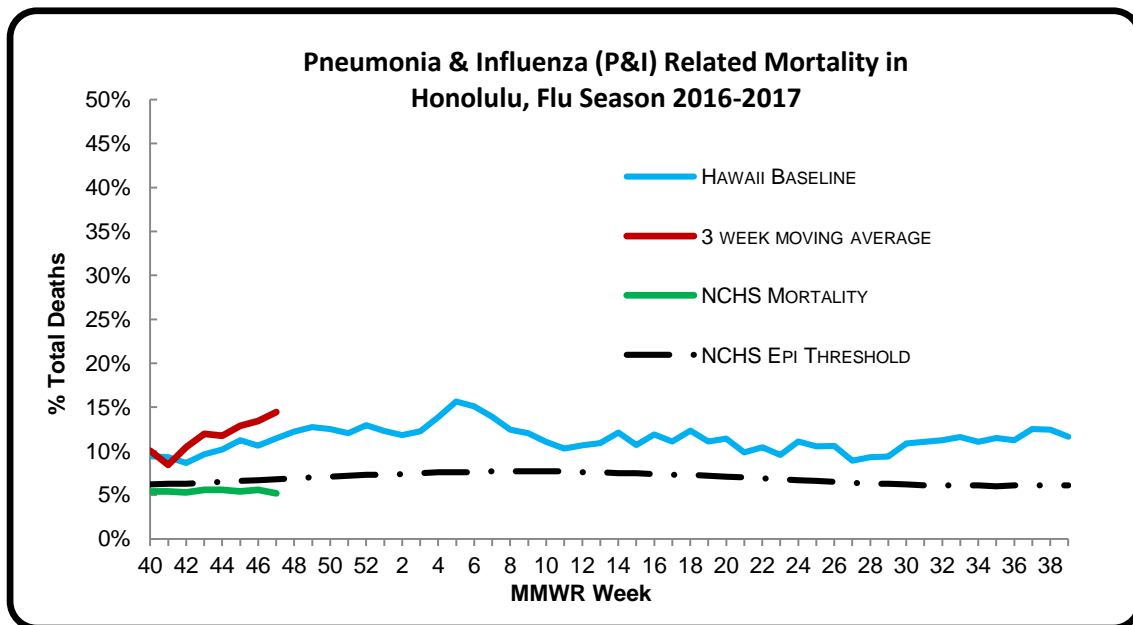


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 13.2% of all deaths that occurred in Honolulu during week 47 were related to pneumonia or influenza. For the current season (season to date: 11.0%), there have been 699 deaths from any cause, 77 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (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 mortality⁸ (5.2%) (i.e., outside the 95% confidence interval) and comparable to the epidemic threshold (6.9%) (i.e., inside the 95% confidence interval).



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 47. (Season total: 0).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

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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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 21, 2016**.

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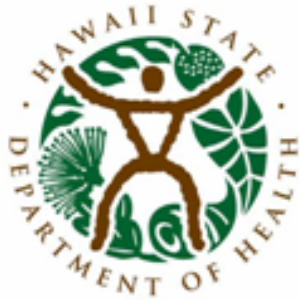
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APPENDIX 2: MMWR WEEK DATES

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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26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
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31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
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49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 48: NOVEMBER 27, 2016 – DECEMBER 3, 2016

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.**

REPORT SNAPSHOT FOR WEEK 48

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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, the national ILI rate, and national baseline.
Number of ILI clusters reported to HDOH	1	There have been 6 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	16.4%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will not be published.
Number of influenza-associated pediatric deaths reported nationwide	0	

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	9.1%	

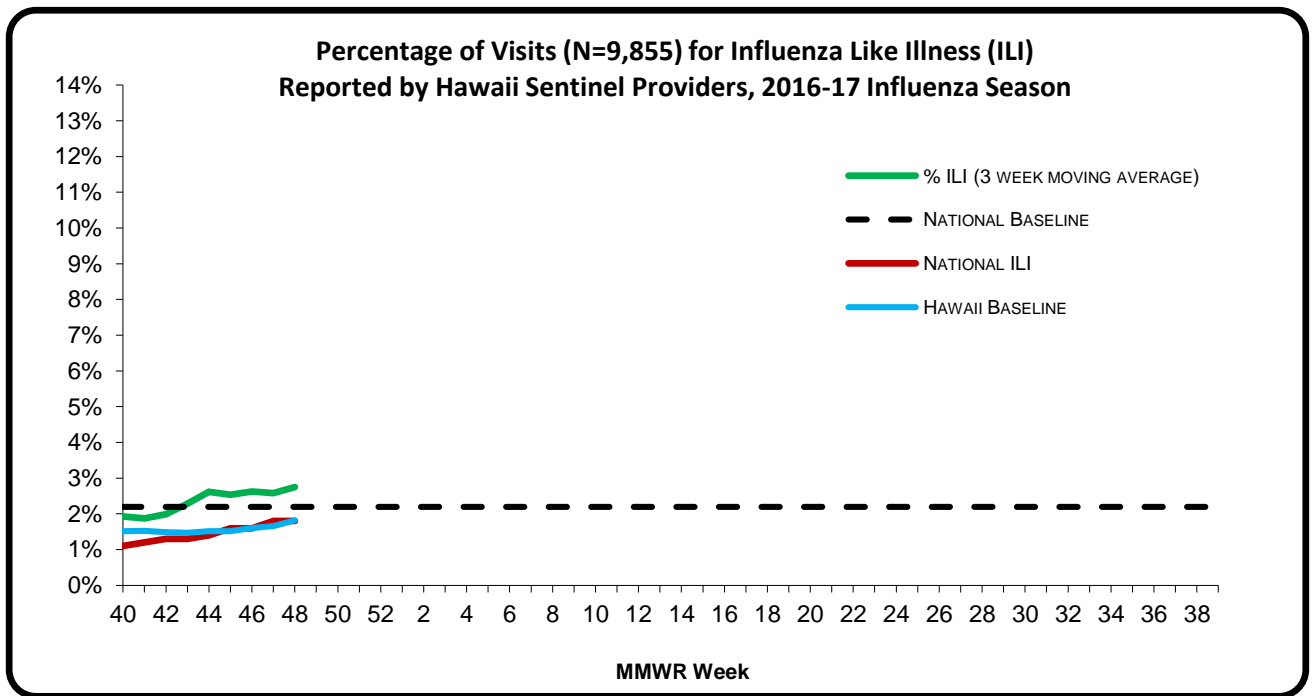
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 2.6% (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 comparable the national baseline (2.2%)⁴ (i.e., inside the 95% confidence interval) and the national ILI rate (1.8%) (i.e., inside the 95% confidence interval).
- ILI Cluster Activity: One cluster was reported to HDOH during week 48. The cluster occurred at an elementary school on Oahu and had confirmed 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

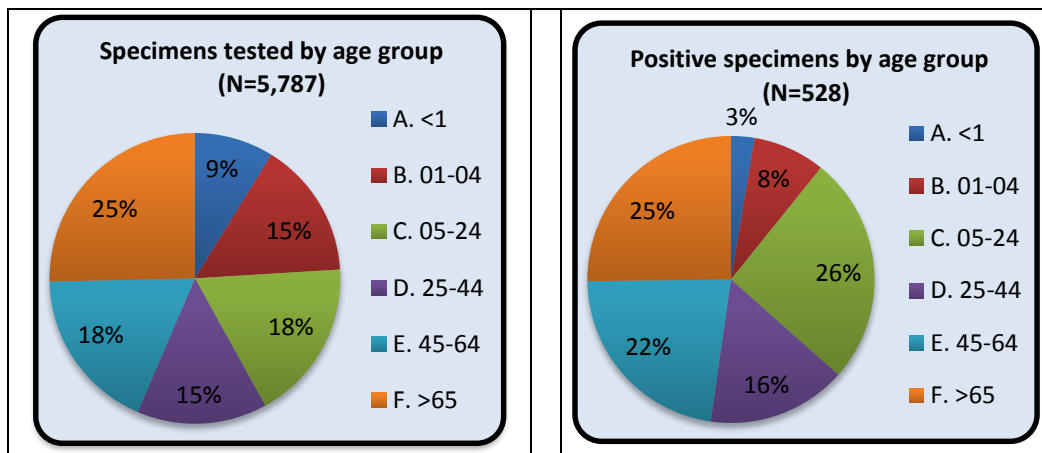
A. INFLUENZA:

- The following reflects laboratory findings for week 48 of the 2016-17 influenza season:
 - A total of 537 specimens have been tested statewide for influenza viruses (positive: 87 [16.2%]). (Season to date: 5,787 tested [9.1% positive])
 - 306 (57.0%) were screened only by rapid antigen tests with no confirmatory testing
 - 231 (43.0%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 450 (83.8%) were negative.

Influenza type	Current week 48 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	9 (1.7)
Influenza A (H3)	4 (4.6)	74 (14.0)
Influenza A no subtyping	70 (80.5)	377 (71.4)
Influenza B (Yamagata)	0 (0.0)	11 (2.1)
Influenza B (Victoria)	0 (0.0)	4 (0.8)
Influenza B no genotyping	13 (14.9)	53 (10.0)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

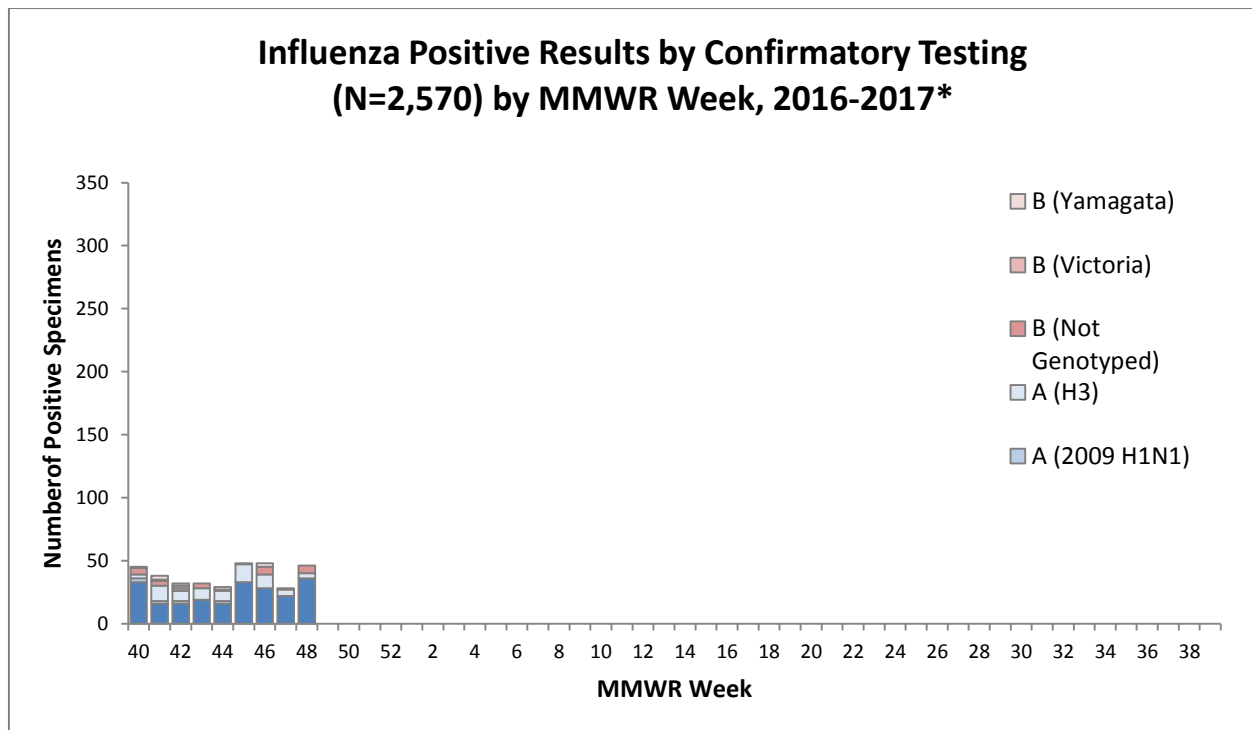
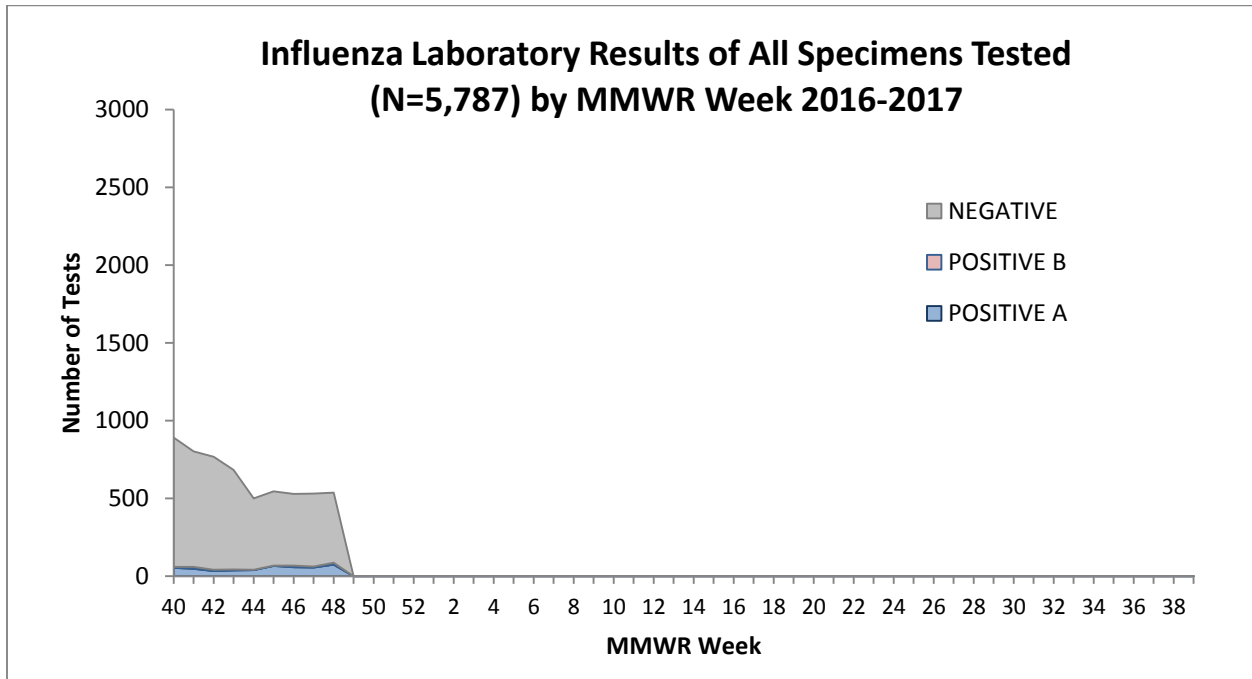


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

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2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2016–2017 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).

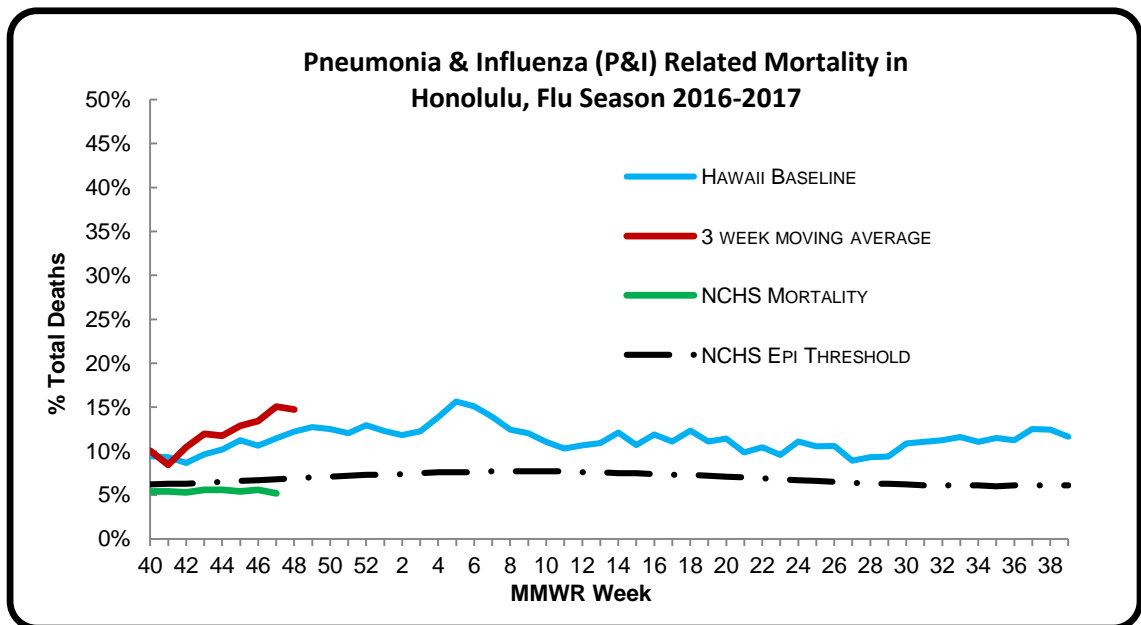


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For week 48 of the current influenza season:

- **16.4%** of all deaths that occurred in Honolulu during week 48 were related to pneumonia or influenza. For the current season (season to date: **11.7%**), there have been 803 deaths from any cause, 94 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 48. (Season total: 0).

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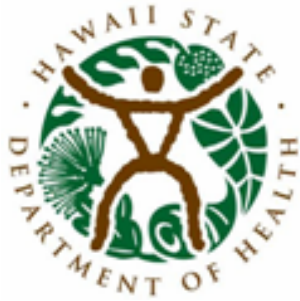
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24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 49: DECEMBER 4, 2016 – DECEMBER 10, 2016

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.**

REPORT SNAPSHOT FOR WEEK 49

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.5%	Higher than the previous week, Hawaii’s historical baseline, the national ILI rate, and national baseline.
Number of ILI clusters reported to HDOH	1	There have been 7 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	13.9%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	20.5%	Higher than the previous week. This number means that many, if not all, of the 79.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	10.0%	

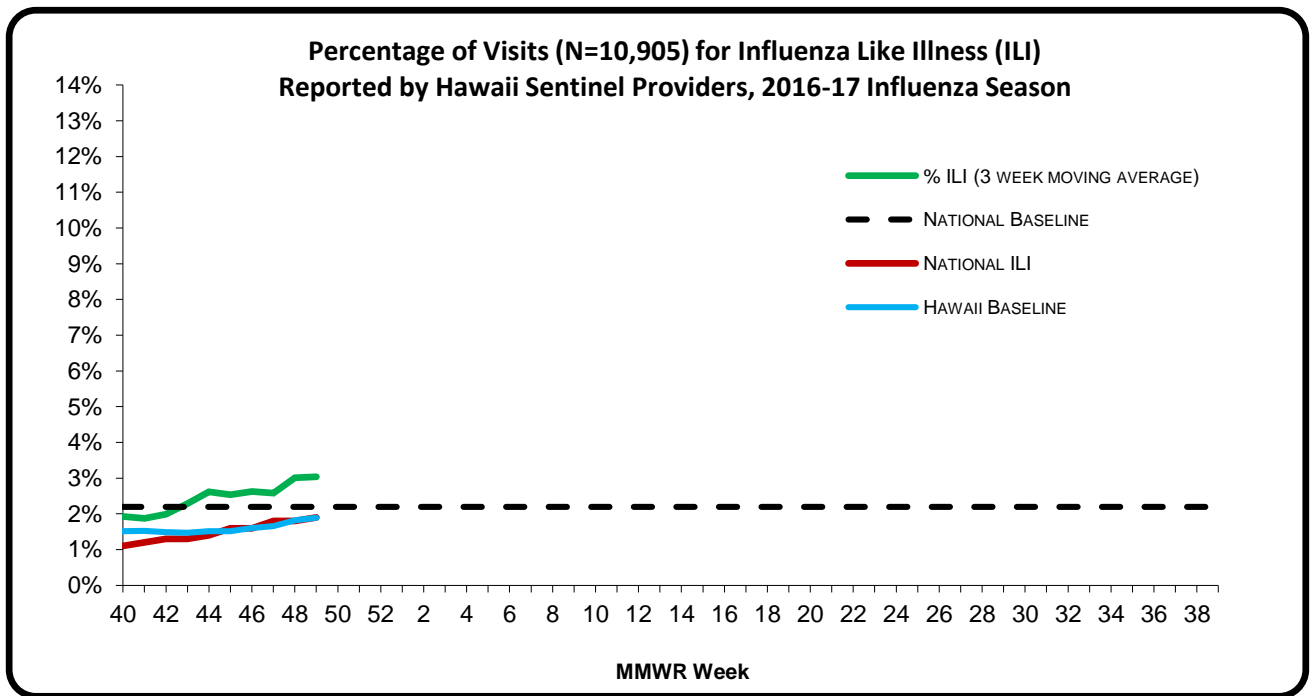
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **3.5%** (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 the national ILI rate (1.9%) (i.e., outside the 95% confidence interval).
- **ILI Cluster Activity:** One cluster was reported to HDOH during week 49. The cluster occurred at a long term care facility on Oahu and 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

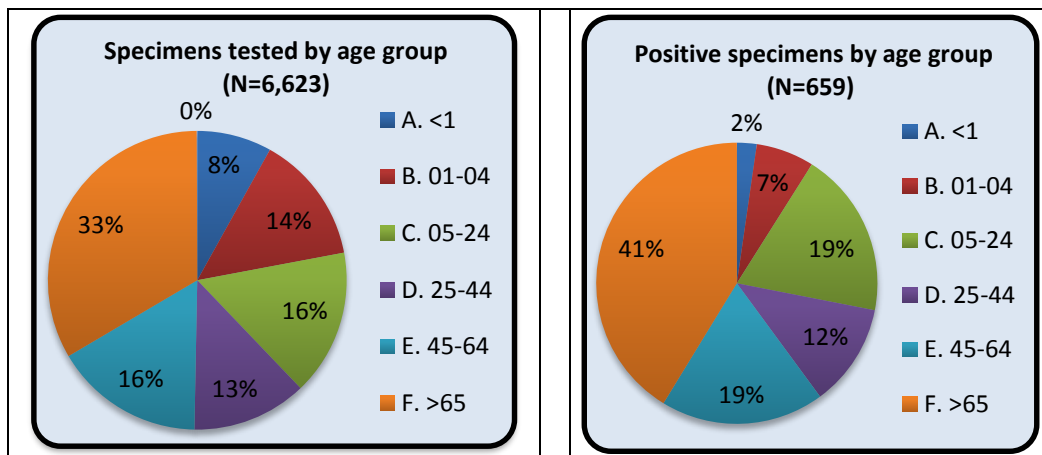
A. INFLUENZA:

- The following reflects laboratory findings for week 49 of the 2016-17 influenza season:
 - A total of **659** specimens have been tested statewide for influenza viruses (positive: **135 [20.5%]**). (Season to date: **6,623** tested [**10.0%** positive])
 - 370 (56.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 289 (43.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 524 (79.5%) were negative.

Influenza type	Current week 49 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	9 (1.4)
Influenza A (H3)	1 (0.7)	77 (11.7)
Influenza A no subtyping	117 (86.7)	491 (74.5)
Influenza B (Yamagata)	0 (0.0)	10 (1.5)
Influenza B (Victoria)	0 (0.0)	4 (0.6)
Influenza B no genotyping	17 (12.6)	68 (10.3)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

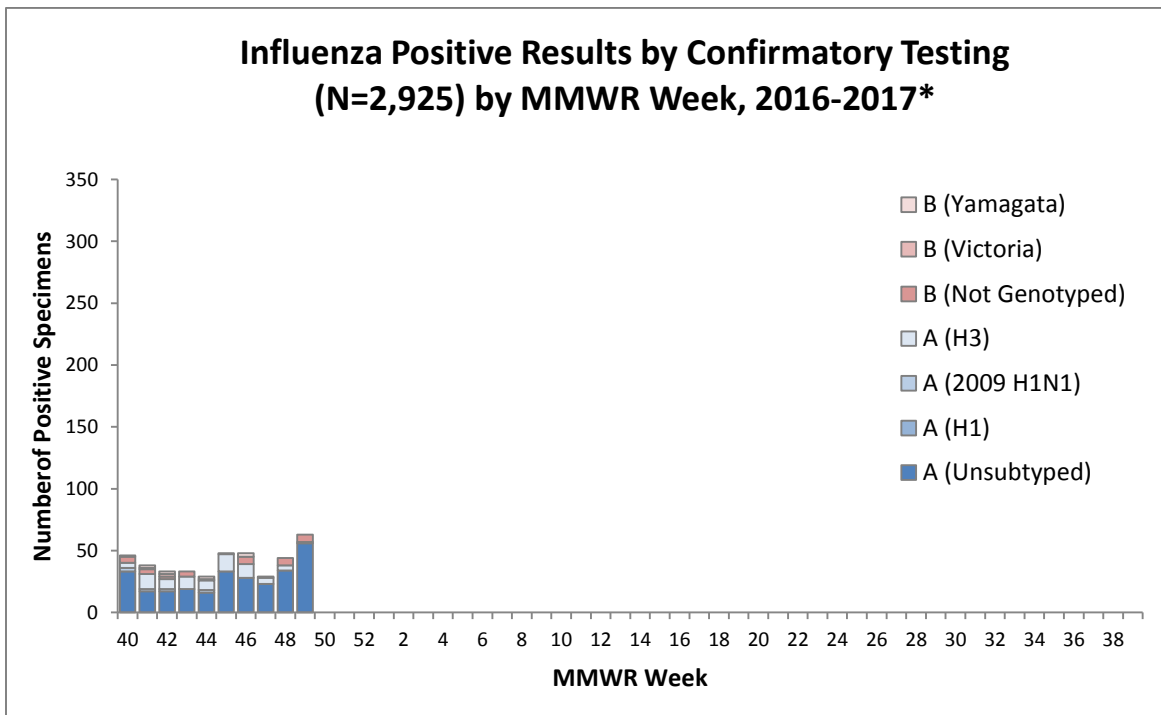
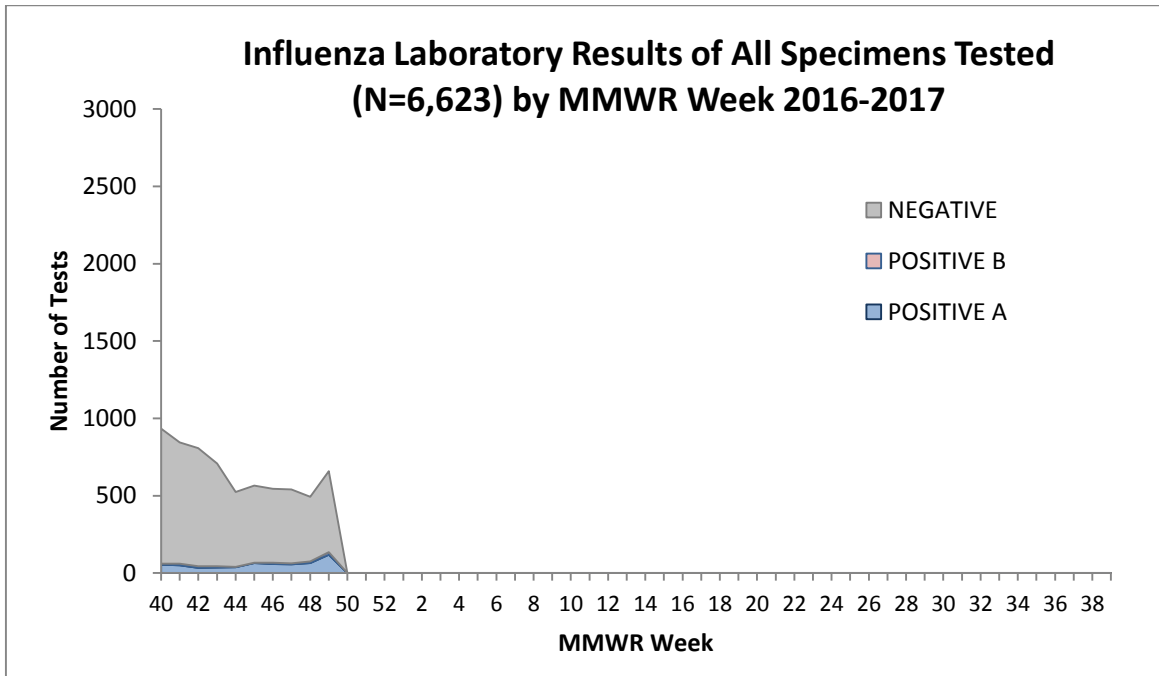


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

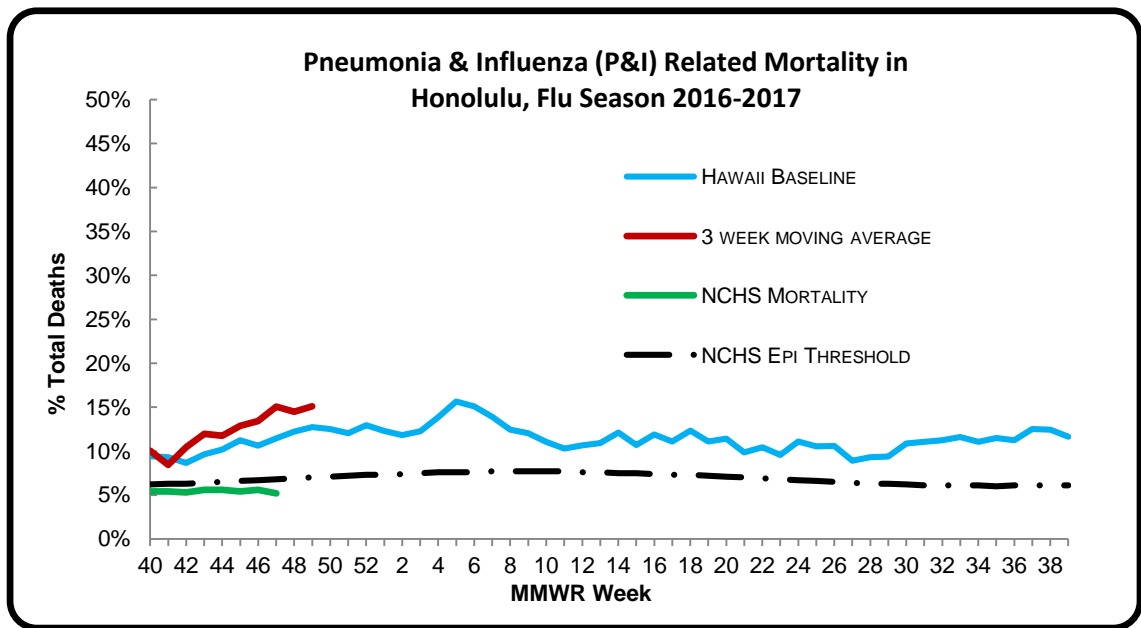


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **13.9%** of all deaths that occurred in Honolulu during week 49 were related to pneumonia or influenza. For the current season (season to date: **12.0%**), there have been 911 deaths from any cause, 109 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 49. (Season total: 0).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 21, 2016**.

APPENDIX 1: ADDITIONAL INFORMATION

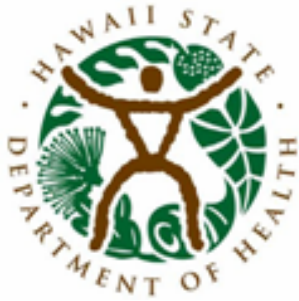
For more information regarding local and national influenza surveillance programs, visit the following sites.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
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44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
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49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
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51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 50: DECEMBER 11, 2016 – DECEMBER 17, 2016

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.**

REPORT SNAPSHOT FOR WEEK 50

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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, Hawaii’s historical baseline, the national ILI rate, and national baseline.
Number of ILI clusters reported to HDOH	2	There have been 9 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	15.2%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	22.7%	Higher than the previous week. This number means that many, if not all, of the 77.3% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	11.4%	

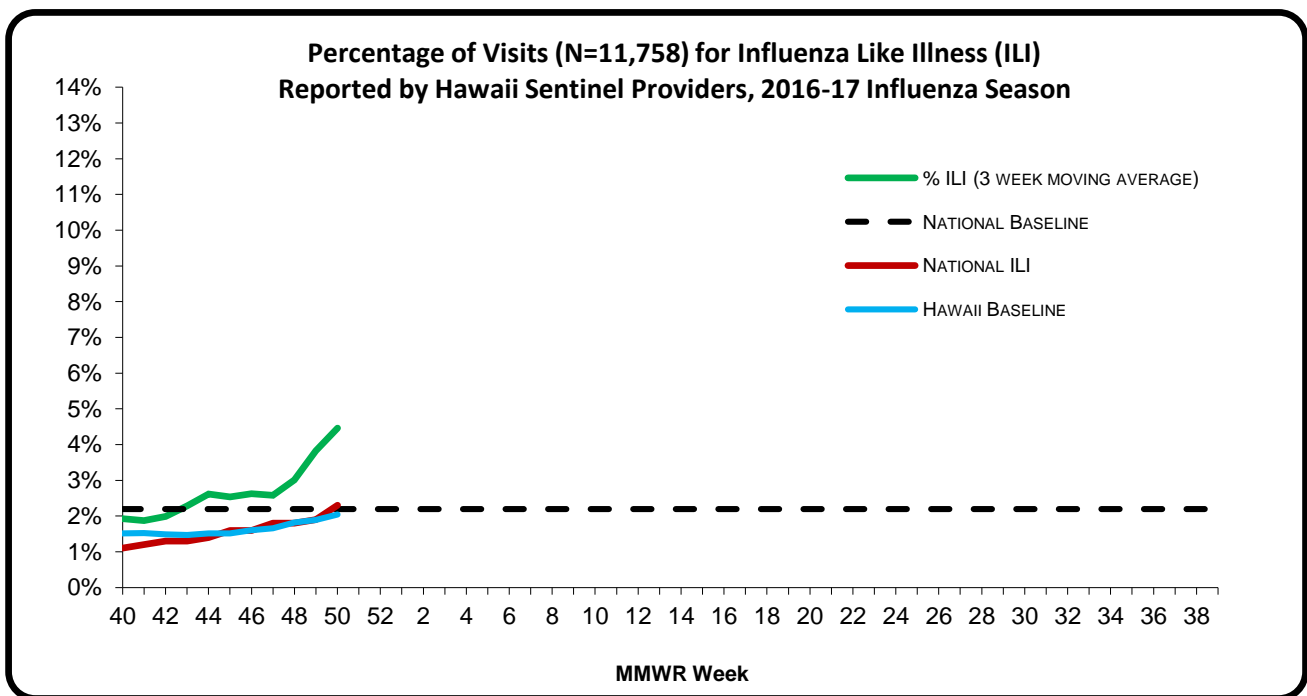
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **5.4%** (season to date: **2.6%**) 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 the national ILI rate (2.3%) (i.e., outside the 95% confidence interval).
- **ILI Cluster Activity:** Two clusters were reported to HDOH during week 50. Both clusters occurred at long term care facilities on Oahu and 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

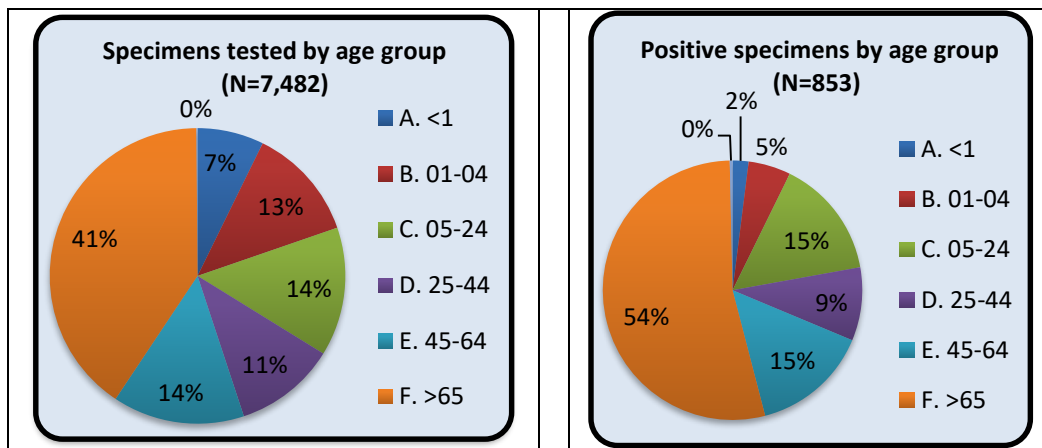
A. INFLUENZA:

- The following reflects laboratory findings for week 50 of the 2016-17 influenza season:
 - A total of **856** specimens have been tested statewide for influenza viruses (positive: **194 [22.7%]**). (Season to date: **7,482** tested [**11.4%** positive])
 - 491 (57.4%) were screened only by rapid antigen tests with no confirmatory testing
 - 365 (42.6%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 662 (77.3%) were negative.

<i>Influenza type</i>	<i>Current week 50 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	10 (1.2)
<i>Influenza A (H3)</i>	0 (0.0)	81 (9.5)
<i>Influenza A no subtyping</i>	177 (91.2)	663 (77.7)
<i>Influenza B (Yamagata)</i>	0 (0.0)	10 (1.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	4 (0.5)
<i>Influenza B no genotyping</i>	17 (8.8)	85 (10.0)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

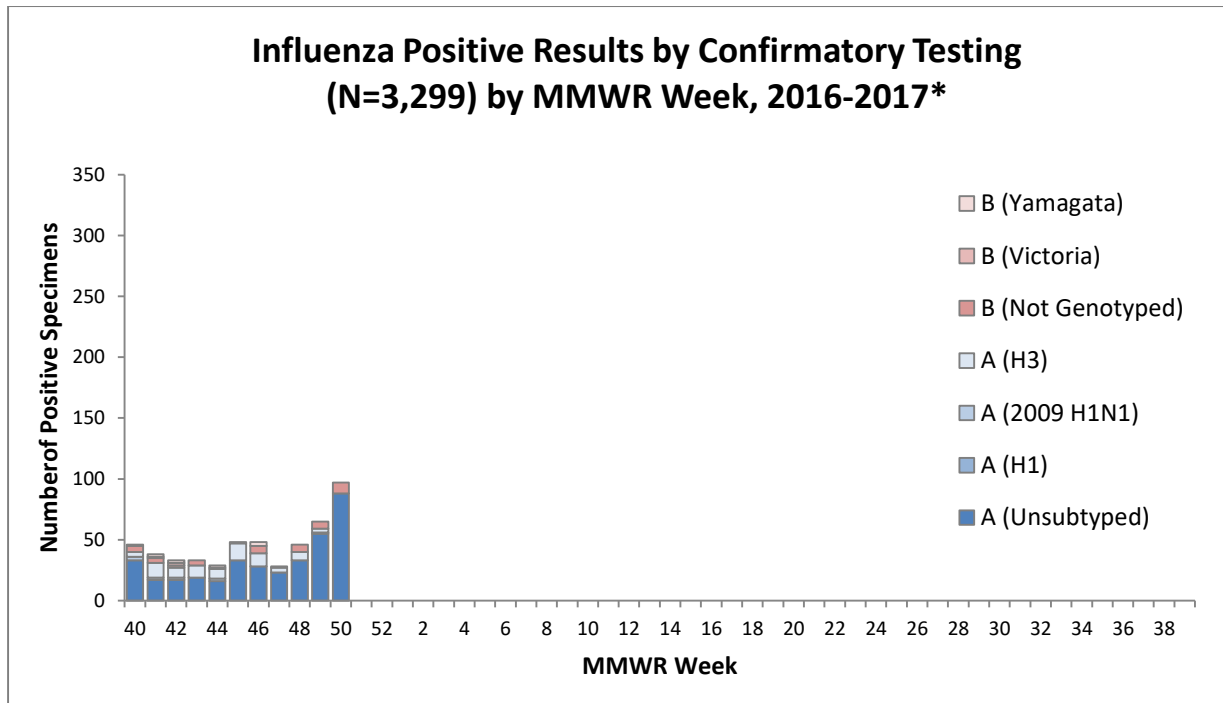
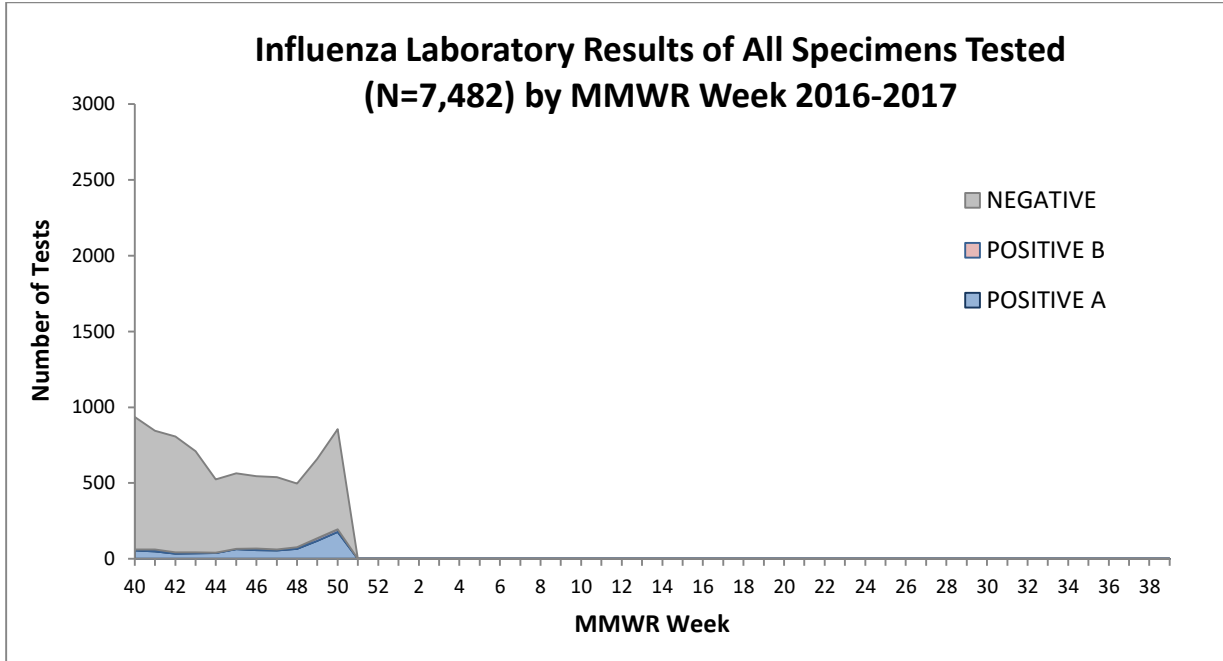


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

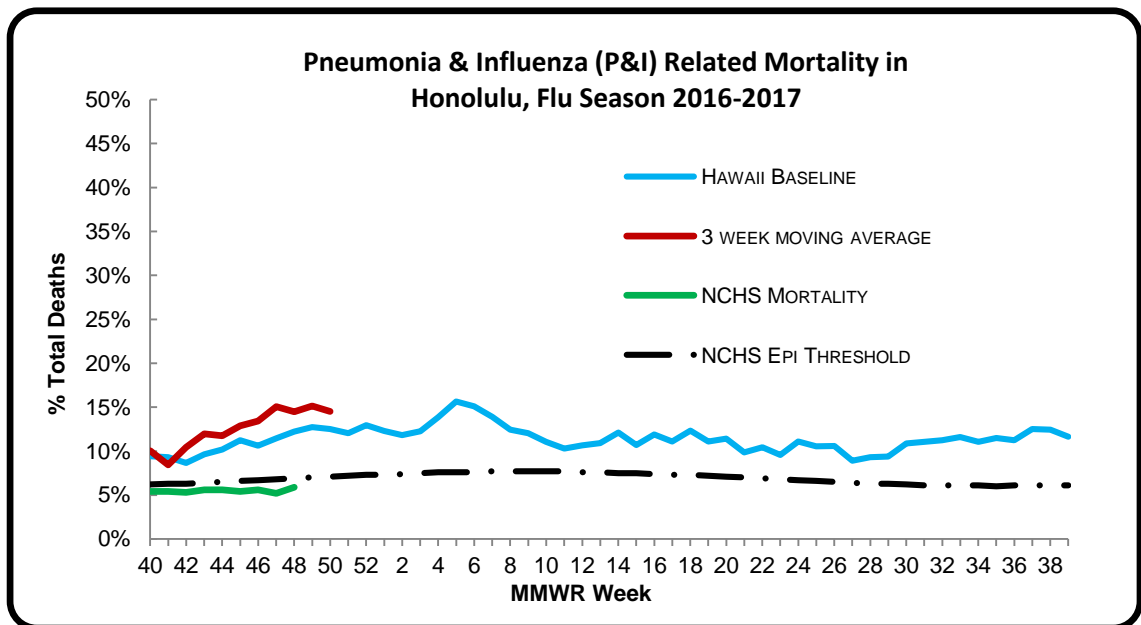


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *15.2% of all deaths that occurred in Honolulu during week 50 were related to pneumonia or influenza. For the current season (season to date: 12.3%), there have been 1023 deaths from any cause, 126 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 50. (Season total: 0).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 19, 2016**. Since the last update, one laboratory-confirmed case of human infection with H5N6 has been reported to WHO from China. The case was hospitalized and in critical condition; exposure to poultry prior to illness was reported. Also, a total of 8 laboratory-confirmed cases of H7N9 were reported to WHO from mainland China, Hong Kong, and Macao since the last update. The Hong Kong and Macao cases reported exposure to poultry from Guangdong province and 5 cases from mainland China also reported exposure to poultry before illness. Of the 8 cases, all but one were in severe condition at the time of reporting; the Hong Kong case passed away.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 51: DECEMBER 18, 2016 – DECEMBER 24, 2016

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.**

REPORT SNAPSHOT FOR WEEK 51

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.5%	Lower than the previous week, Comparable to Hawaii’s historical baseline, the national ILI rate, and national baseline.
Number of ILI clusters reported to HDOH	4	There have been 13 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	17.9%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	22.7%	Comparable to the previous week. This number means that many, if not all, of the 77.3% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	12.5%	

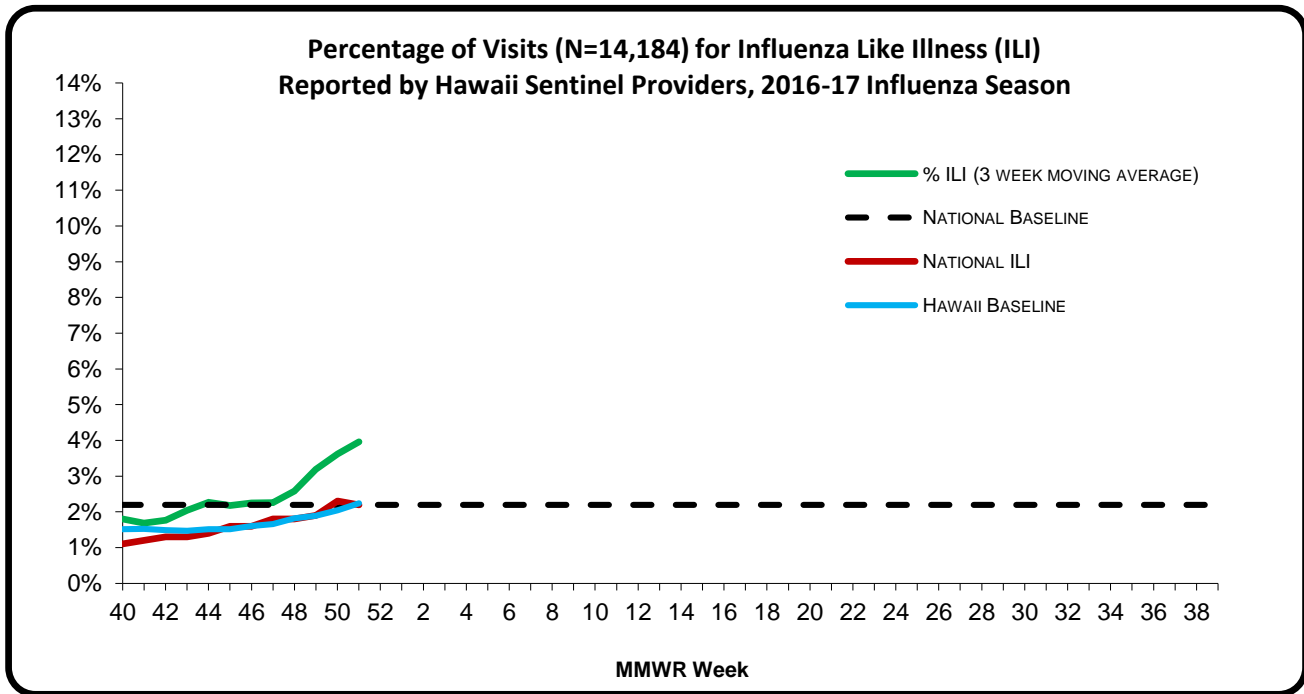
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 3.5% (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 the national ILI rate (2.3%) (i.e., inside the 95% confidence interval).
- ILI Cluster Activity: Four clusters were reported to HDOH during week 51. Two clusters occurred at long term care facilities, one was from a hospital, and one from a senior living center on Oahu. All clusters 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

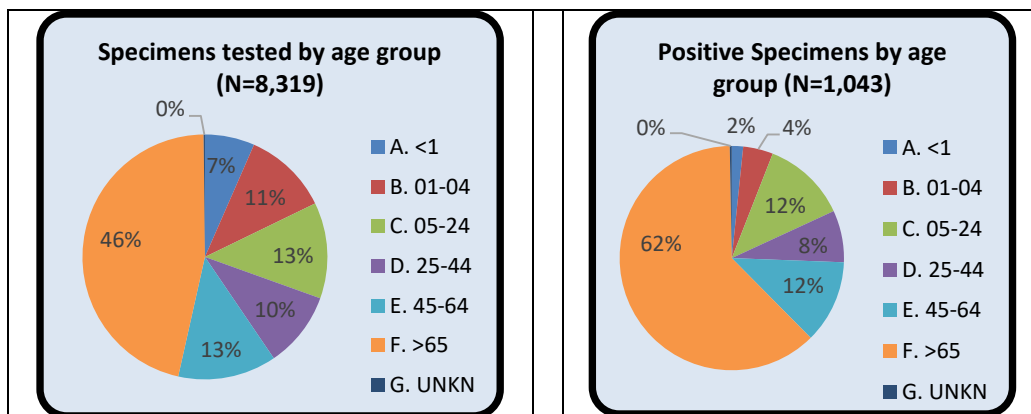
A. INFLUENZA:

- The following reflects laboratory findings for week 51 of the 2016-17 influenza season:
 - A total of 837 specimens have been tested statewide for influenza viruses (positive: 190 [22.7%]). (Season to date: 8,319 tested [12.5% positive])
 - 471 (56.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 366 (43.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 647 (77.3%) were negative.

Influenza type	Current week 51 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	10 (1.0)
Influenza A (H3)	0 (0.0)	81 (7.8)
Influenza A no subtyping	171 (90.0)	834 (80.0)
Influenza B (Yamagata)	0 (0.0)	10 (1.0)
Influenza B (Victoria)	0 (0.0)	4 (0.4)
Influenza B no genotyping	19 (10.0)	104 (10.0)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season. (*These graphs were updated on 1/13/2017)

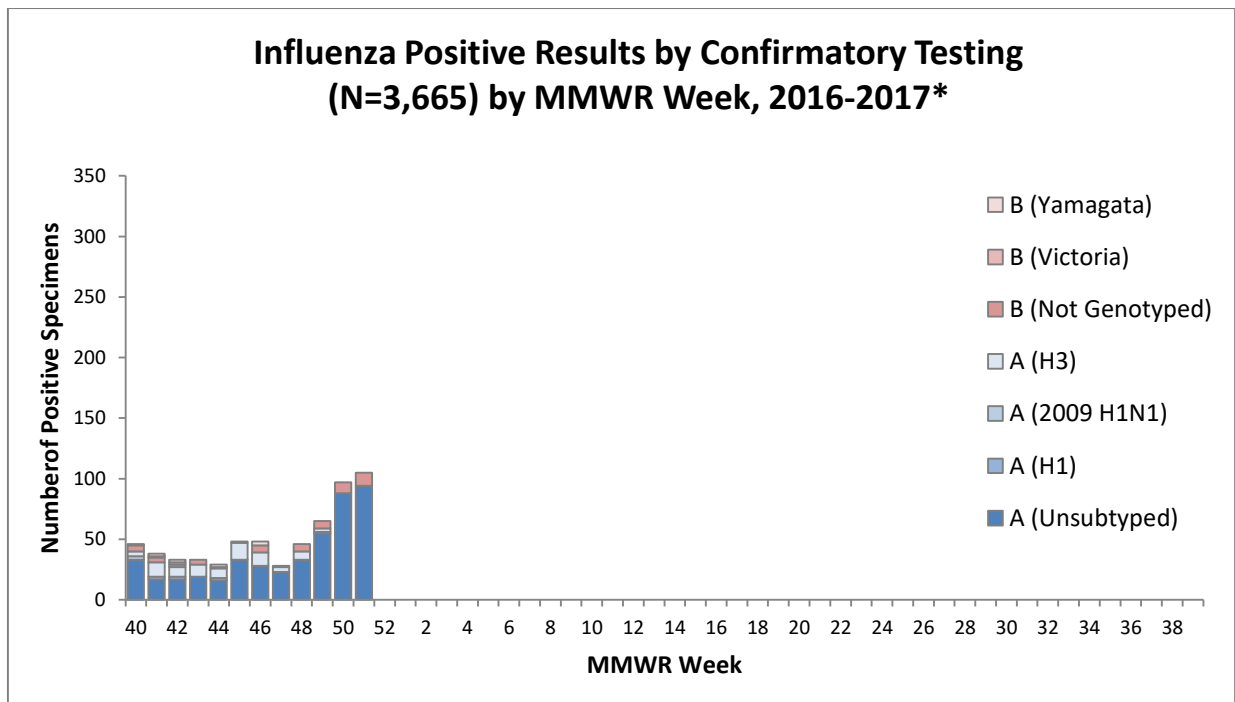
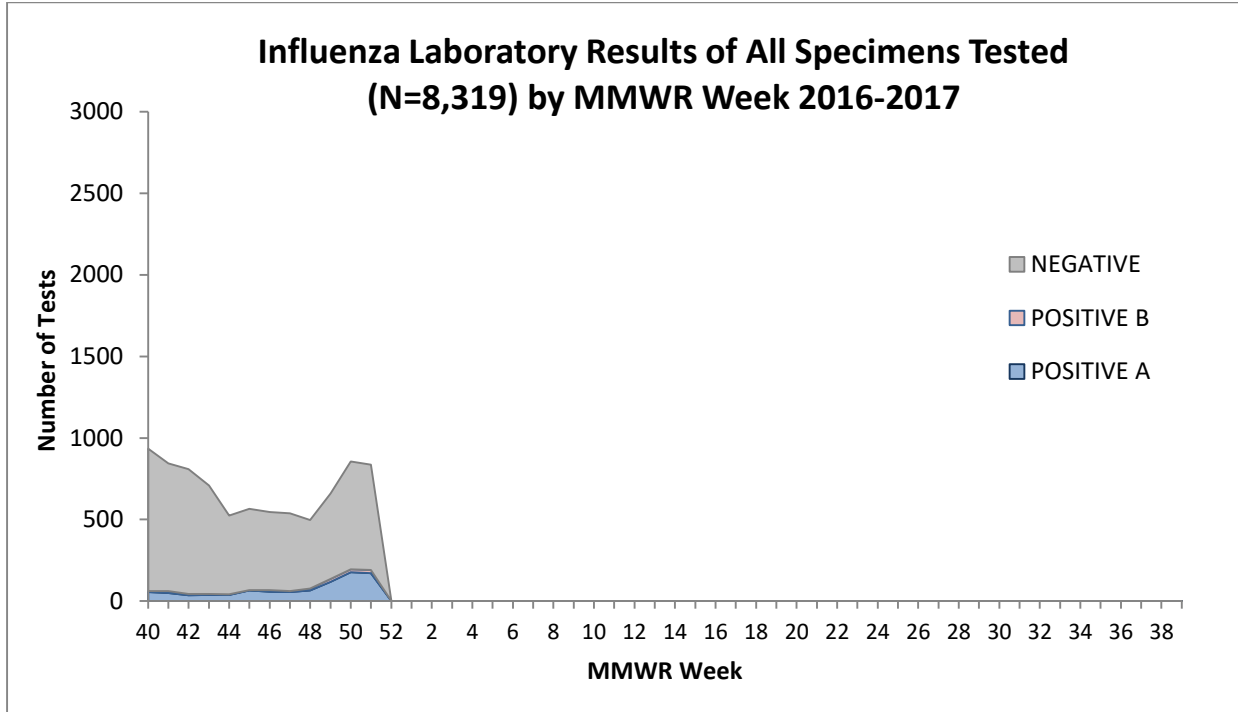


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⁶ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2016–2017 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).

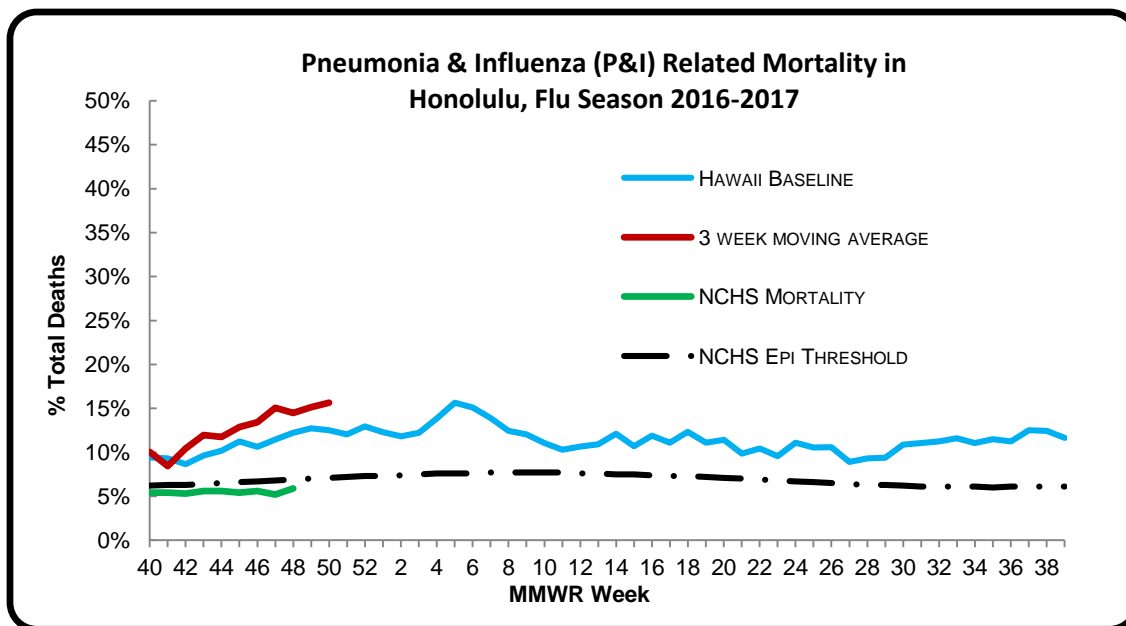


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For week 51 of the current influenza season:

- 17.9% of all deaths that occurred in Honolulu during week 51 were related to pneumonia or influenza. For the current season (season to date: 12.7%), there have been 1,107 deaths from any cause, 141 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 51. (Season total: 0).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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](#)).

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- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
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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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 19, 2016**.

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World Health Organization	General Global and Local Influenza Avian Influenza

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1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
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3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
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33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
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51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 52: DECEMBER 25, 2016 – DECEMBER 31, 2016

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.**

REPORT SNAPSHOT FOR WEEK 52

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.9%	Higher than the previous week, Comparable to Hawaii’s historical baseline and the national ILI rate, but Higher than the national baseline.
Number of ILI clusters reported to HDOH	2	There have been 15 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	21.9%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	29.3%	Higher than the previous week. This number means that many, if not all, of the 70.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	14.3%	

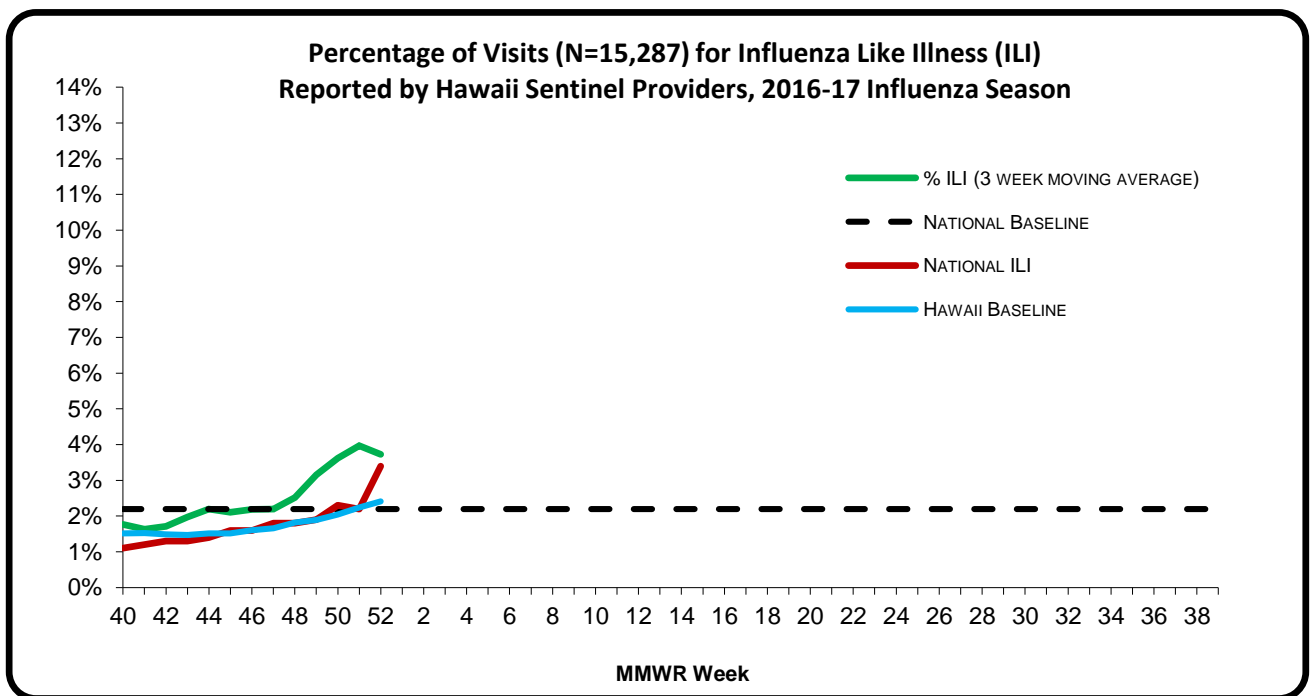
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 3.9% (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 higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (3.4%) (i.e., inside the 95% confidence interval).
- ILI Cluster Activity: Two clusters were reported to HDOH during week 52. One cluster occurred at a long term care facility and one was from an adult day care center on Oahu. Both clusters 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

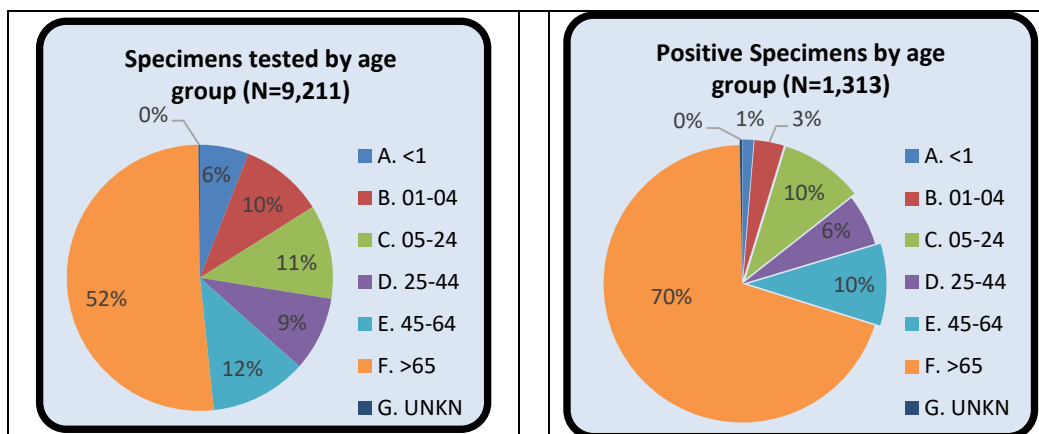
A. INFLUENZA:

- The following reflects laboratory findings for week 52 of the 2016-17 influenza season:
 - A total of 884 specimens have been tested statewide for influenza viruses (positive: 259 [29.3%]). (Season to date: 9,211 tested [14.3% positive])
 - 509 (57.6%) were screened only by rapid antigen tests with no confirmatory testing
 - 375 (42.4%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 625 (70.7%) were negative.

Influenza type	Current week 52 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	12 (0.9)
Influenza A (H3)	0 (0.0)	104 (7.9)
Influenza A no subtyping	229 (88.4)	1048 (79.8)
Influenza B (Yamagata)	0 (0.0)	11 (0.8)
Influenza B (Victoria)	0 (0.0)	10 (0.8)
Influenza B no genotyping	30 (11.6)	128 (9.7)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

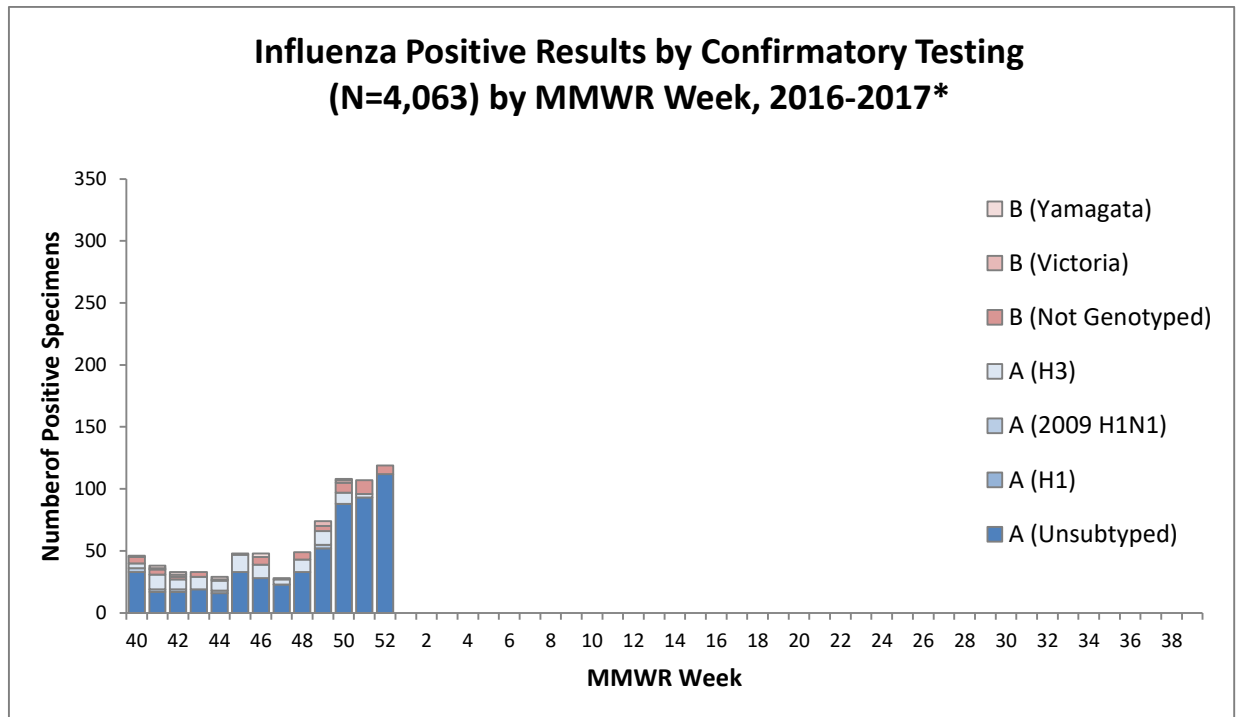
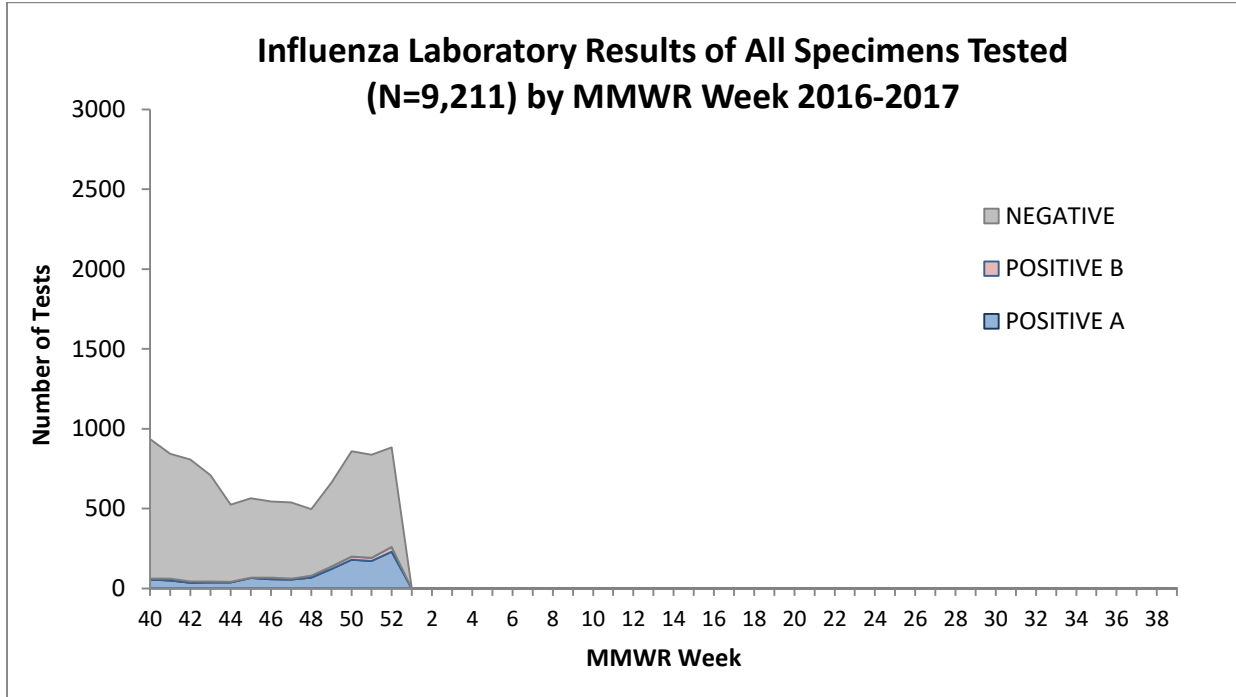


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

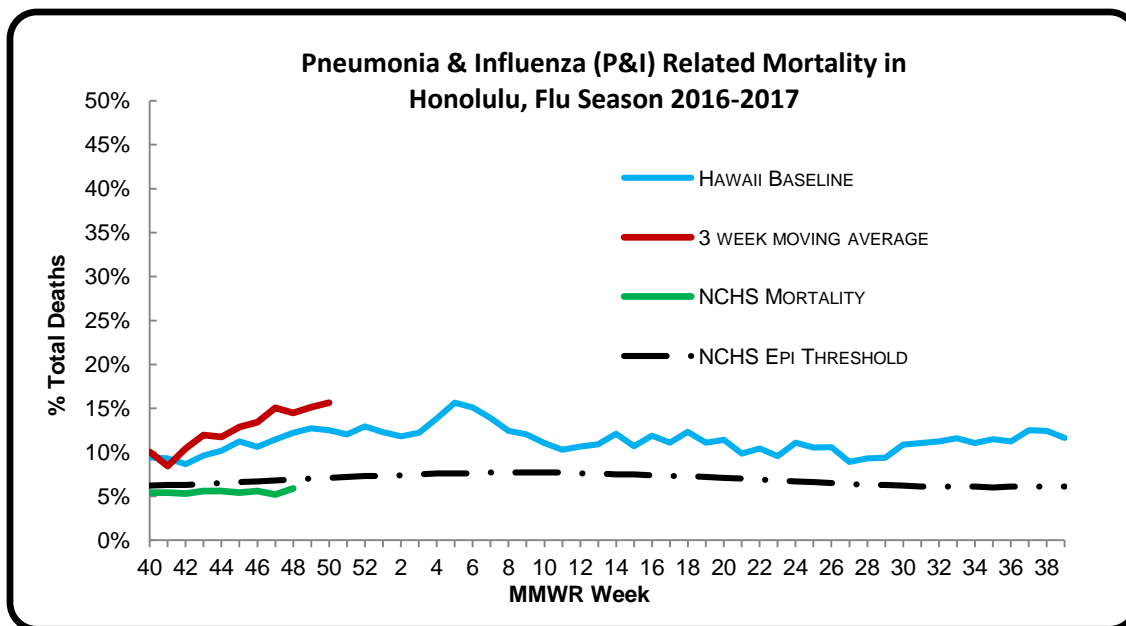


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 21.9% of all deaths that occurred in Honolulu during week 52 were related to pneumonia or influenza. For the current season (season to date: 13.3%), there have been 1,180 deaths from any cause, 157 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 52. (Season total: 0).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 19, 2016**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 1: JANUARY 1, 2017 – JANUARY 7, 2017

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.**

REPORT SNAPSHOT FOR WEEK 1

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	4.6%	Higher than the previous week, Comparable to Hawaii’s historical baseline and the national ILI rate, but Higher than the national baseline.
Number of ILI clusters reported to HDOH	2	There have been 17 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	19.0%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	3	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	25.7%	Lower than the previous week. This number means that many, if not all, of the 74.3% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.4%	

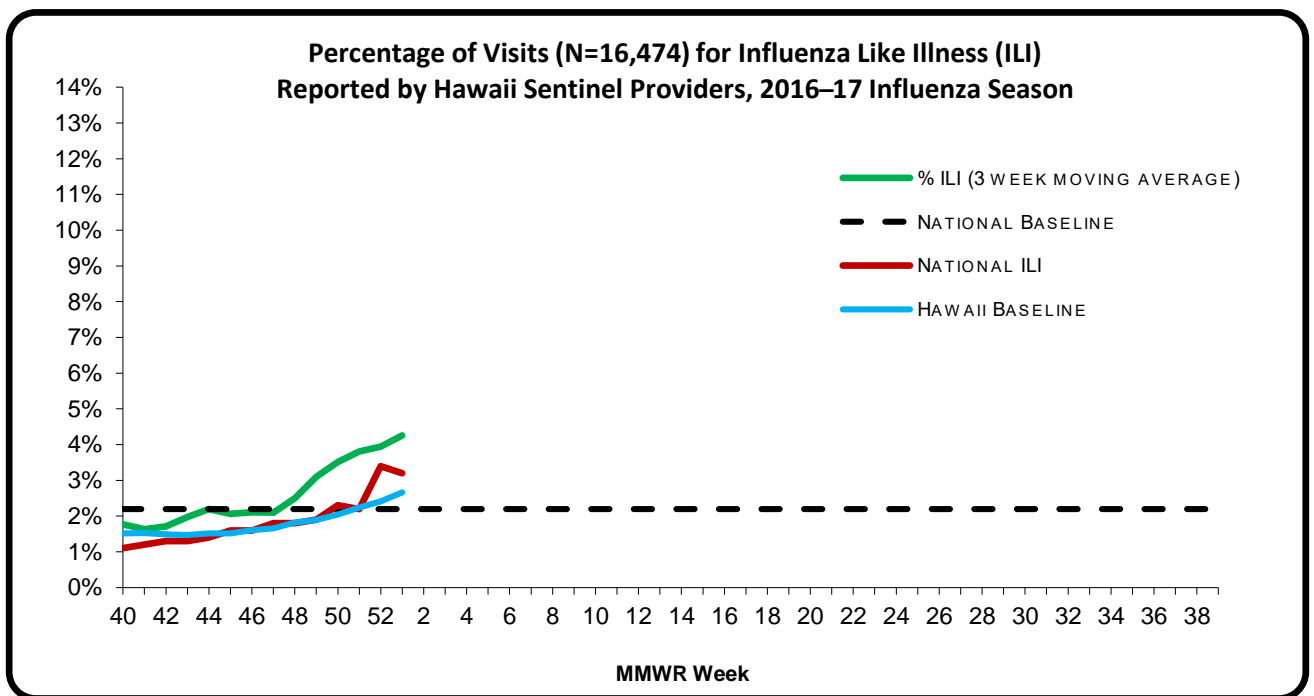
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **4.6%** (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 higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (3.2%) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** Two clusters were reported to HDOH during week 1. Both clusters occurred at long-term care facilities. One was on Hawaii and the other one was on Maui. Both clusters 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

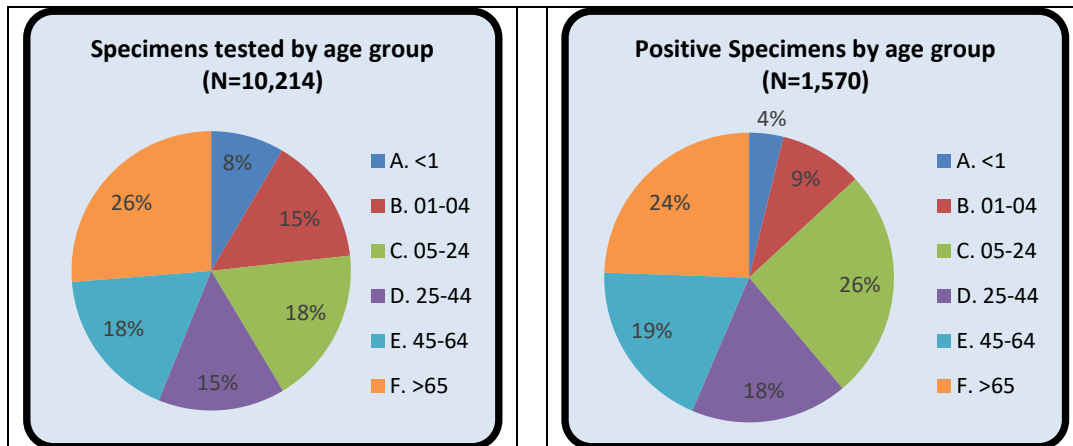
A. INFLUENZA:

- The following reflects laboratory findings for week 1 of the 2016-17 influenza season:
 - A total of **968** specimens have been tested statewide for influenza viruses (positive: **249 [25.7%]**). (Season to date: **10,214** tested [**15.4%** positive])
 - 572 (59.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 396 (40.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 719 (74.3%) were negative.

Influenza type	Current week 1 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	12 (0.8)
Influenza A (H3)	0 (0.0)	126 (8.0)
Influenza A no subtyping	222 (89.2)	1253 (79.8)
Influenza B (Yamagata)	0 (0.0)	11 (0.7)
Influenza B (Victoria)	0 (0.0)	10 (0.6)
Influenza B no genotyping	27 (10.8)	158 (10.0)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

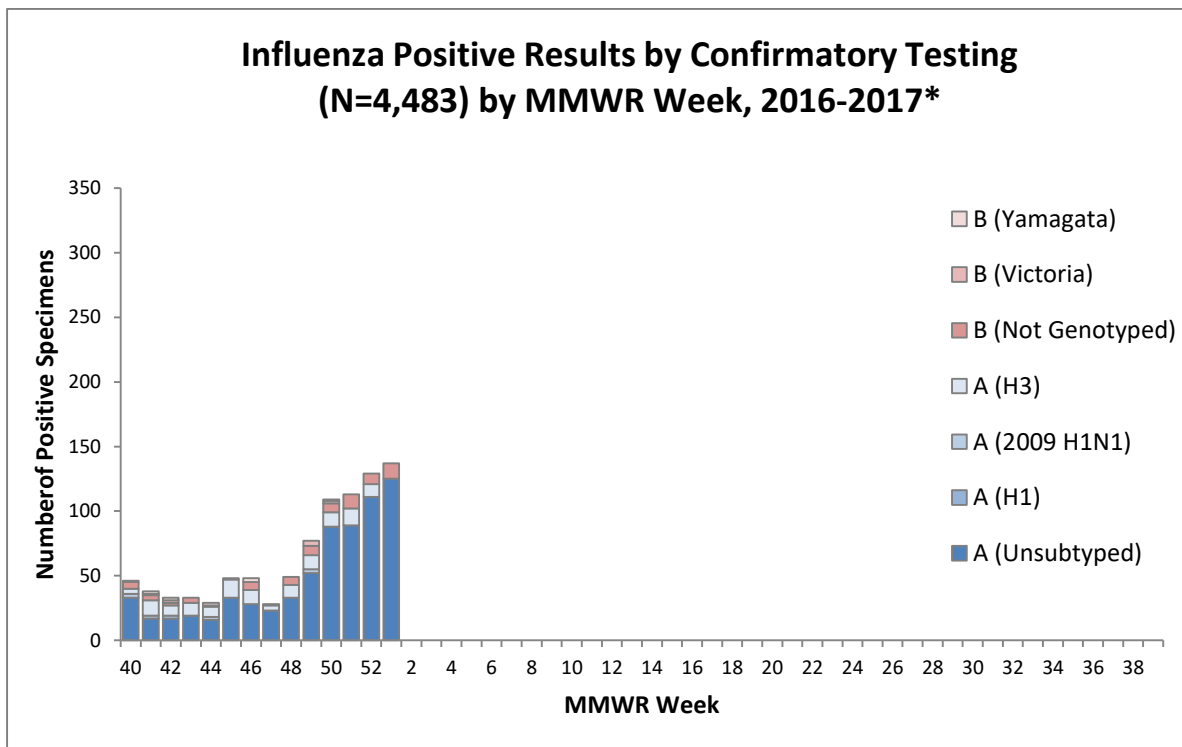
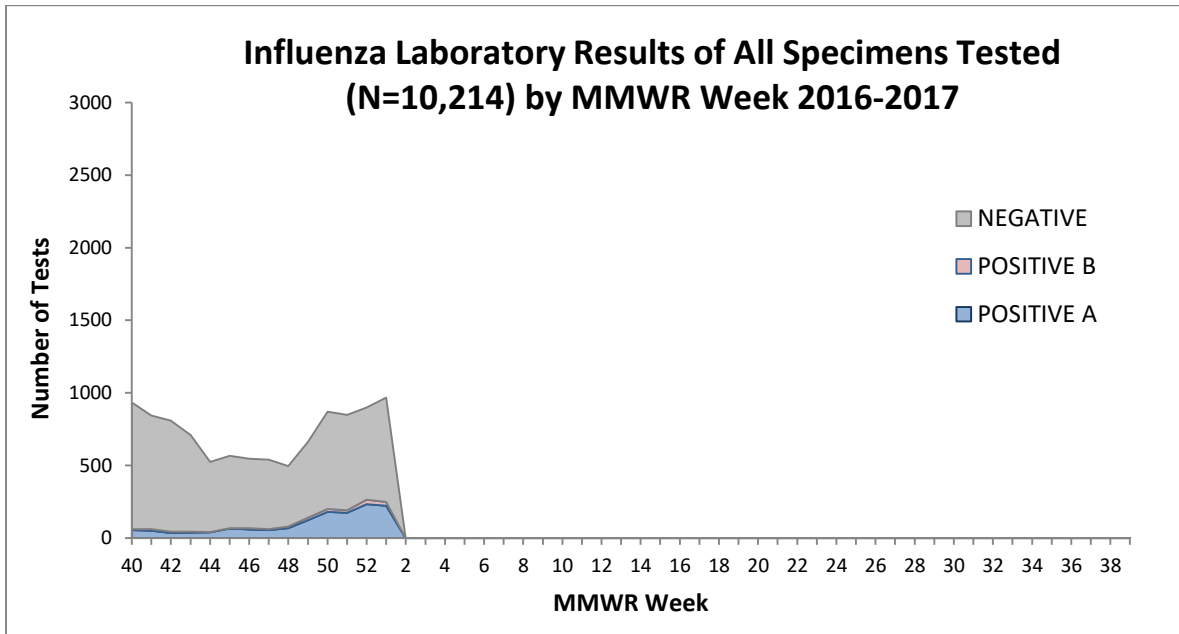


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

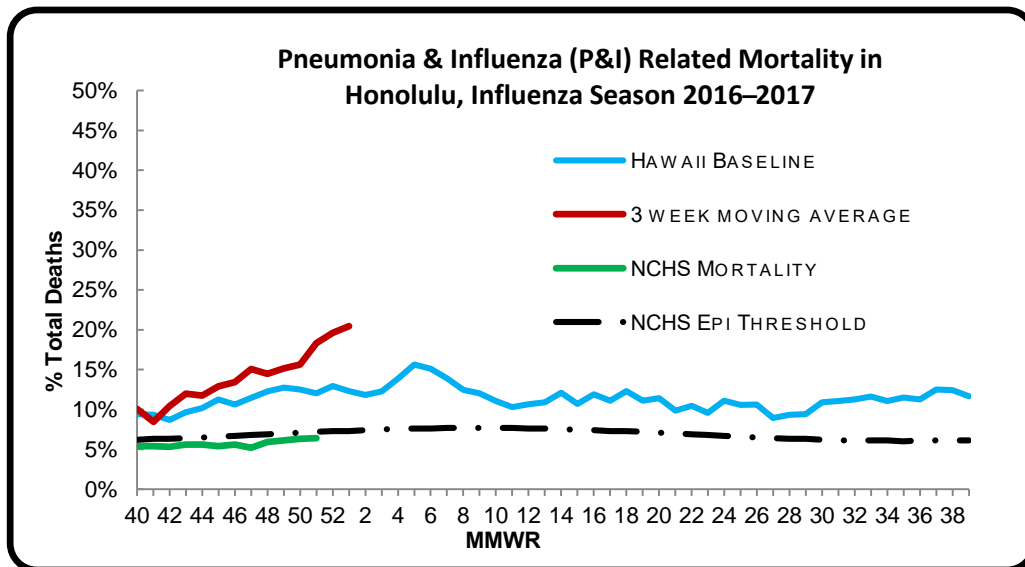


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *19.0% of all deaths that occurred in Honolulu during week 1 were related to pneumonia or influenza. For the current season (season to date: 13.7%), there have been 1,259 deaths from any cause, 172 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 1. One death was associated with an influenza A (H3) virus and occurred during week 51 (the week ending December 24, 2016). One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 52 (the week ending December 31, 2016). One death was associated with an influenza B virus and occurred during week 51. (Season total: 3).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 19, 2016**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 2: JANUARY 8, 2017 – JANUARY 14, 2017

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.**

REPORT SNAPSHOT FOR WEEK 2

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	5.2%	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 20 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	8.9%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	2	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	22.1%	Lower than the previous week. This number means that many, if not all, of the 77.9% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	16.3%	

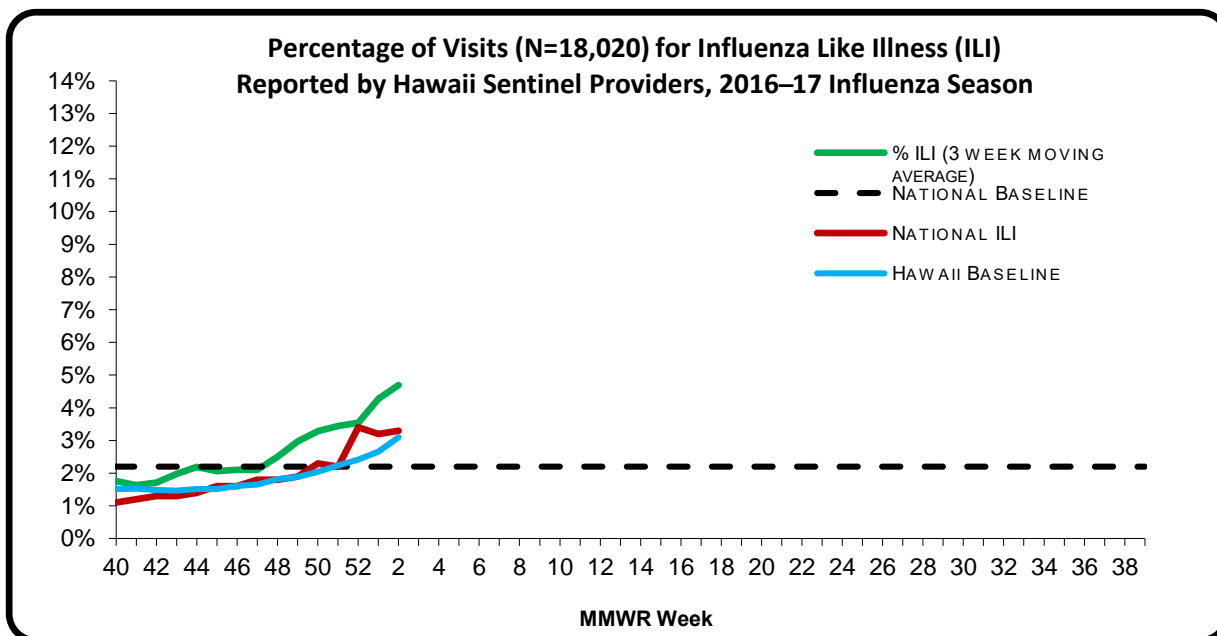
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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 2** of the current influenza season:

- **5.2%** (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 higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and higher than the national ILI rate (3.3%) (i.e., outside the 95% confidence interval).
- **ILI Cluster Activity:** Three clusters were reported to HDOH during week 2. Two clusters occurred at schools and one occurred at a long-term care facility in Oahu. One school is on Hawaii and the other one is on Oahu. All the clusters 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

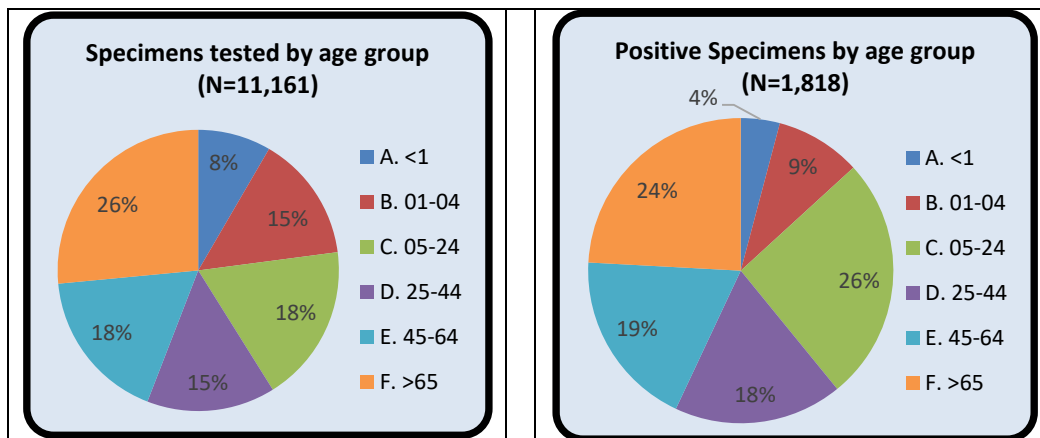
A. INFLUENZA:

- The following reflects laboratory findings for week 2 of the 2016-17 influenza season:
 - A total of **897** specimens have been tested statewide for influenza viruses (positive: **198 [22.1%]**). (Season to date: **11,161** tested [**16.3%** positive])
 - 487 (54.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 410 (45.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 699 (77.9%) were negative.

Influenza type	Current week 2 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	12 (0.7)
Influenza A (H3)	0 (0.0)	152 (8.4)
Influenza A no subtyping	160 (80.8)	1394 (76.7)
Influenza B (Yamagata)	0 (0.0)	11 (0.6)
Influenza B (Victoria)	0 (0.0)	10 (0.6)
Influenza B no genotyping	38 (19.2)	239 (13.1)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

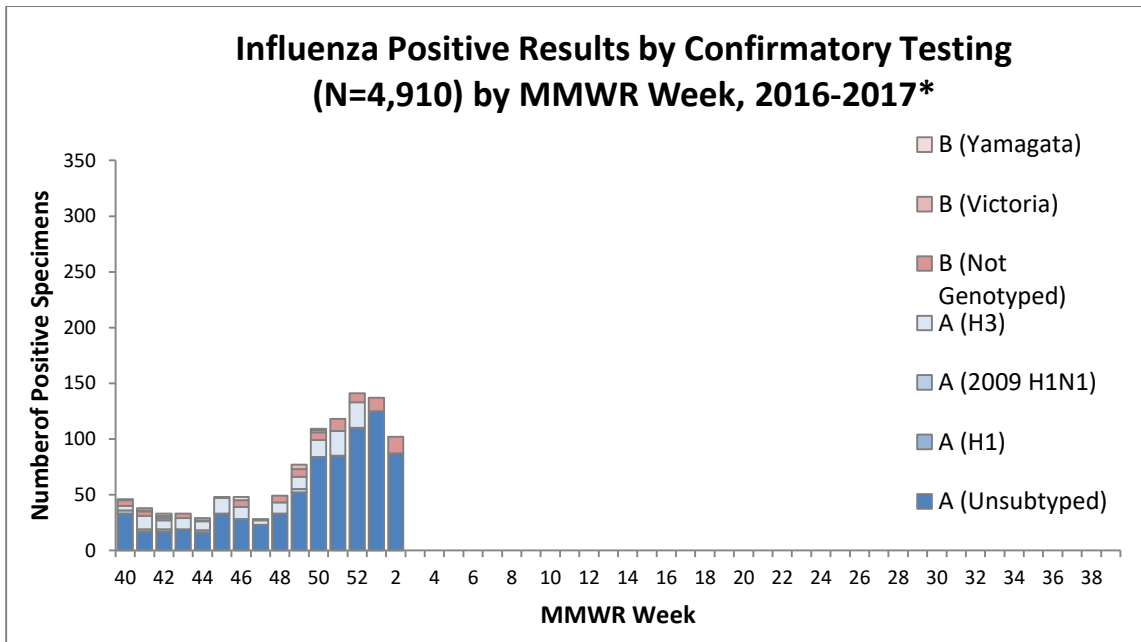
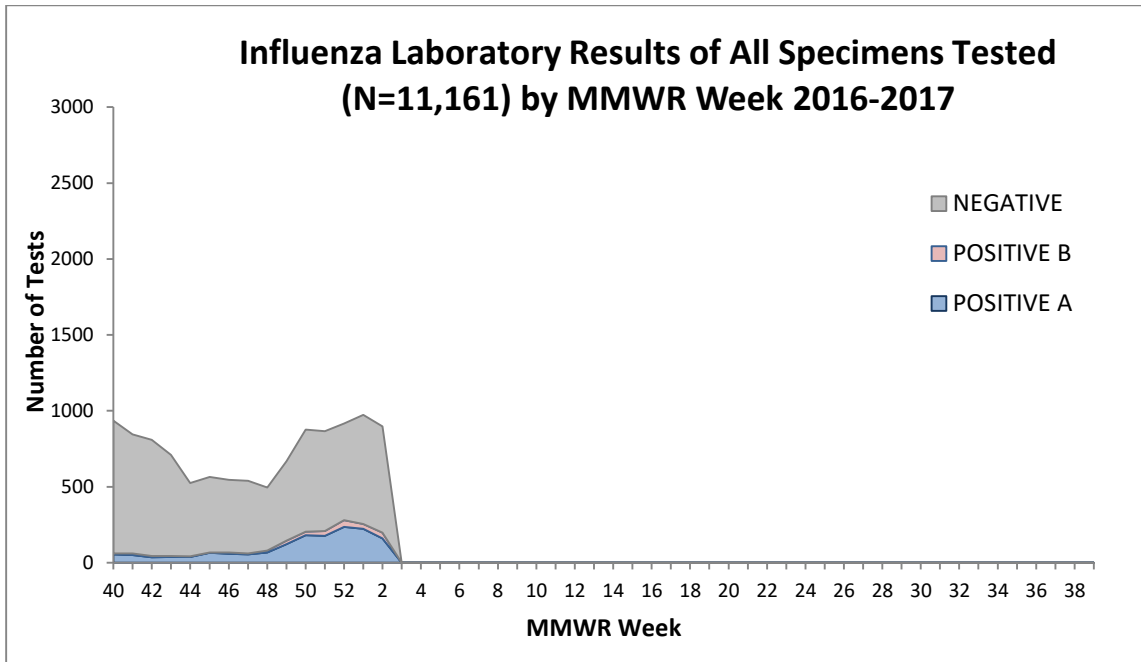


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

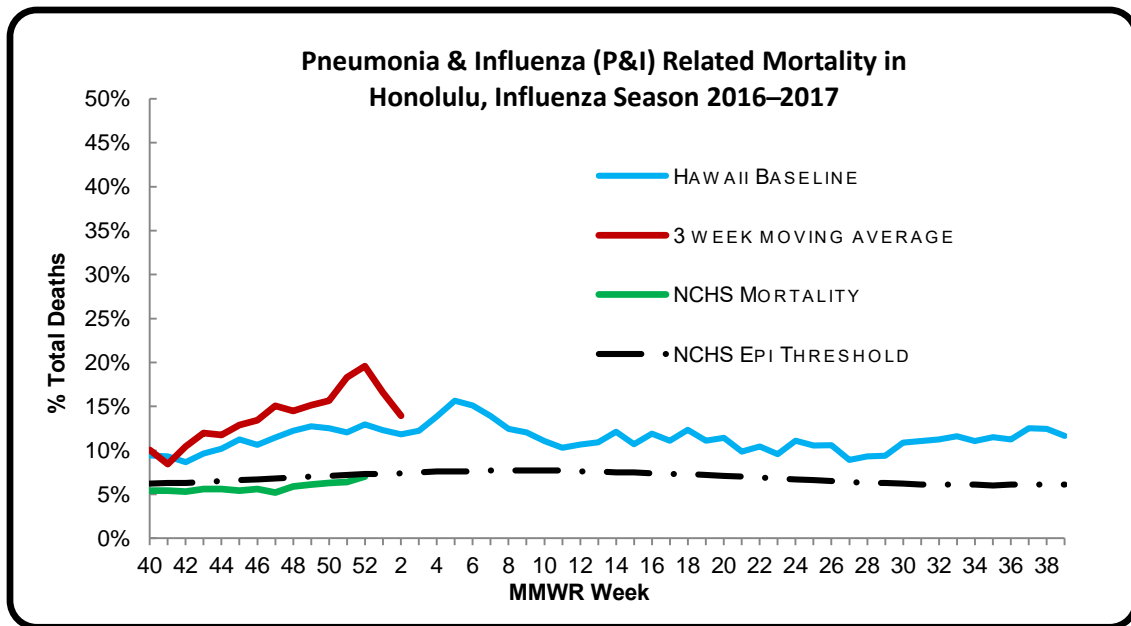


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III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 8.9% of all deaths that occurred in Honolulu during week 2 were related to pneumonia or influenza. For the current season (season to date: 13.2%), there have been 1,383 deaths from any cause, 183 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 2. One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 49 (the

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14).

⁸ 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

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.

week ending December 10, 2016). One death was associated with an influenza virus for which the type was not determined and occurred during week 1 (the week ending January 7, 2017). (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.

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 16, 2017**. Since the last update, one laboratory-confirmed case of human infection with H7N2 has been reported to WHO from the United States of America. The infection resulted in mild illness and the individual recovered; close contact with ill cats was the likely source of infection. One new case of laboratory-confirmed human infection with H9N2 was reported to WHO from China. The case had mild illness and has recovered; exposure to a live poultry market was reported. Also, 110 laboratory-confirmed cases of human infection with H7N9 were reported to WHO from China with 106 cases in mainland China, 3 in Hong Kong and one in Macao. Of the 110 cases, there were 36 fatalities. Reported exposures included contact with infected poultry or contaminated environments, including live poultry markets.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
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6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 3: JANUARY 15, 2017 – JANUARY 21, 2017

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.**

REPORT SNAPSHOT FOR WEEK 3

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	4.6%	Lower than the previous week. Comparable to Hawaii's historical baseline and the national ILI rate, but higher than the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 21 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	14.3%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	3	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	26.1%	Higher than the previous week. This number means that many, if not all, of the 73.9% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	17.0%	

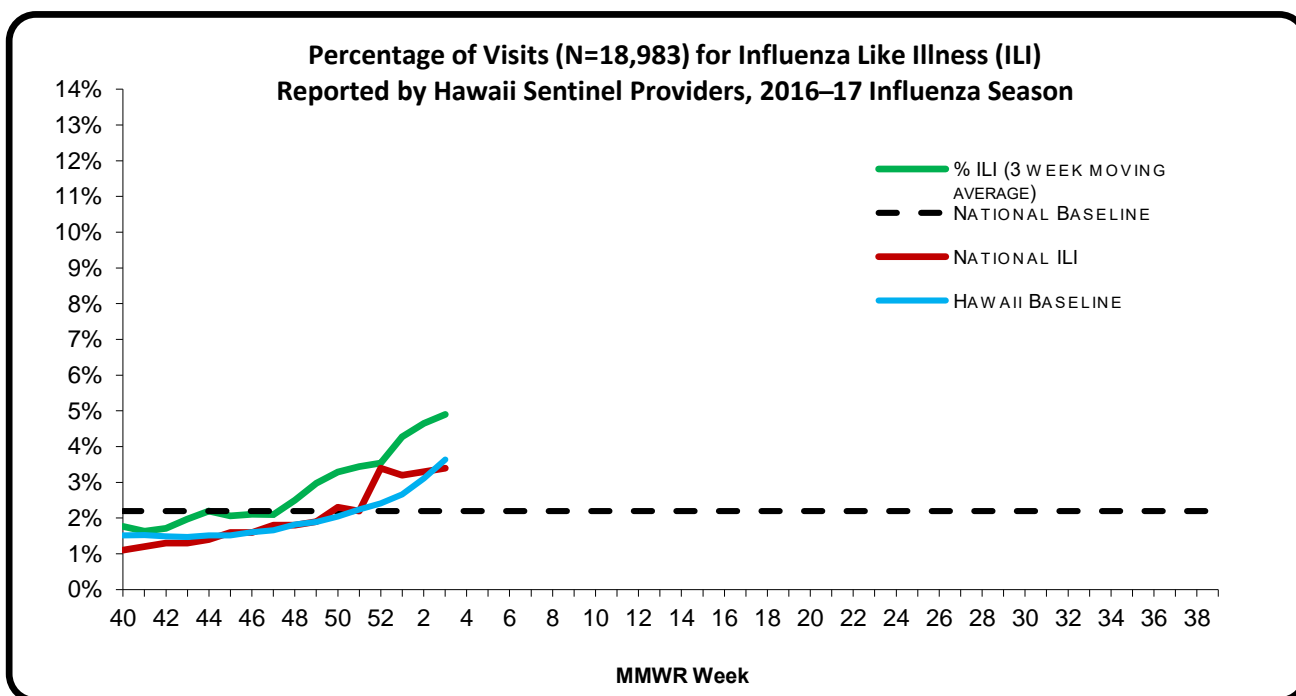
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **4.6%** (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 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 (3.4%) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** One cluster was reported to HDOH during week 3. The cluster occurred at a correctional facility in 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

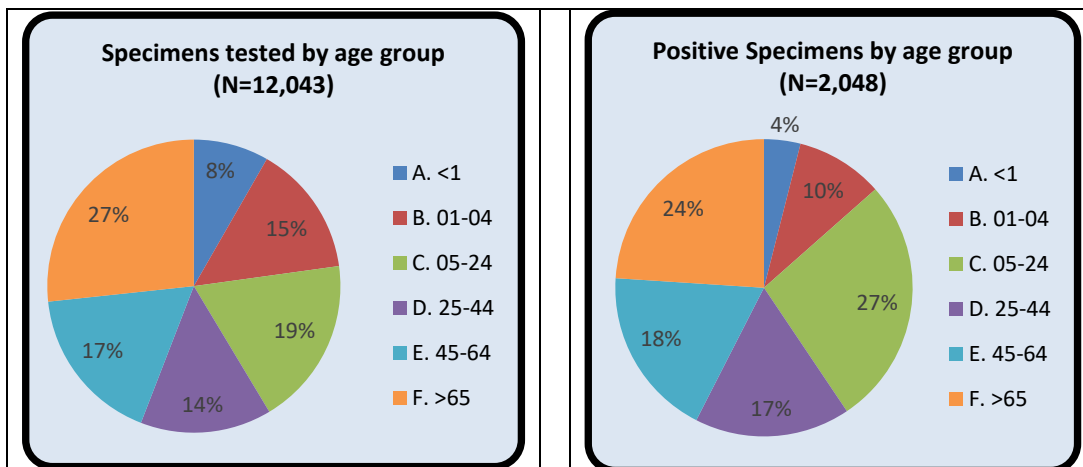
A. INFLUENZA:

- The following reflects laboratory findings for week 3 of the 2016-17 influenza season:
 - A total of 882 specimens have been tested statewide for influenza viruses (positive: 230 [26.1%]). (Season to date: 12,043 tested [17.0% positive])
 - 507 (57.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 375 (42.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 652 (73.9%) were negative.

Influenza type	Current week 3 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	12 (0.6)
Influenza A (H3)	1 (0.4)	153 (7.5)
Influenza A no subtyping	183 (79.6)	1577 (77.0)
Influenza B (Yamagata)	0 (0.0)	11 (0.5)
Influenza B (Victoria)	0 (0.0)	10 (0.5)
Influenza B no genotyping	46 (20.0)	285 (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 2016–17 influenza season.

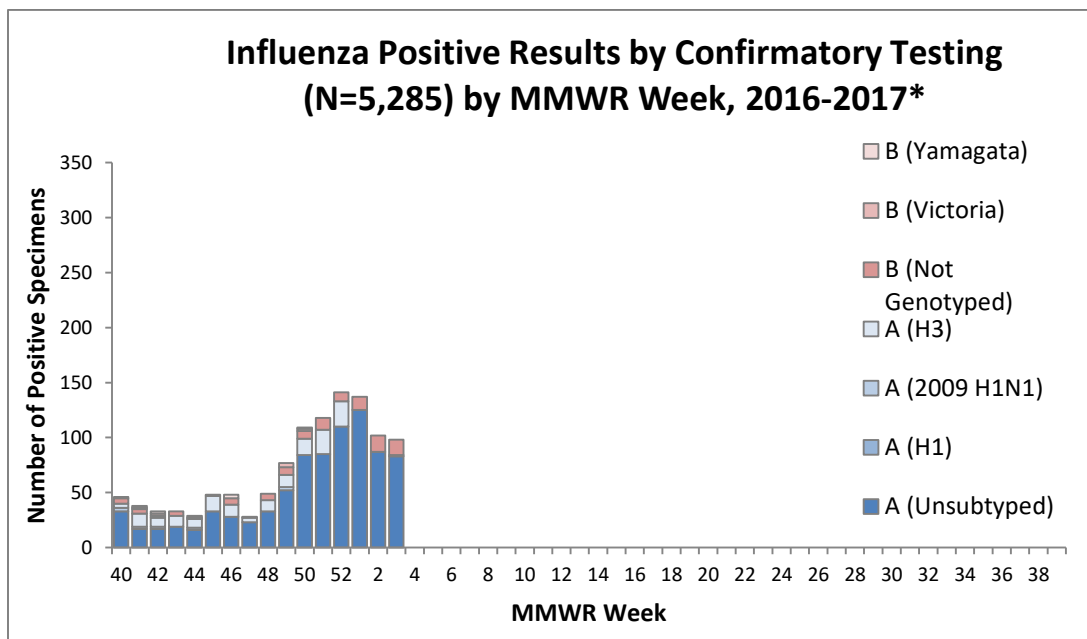
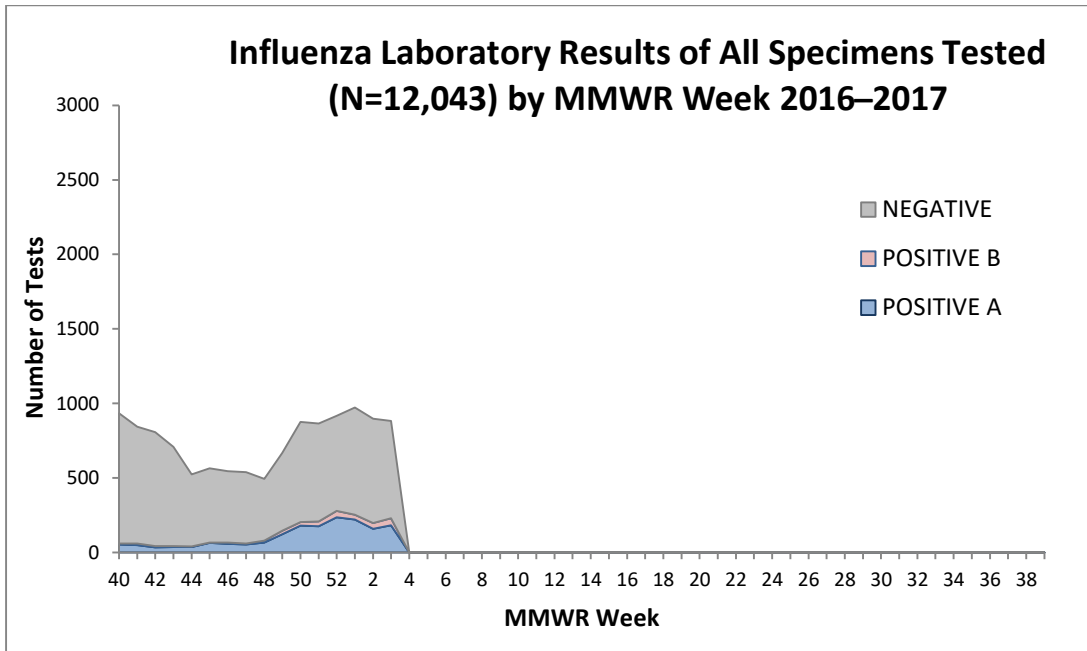


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

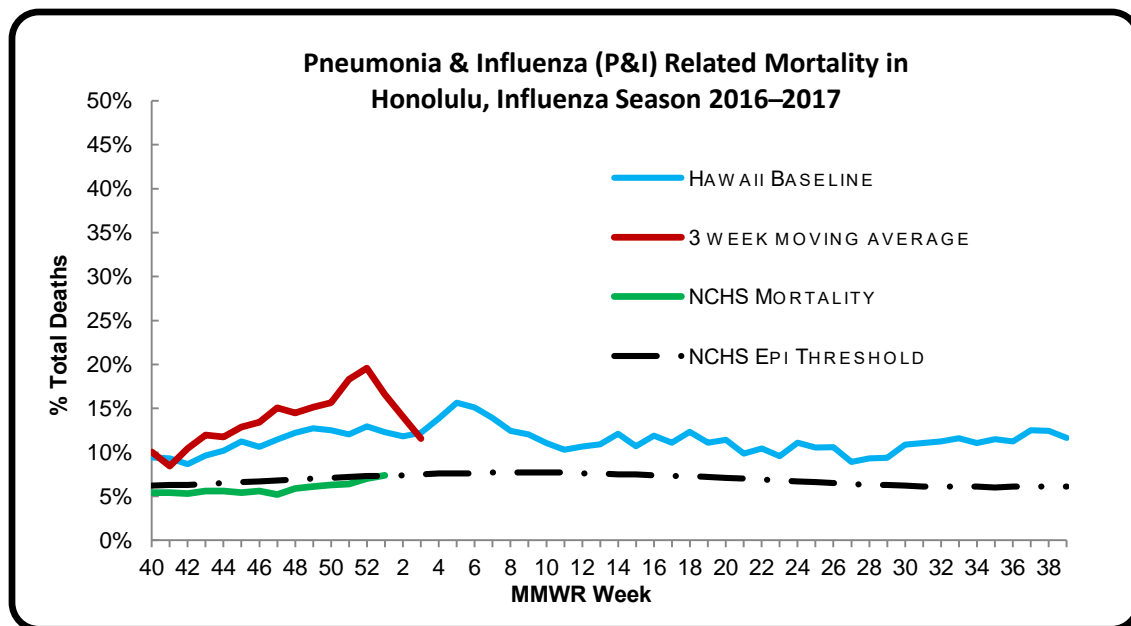


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *14.3% of all deaths that occurred in Honolulu during week 3 were related to pneumonia or influenza. For the current season (season to date: 13.3%), there have been 1,474 deaths from any cause, 196 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 3. Two deaths were associated with an influenza A (H3) virus and occurred during week 2 (the week ending January 14, 2017). One

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14).

⁸ 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

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.

death was associated with an influenza B virus and occurred during week 3 (the week ending January 21, 2017). (Season total: 8).

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 16, 2017**.

APPENDIX 1: ADDITIONAL INFORMATION

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

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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 4: JANUARY 22, 2017 – JANUARY 28, 2017

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.**

REPORT SNAPSHOT FOR WEEK 4

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	6.2%	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	2	There have been 23 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	18.6%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	7	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	19.5%	Lower than the previous week. This number means that many, if not all, of the 80.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	17.1%	

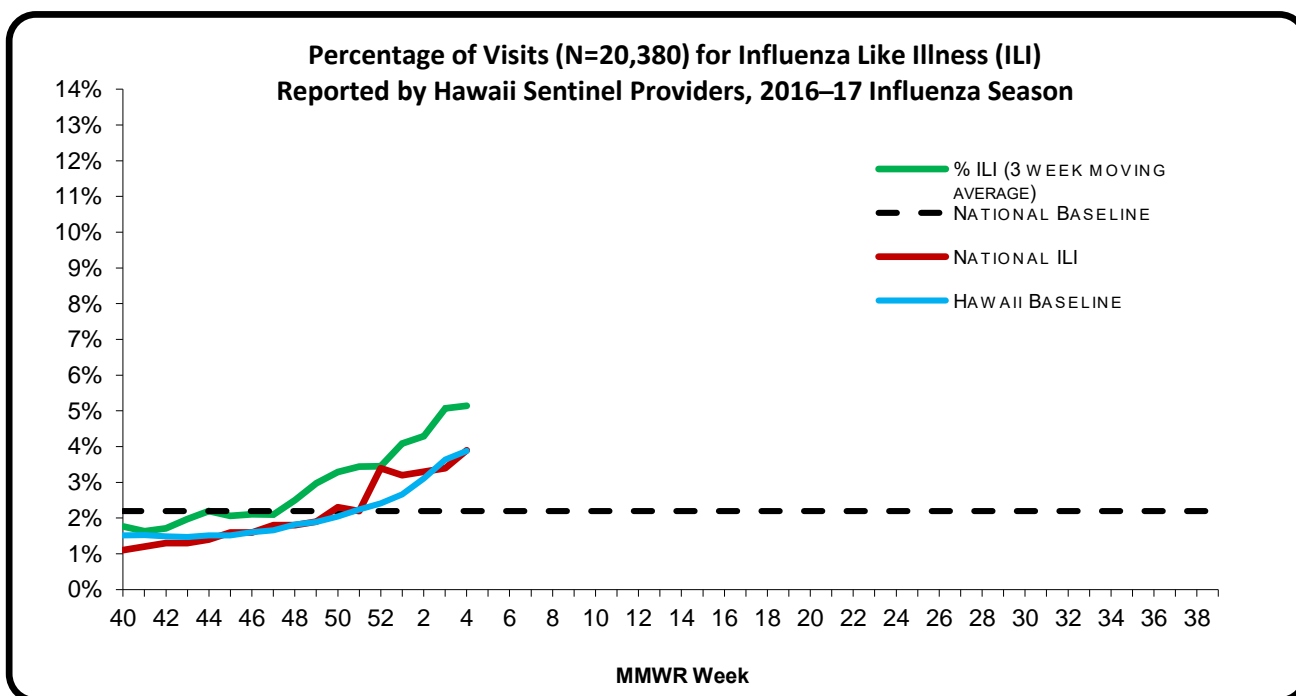
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **6.2%** (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 (3.9%) (i.e., outside the 95% confidence interval).
- **ILI Cluster Activity:** Two clusters were reported to HDOH during week 4. One cluster occurred at a hospital on Kauai and the other cluster occurred at a school on Oahu. These clusters 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

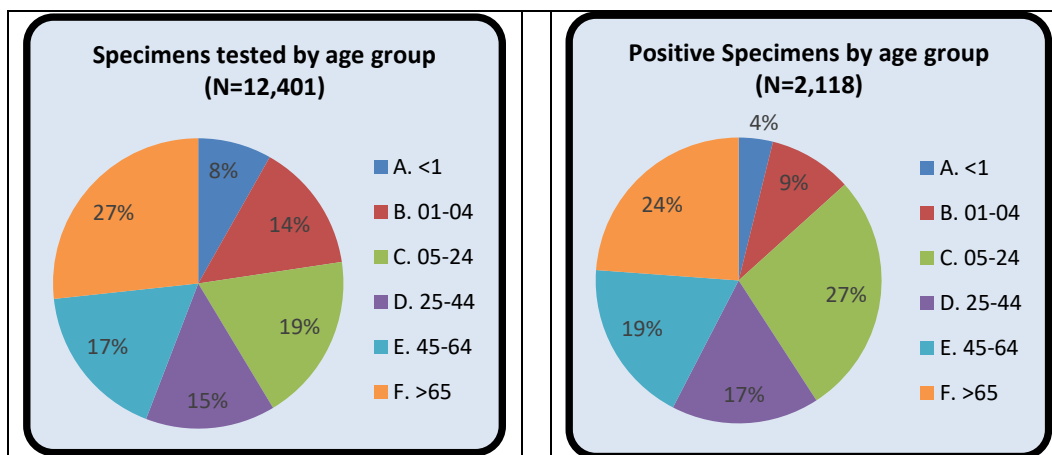
A. INFLUENZA:

- The following reflects laboratory findings for week 4 of the 2016-17 influenza season:
 - A total of 359 specimens have been tested statewide for influenza viruses (positive: 70 [19.5%]). (Season to date: 12,401 tested [17.1% positive])
 - 150 (41.8%) were screened only by rapid antigen tests with no confirmatory testing
 - 209 (58.2%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 289 (80.5%) were negative.

Influenza type	Current week 4 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	12 (0.6)
Influenza A (H3)	0 (0.0)	153 (7.2)
Influenza A no subtyping	53 (75.7)	1630 (77.0)
Influenza B (Yamagata)	0 (0.0)	11 (0.5)
Influenza B (Victoria)	0 (0.0)	10 (0.5)
Influenza B no genotyping	17 (24.3)	302 (14.3)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

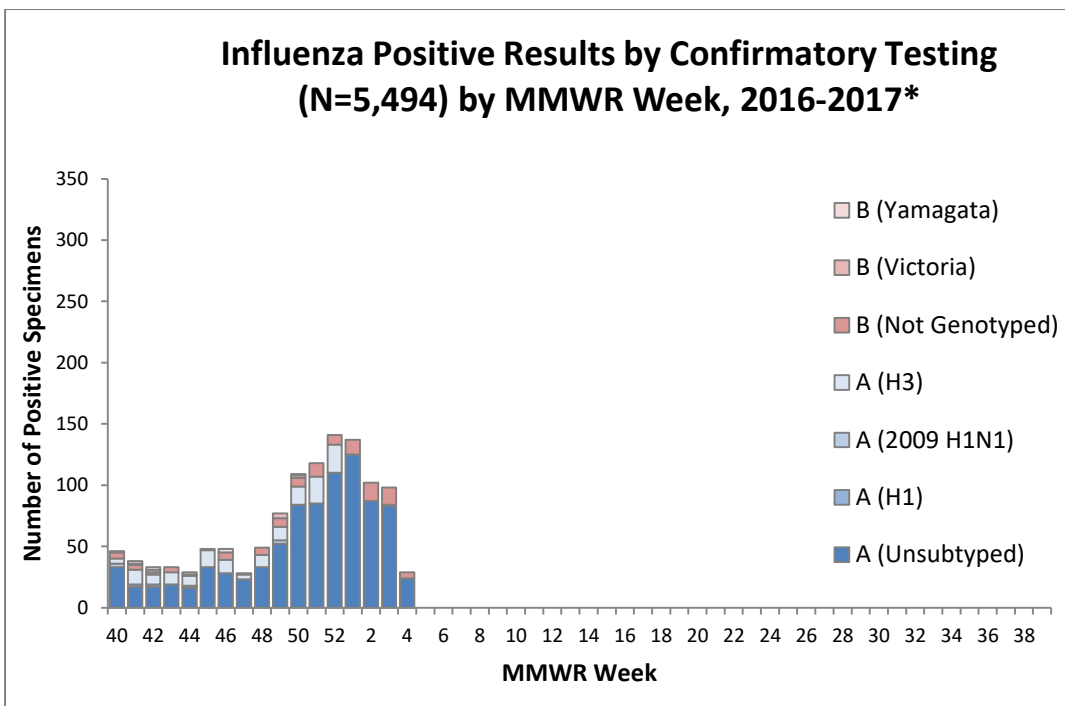
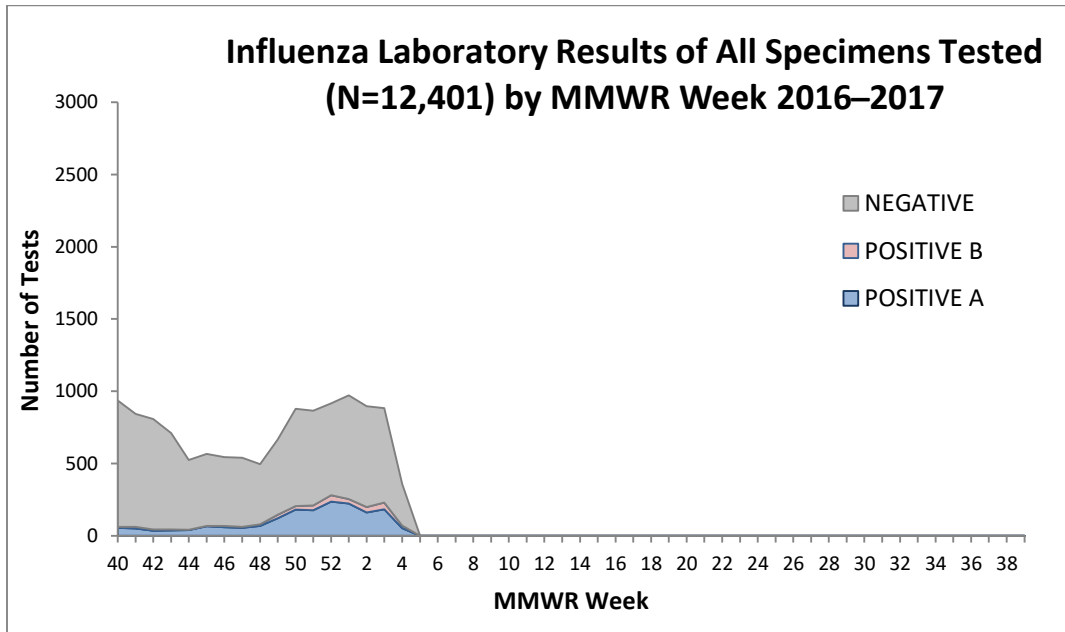


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

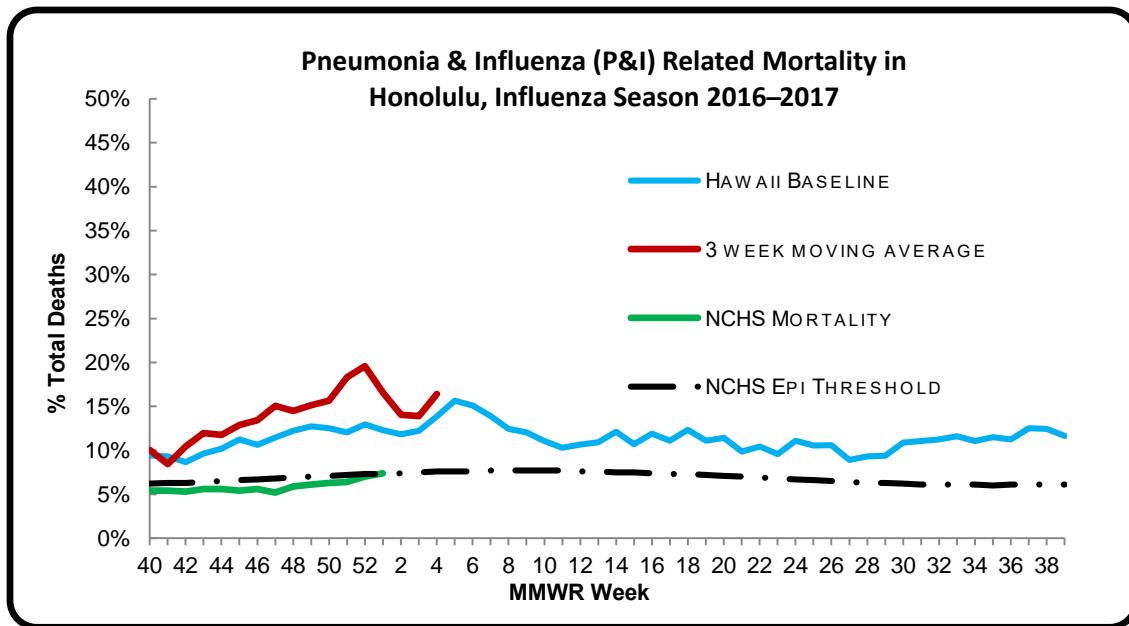


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 18.6% of all deaths that occurred in Honolulu during week 4 were related to pneumonia or influenza. For the current season (season to date: 13.7%), there have been 1,598 deaths from any cause, 219 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, seven influenza-associated pediatric deaths were reported to CDC during week 4. Three deaths were associated with an influenza A (H3) virus and occurred during weeks 1, 2, and 4 (the weeks ending January 7, 14, and 28, 2017, respectively). Three deaths were associated with an influenza A virus for which no subtyping was performed and occurred during weeks 1, 3, and 4 (the weeks ending January 7, 21, and 28, 2017,

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14,).

⁸ 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

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.

respectively). One death was associated with an influenza B virus and occurred during week 3 (the week ending January 21, 2017). (Season total: 15).

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 16, 2017**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 5: JANUARY 29, 2017 –FEBRUARY 4, 2017

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.**

REPORT SNAPSHOT FOR WEEK 5

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	5.5%	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	2	There have been 25 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	10.8%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	5	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	13.5%	Lower than the previous week. This number means that many, if not all, of the 86.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	17.0%	

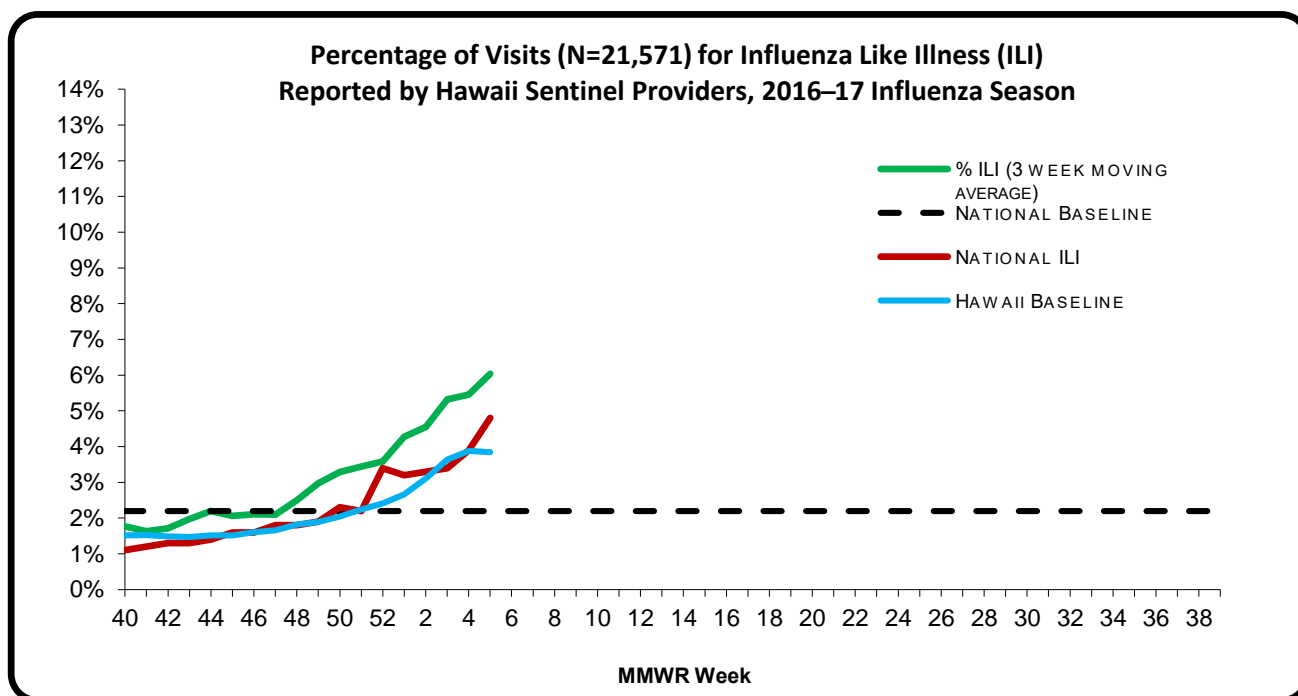
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **5.5%** (season to date: **3.1%**) 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 comparable to the national ILI rate (**4.8%**) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** Two clusters were reported to HDOH during week 5. Both clusters occurred at long term care centers on Oahu. These clusters 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

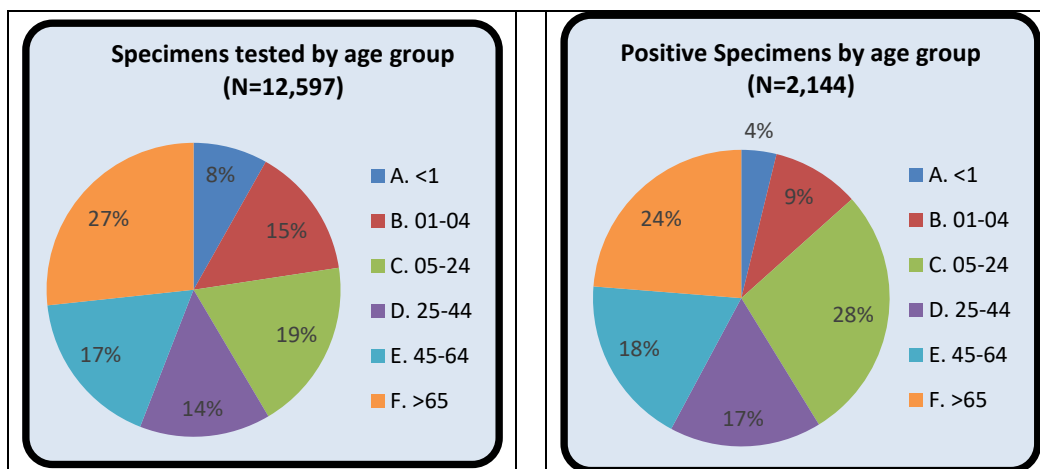
A. INFLUENZA:

- The following reflects laboratory findings for week 5 of the 2016-17 influenza season:
 - A total of **193 specimens** have been tested statewide for influenza viruses (positive: **26 [13.5%]**). (Season to date: **12,597 tested [17.0% positive]**)
 - 0 (0.0%) were screened only by rapid antigen tests with no confirmatory testing
 - 193 (100%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 167 (86.5%) were negative.

<i>Influenza type</i>	<i>Current week 5 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	12 (0.6)
<i>Influenza A (H3)</i>	0 (0.0)	153 (7.1)
<i>Influenza A no subtyping</i>	18 (69.2)	1648 (76.9)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.5)
<i>Influenza B (Victoria)</i>	0 (0.0)	10 (0.5)
<i>Influenza B no genotyping</i>	8 (30.8)	310 (14.4)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

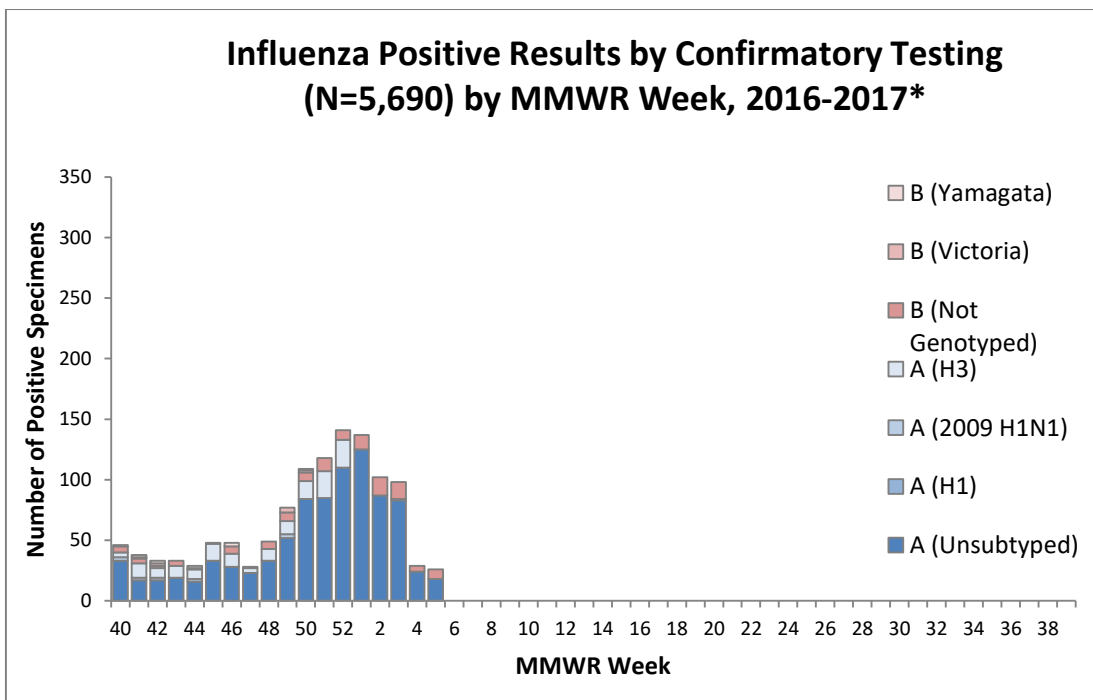
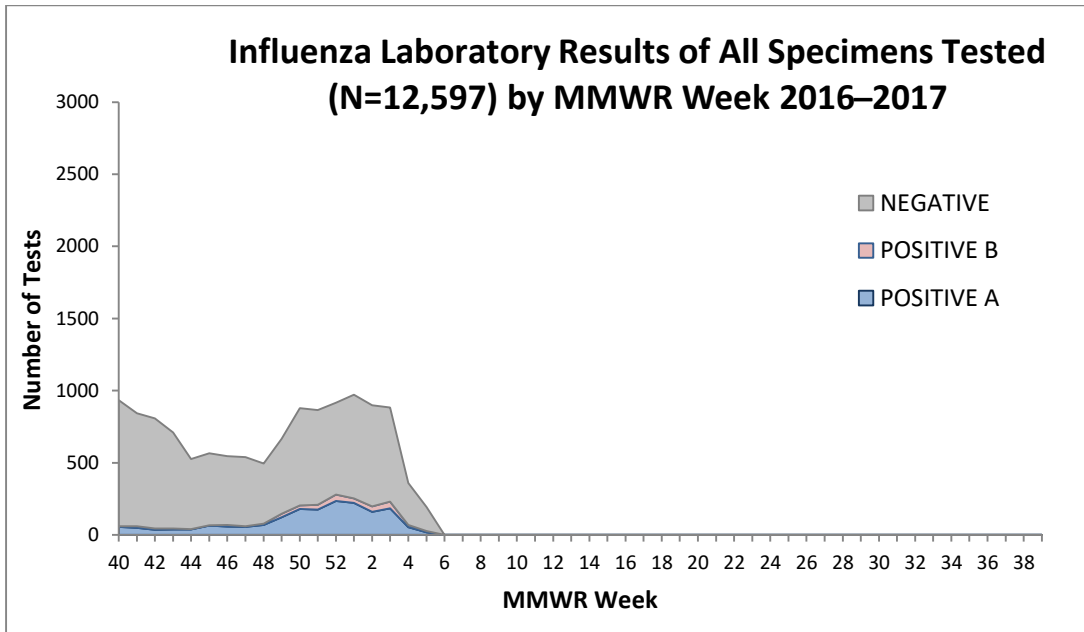


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

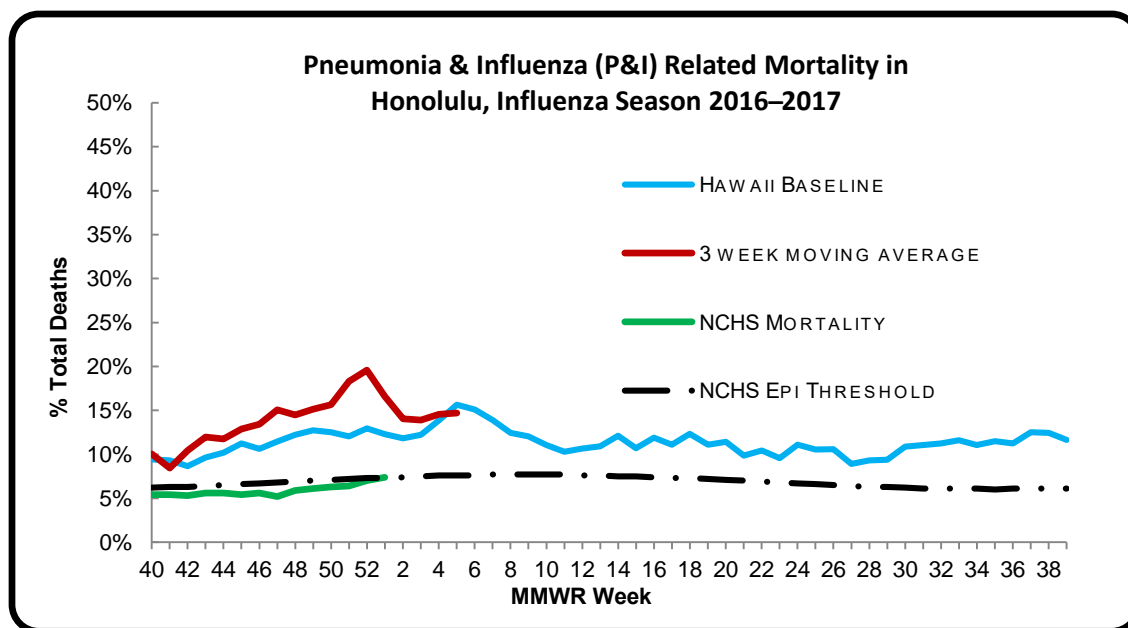


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **10.8%** of all deaths that occurred in Honolulu during week 5 were related to pneumonia or influenza. For the current season (season to date: **13.6%**), there have been 1,681 deaths from any cause, 228 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, five influenza-associated pediatric deaths were reported to CDC during week 5. Three deaths were associated with an influenza A (H3) virus and occurred during weeks 2 and 4 (the weeks ending January 14, and 28, 2017, respectively). One death was associated with an influenza A (H1N1) pdm09 virus and occurred

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14).

⁸ 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

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.

during week 4 (the week ending January 28, 2017). One death was associated with an influenza B virus and occurred during week 4. (Season total: 20).

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 16, 2017**.

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
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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.

MMWR WEEK	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
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13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
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21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
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26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
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30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 6: FEBRUARY 5, 2017 –FEBRUARY 11, 2017

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.**

REPORT SNAPSHOT FOR WEEK 6

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	4.8%	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	1	There have been 26 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	11.5%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	9	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	6.3%	Lower than the previous week. This number means that many, if not all, of the 93.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	16.8%	

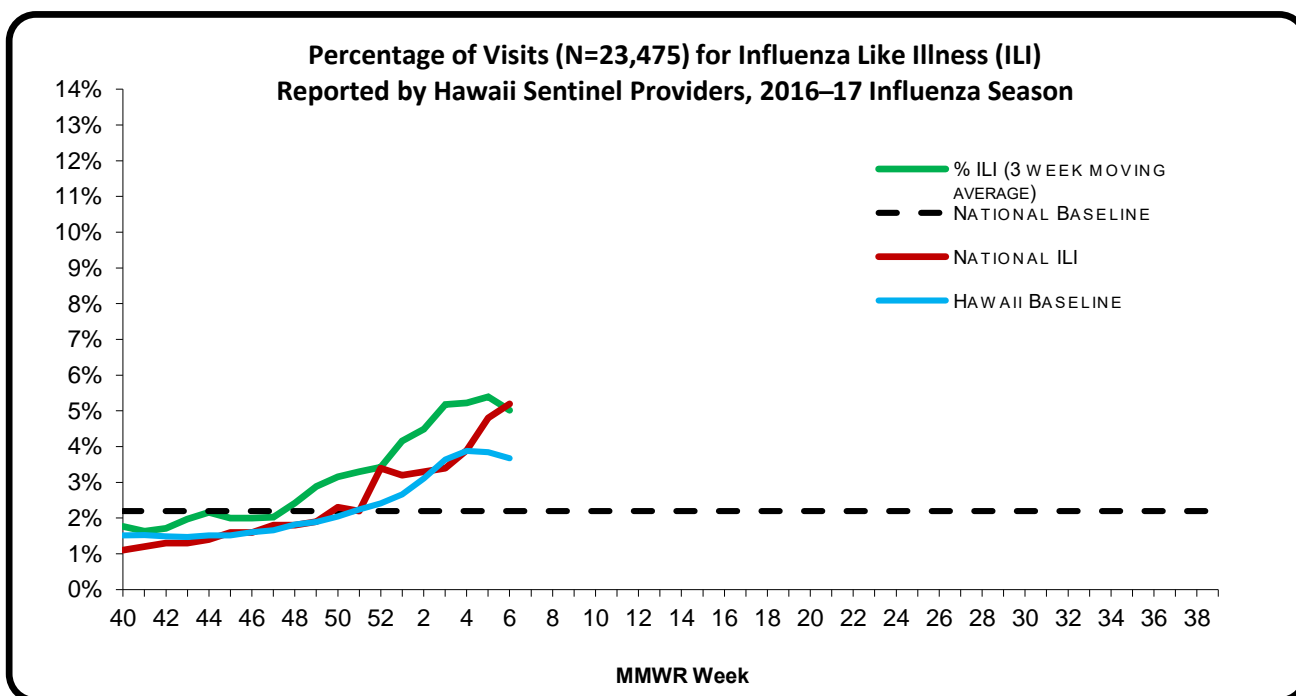
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **4.8%** (season to date: **3.1%**) 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 comparable to the national ILI rate (5.2%) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** One cluster was reported to HDOH during week 6. This cluster occurred at a long term care center 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 (2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015).

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.

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 criteria⁵ 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](#)).

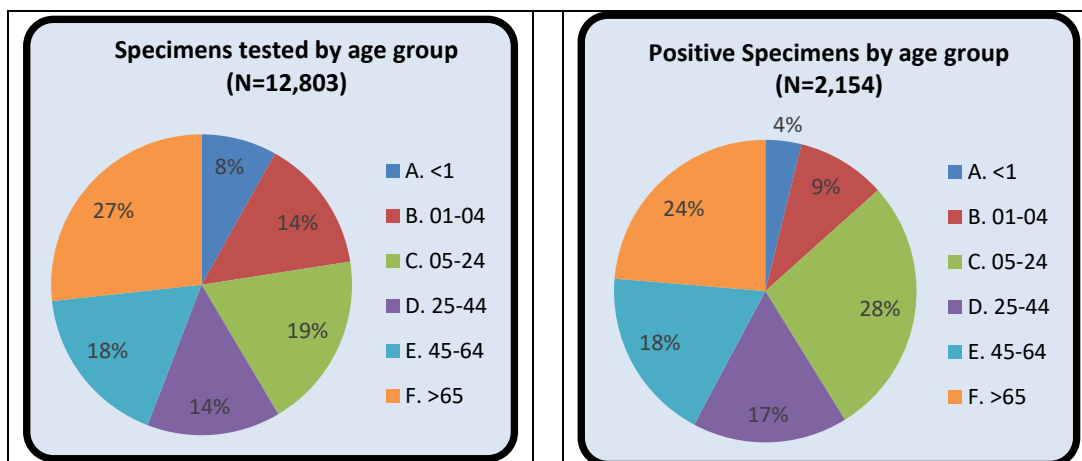
A. INFLUENZA:

- The following reflects laboratory findings for week 6 of the 2016-17 influenza season:
 - A total of **208 specimens** have been tested statewide for influenza viruses (positive: **13 [6.3%]**). (Season to date: **12,803 tested [16.8% positive]**)
 - 0 (0.0%) were screened only by rapid antigen tests with no confirmatory testing
 - 208 (100%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 195 (93.8%) were negative.

Influenza type	Current week 6 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	12 (0.6)
Influenza A (H3)	0 (0.0)	153 (7.1)
Influenza A no subtyping	13 (100)	1660 (77.1)
Influenza B (Yamagata)	0 (0.0)	11 (0.5)
Influenza B (Victoria)	0 (0.0)	10 (0.5)
Influenza B no genotyping	0 (0.0)	308 (14.3)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

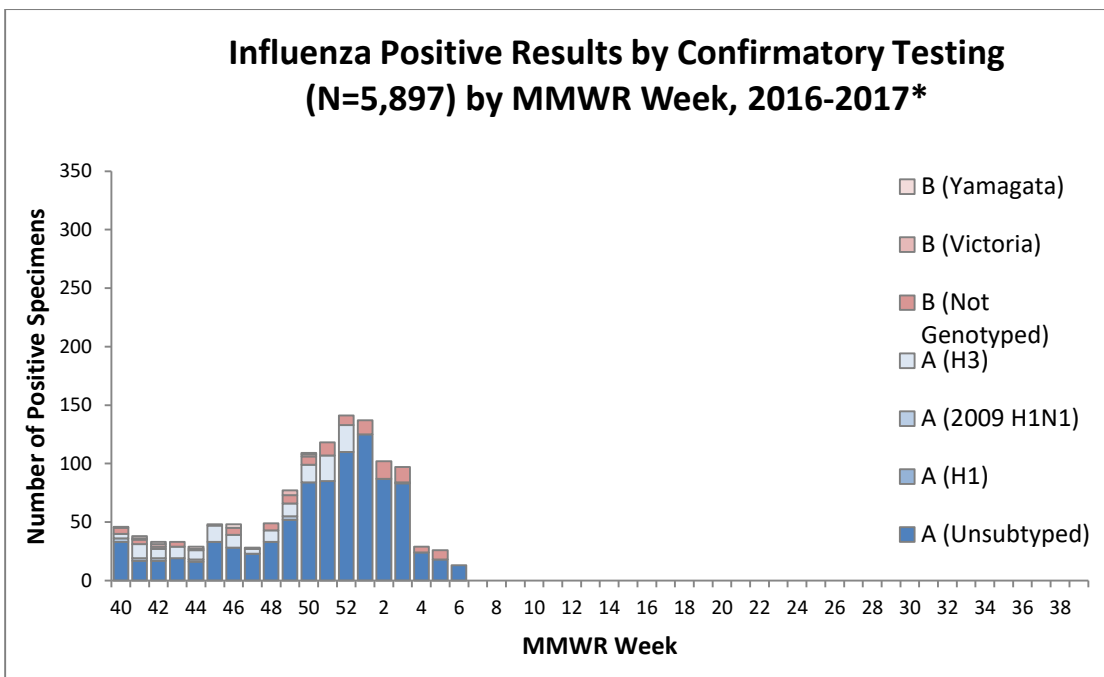
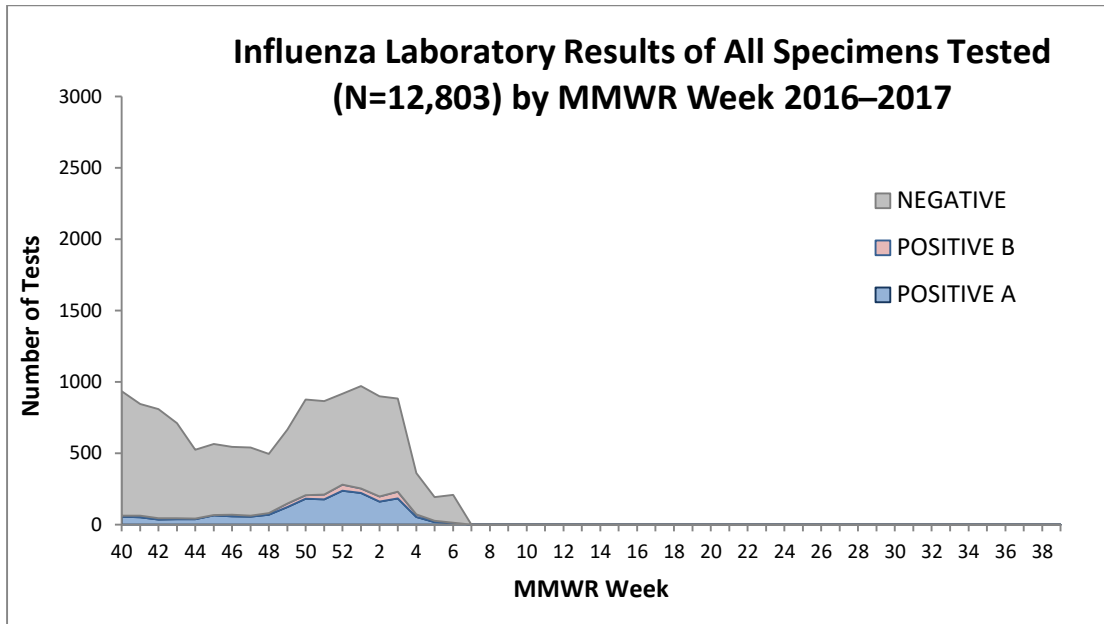


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

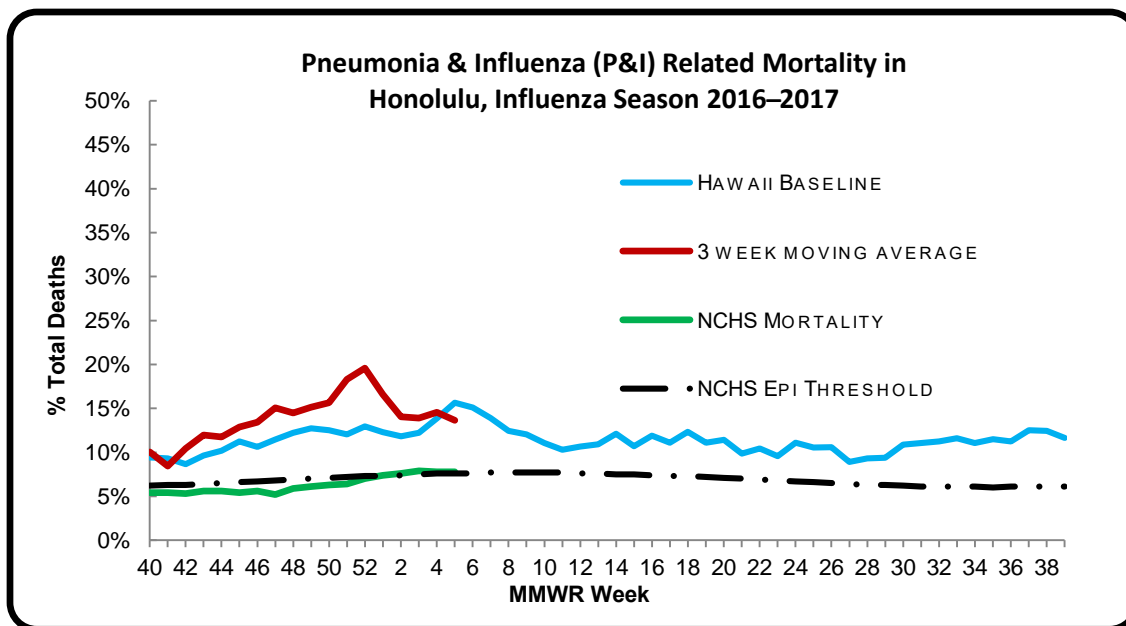


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *11.5% of all deaths that occurred in Honolulu during week 6 were related to pneumonia or influenza. For the current season (season to date: 13.4%), there have been 1,785 deaths from any cause, 240 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, nine influenza-associated pediatric deaths were reported to CDC during week 6. Six deaths were associated with an influenza A (H3) virus and occurred during weeks 3, 4, 5, and 6 (the weeks ending January 21, January 28, February 4, and February 11, 2017, respectively). Two deaths were associated with an influenza A virus for which no subtyping was performed and occurred during weeks 1 and 5 (the weeks ending January

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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.

7, and February 4, 2017). One death was associated with an influenza B virus and occurred during week 5 (the week ending February 4, 2017). (Season total: 29).

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 14, 2017**. Since the last update, 305 laboratory-confirmed human cases of influenza A (H7N9) virus infection were reported to WHO from China. Of the 305 cases, there were at least 35 fatalities. Reported exposures included contact with infected poultry or contaminated environments, including live poultry markets and domestic poultry.

APPENDIX 1: ADDITIONAL INFORMATION

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

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21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
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34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 7: FEBRUARY 12, 2017–FEBRUARY 18, 2017

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.**

REPORT SNAPSHOT FOR WEEK 7

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	5.2%	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 27 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	19.0%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	5	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	22.3%	Higher than the previous week. This number means that many, if not all, of the 77.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	14.8%	

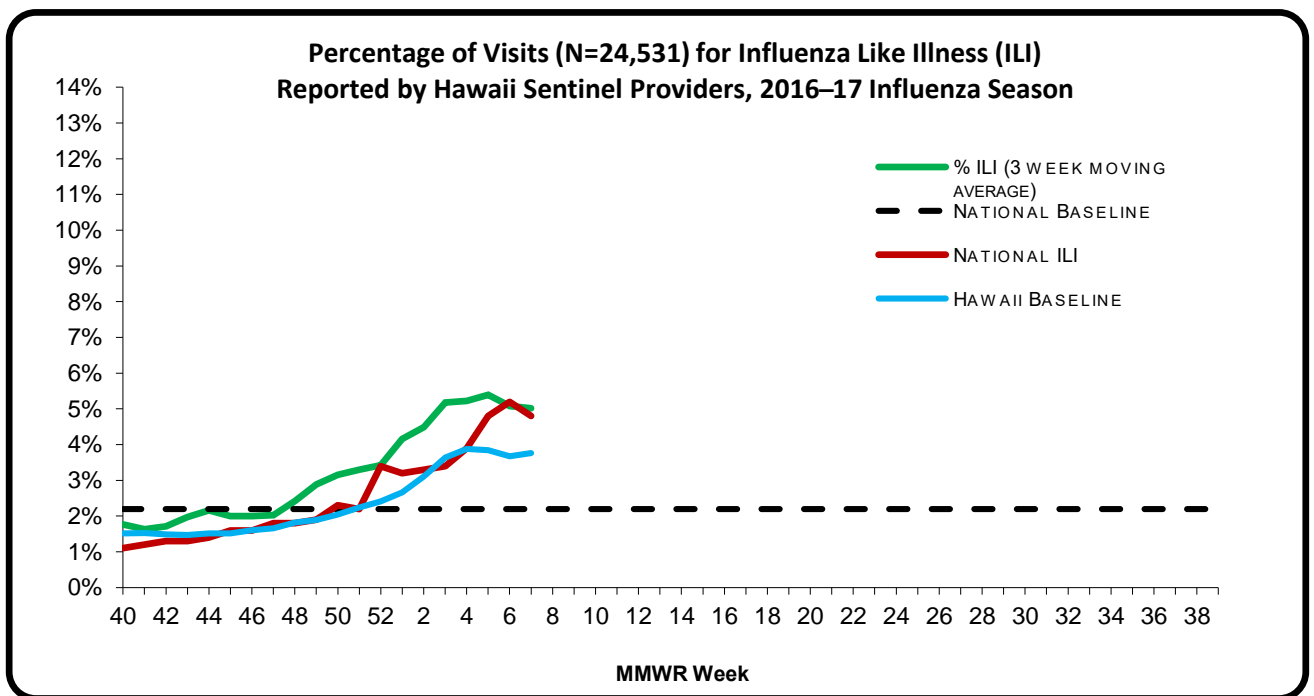
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **5.2%** (season to date: **3.2%**) 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 (**4.8%**) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** One cluster was reported to HDOH during week 7. This cluster occurred at a restaurant associated with a pool and dart tournament 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

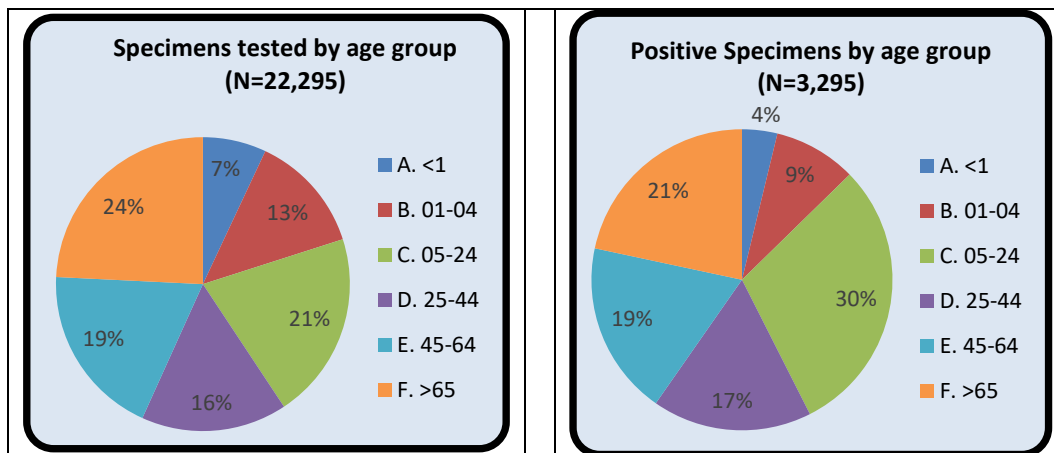
A. INFLUENZA:

- The following reflects laboratory findings for week 7 of the 2016-17 influenza season:
 - A total of **1379** specimens have been tested statewide for influenza viruses (positive: **307 [22.3%]**). (Season to date: **22,295** tested [**14.8%** positive])
 - 967 (70.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 412 (29.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,072 (77.7%) were negative.

Influenza type	Current week 6 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.4)
Influenza A (H3)	0 (0.0)	185 (5.6)
Influenza A no subtyping	254 (82.7)	2614 (79.3)
Influenza B (Yamagata)	0 (0.0)	11 (0.3)
Influenza B (Victoria)	0 (0.0)	12 (0.4)
Influenza B no genotyping	53 (17.3)	459 (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 2016–17 influenza season.

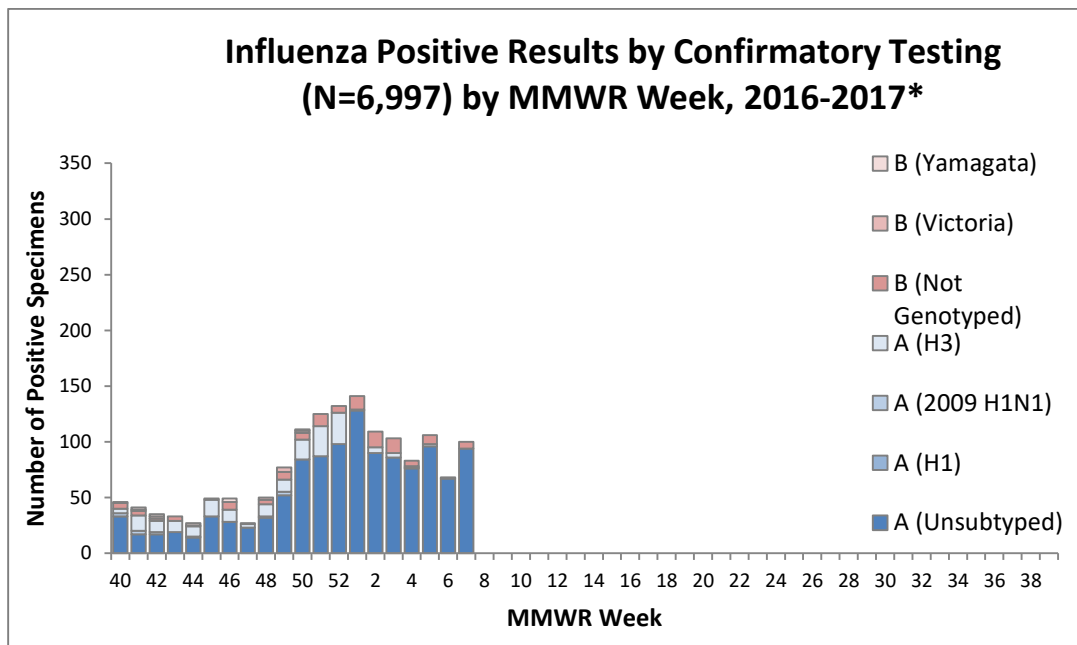
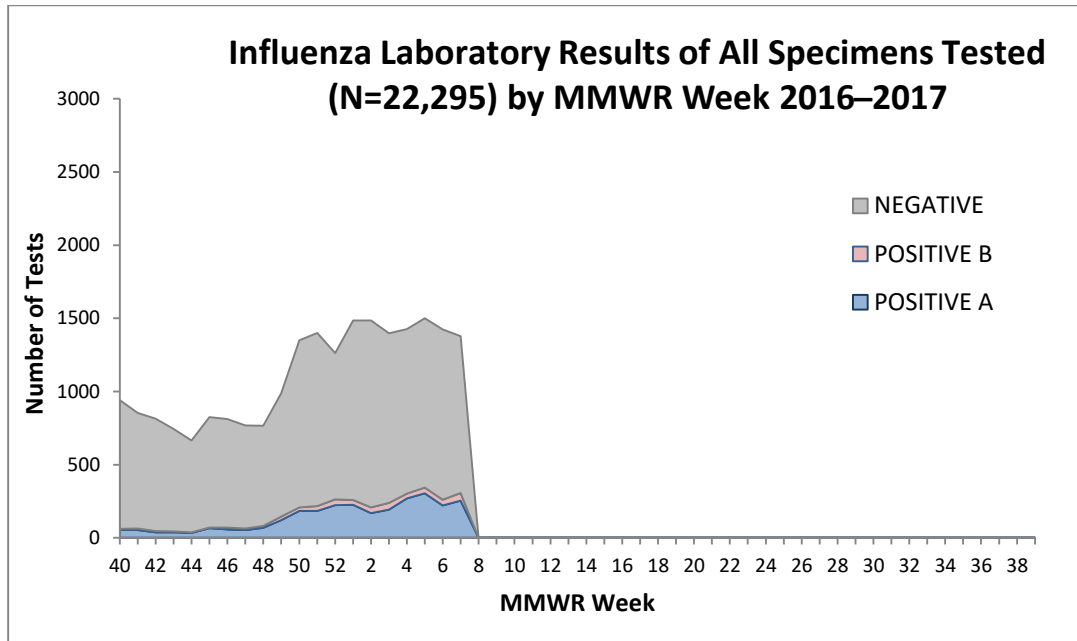


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

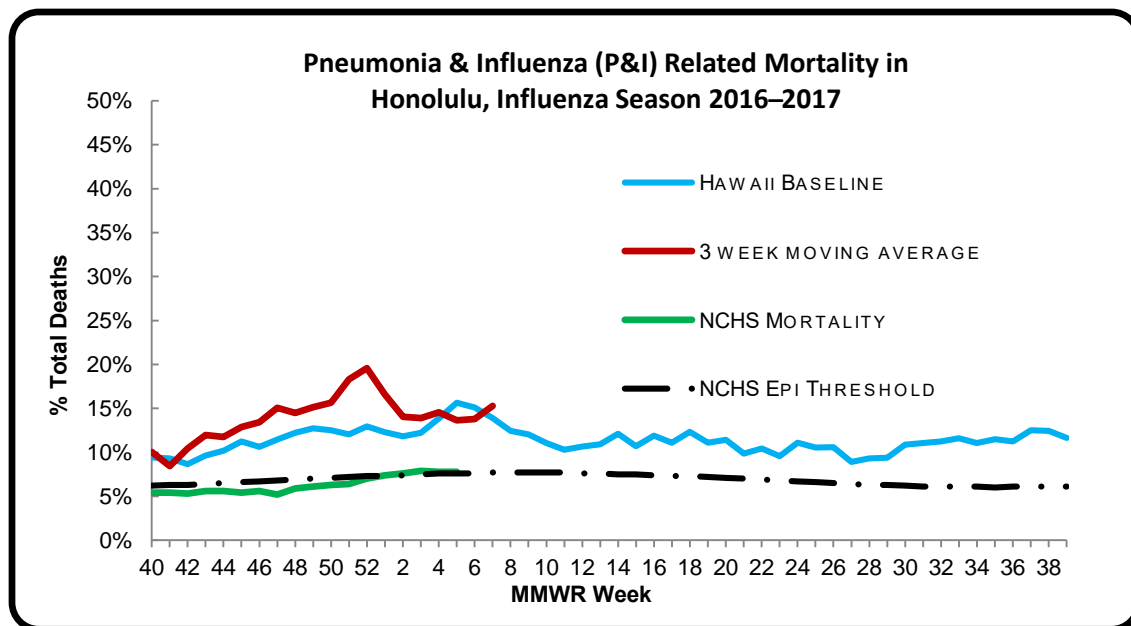


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *19.0% of all deaths that occurred in Honolulu during week 7 were related to pneumonia or influenza. For the current season (season to date: 13.7%), there have been 1,885 deaths from any cause, 259 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, five influenza-associated pediatric deaths were reported to CDC during week 7. Three deaths were associated with an influenza A (H3) virus and occurred during weeks 4 and 6 (the weeks ending January 28 and February 11, 2017, respectively). One death was associated with an influenza A virus for which no subtyping

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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.

was performed and occurred during week 6 (the week ending February 11, 2017). One death was associated with an influenza B virus and occurred during week 6. (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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 14, 2017**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 8: FEBRUARY 19, 2017–FEBRUARY 25, 2017

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.**

REPORT SNAPSHOT FOR WEEK 8

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	6.0%	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	2	There have been 29 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	14.3%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	6	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	20.3%	Lower than the previous week. This number means that many, if not all, of the 79.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.1%	

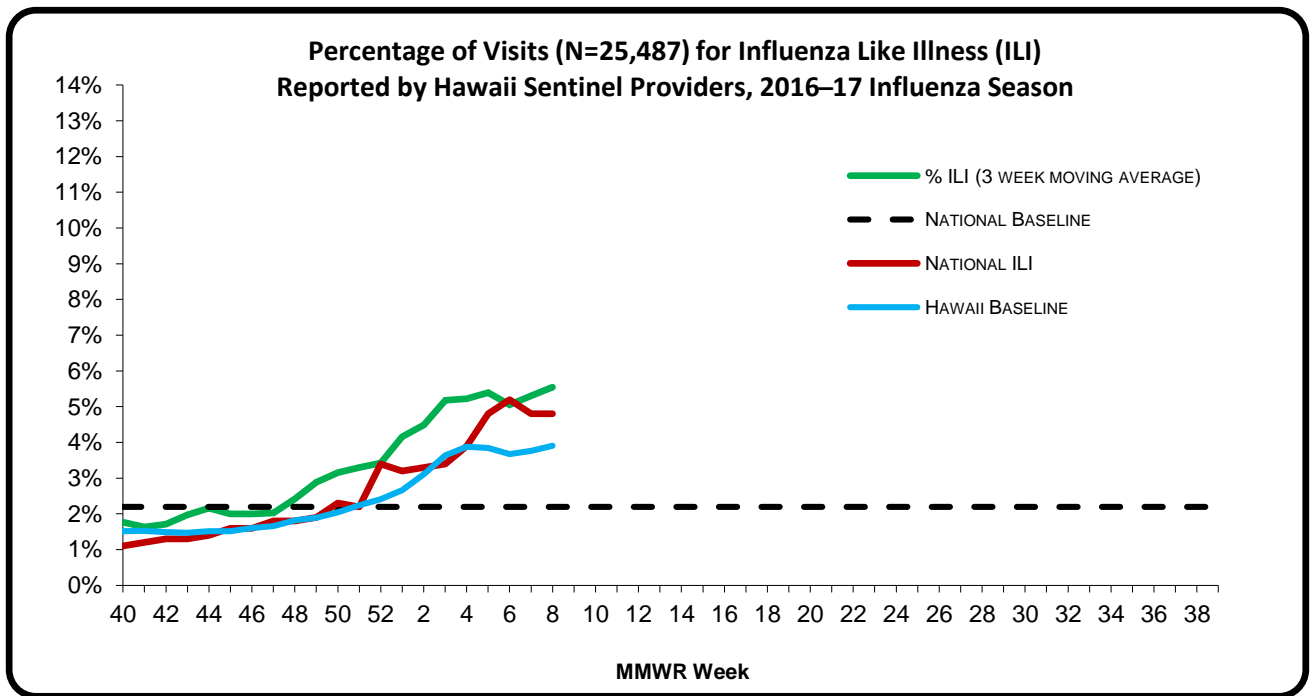
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INFLUENZA SURVEILLANCE

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 8** of the current influenza season:

- **6.0%** (season to date: **3.3%**) 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).
- **ILI Cluster Activity:** Two clusters were reported to HDOH during week 8. One cluster occurred at a long term care center on Kauai and the other one occurred at a long term care center on Oahu. Both clusters 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

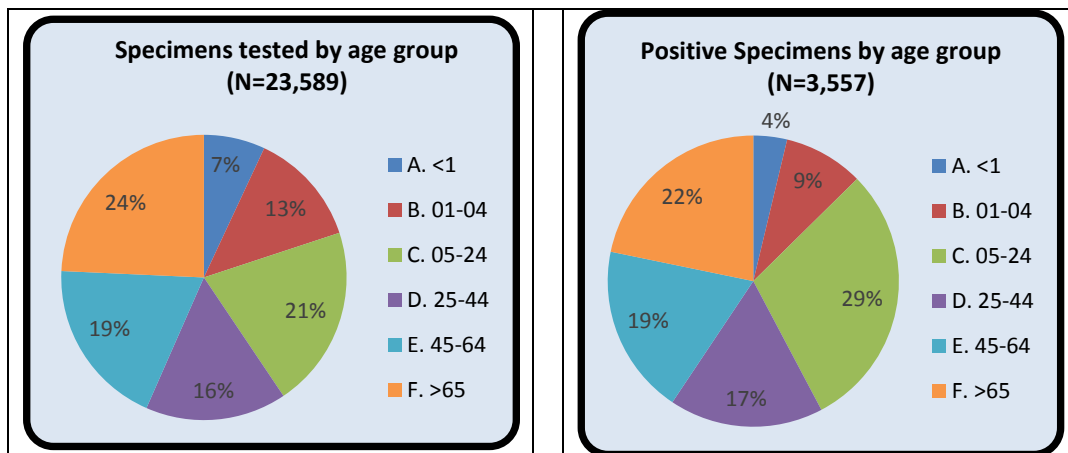
A. INFLUENZA:

- The following reflects laboratory findings for week 8 of the 2016-17 influenza season:
 - A total of **1294** specimens have been tested statewide for influenza viruses (positive: **263 [20.3%]**). (Season to date: **23,589** tested [**15.1%** positive])
 - 939 (72.6%) were screened only by rapid antigen tests with no confirmatory testing
 - 355 (27.4%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,031 (79.7%) were negative.

Influenza type	Current week 8 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.4)
Influenza A (H3)	2 (0.8)	187 (5.3)
Influenza A no subtyping	229 (87.1)	2843 (79.9)
Influenza B (Yamagata)	0 (0.0)	11 (0.3)
Influenza B (Victoria)	0 (0.0)	12 (0.3)
Influenza B no genotyping	32 (12.2)	490 (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 2016–17 influenza season.

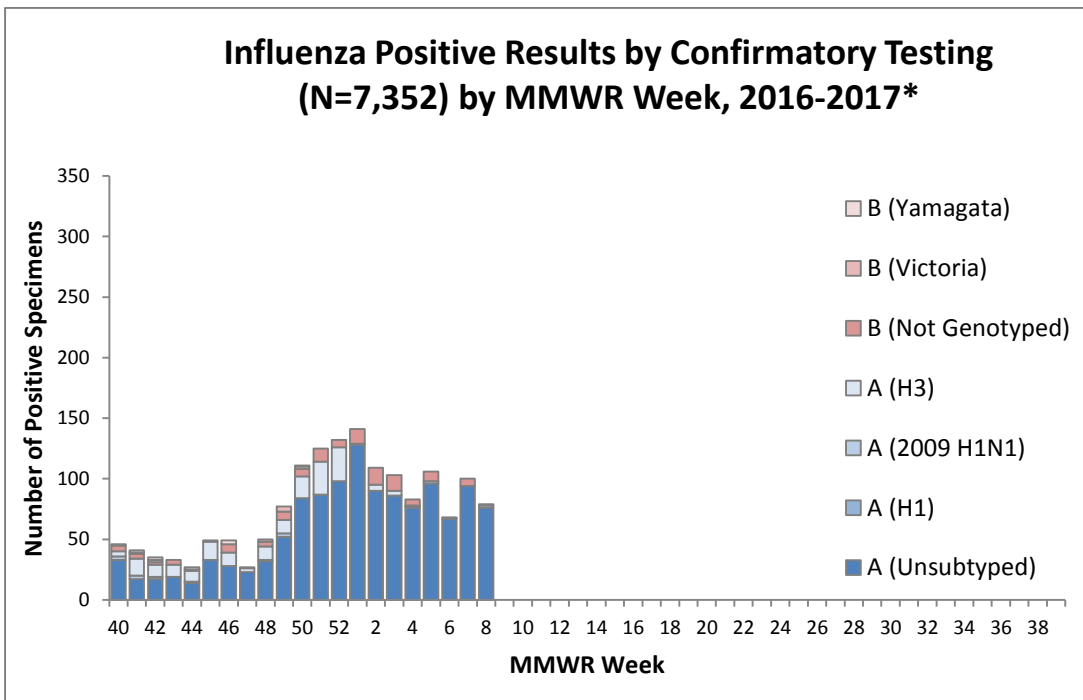
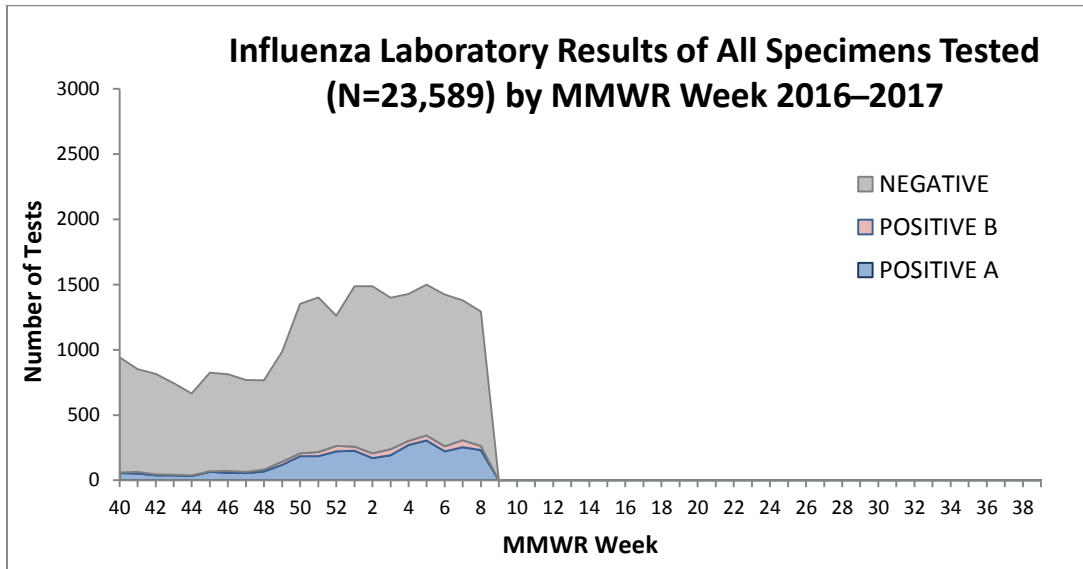


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

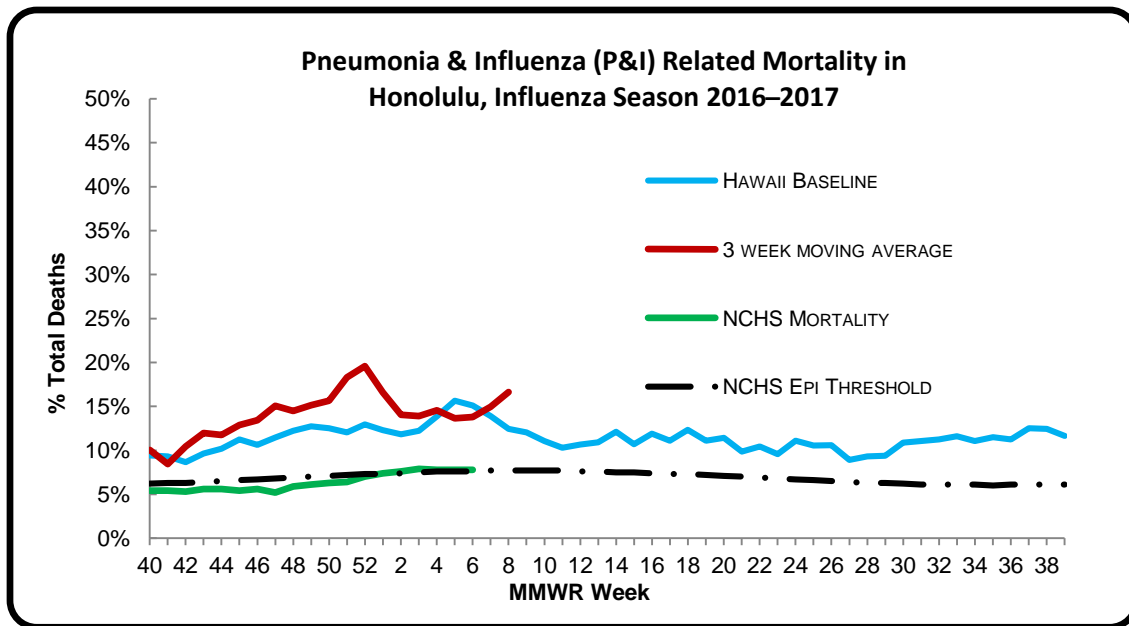


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *14.3% of all deaths that occurred in Honolulu during week 8 were related to pneumonia or influenza. For the current season (season to date: 13.8%), there have been 1,969 deaths from any cause, 271 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, six influenza-associated pediatric deaths were reported to CDC during week 8. Two deaths were associated with an influenza A (H3) virus and occurred during weeks 7 and 8 (the weeks ending February 18, and February 25, 2017, respectively). One death was associated with an influenza A (H1N1) pdm09 virus and occurred during week 6 (the week ending February 11, 2017). Two deaths were associated with an influenza A

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

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virus for which no subtyping was performed and occurred during weeks 6 and 8. One death was associated with an influenza B virus and occurred during week 7. (Season total: 40).

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 14, 2017**.

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

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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	2013	2014	2015	2016	2017
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4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
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45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 9: FEBRUARY 26, 2017–MARCH 4, 2017

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.**

REPORT SNAPSHOT FOR WEEK 9

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	4.4%	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	1	There have been 30 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	14.3%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	8	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	20.3%	Similar to the previous week. This number means that many, if not all, of the 79.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.4%	

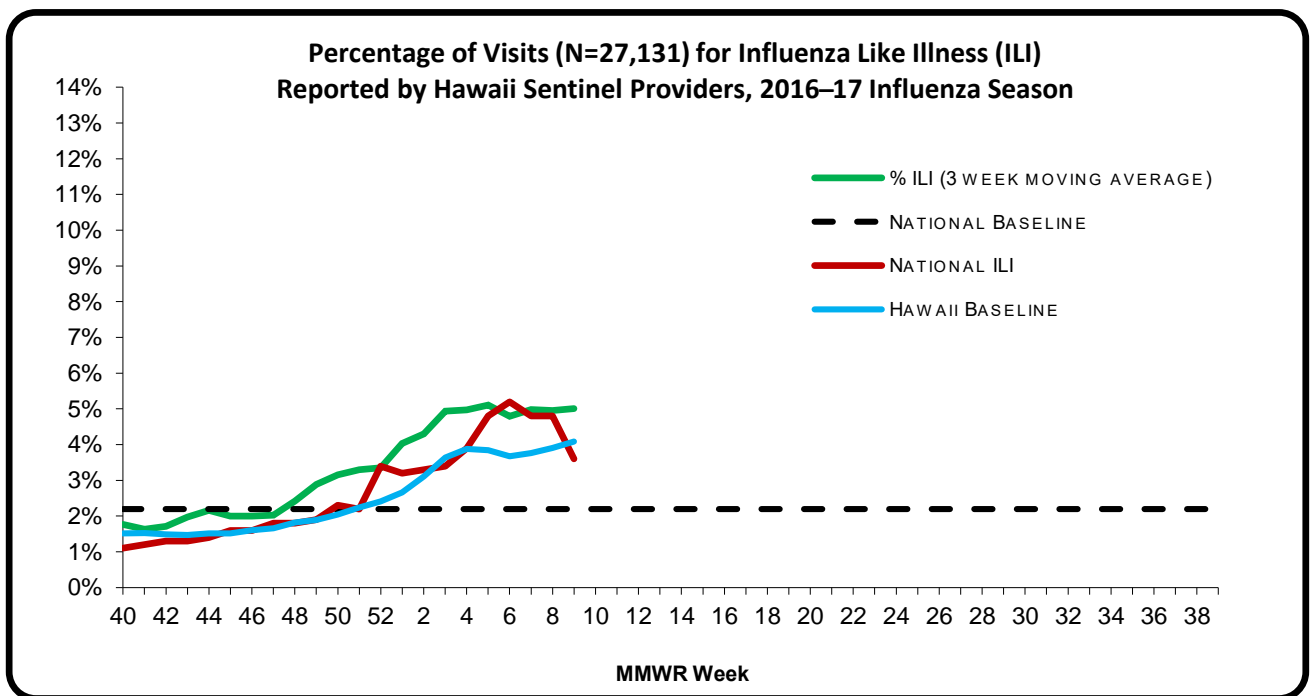
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **4.4%** (season to date: **3.3%**) 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 (**3.6%**) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** One cluster was reported to HDOH during week 9. This cluster occurred at a long term care center on Oahu and 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

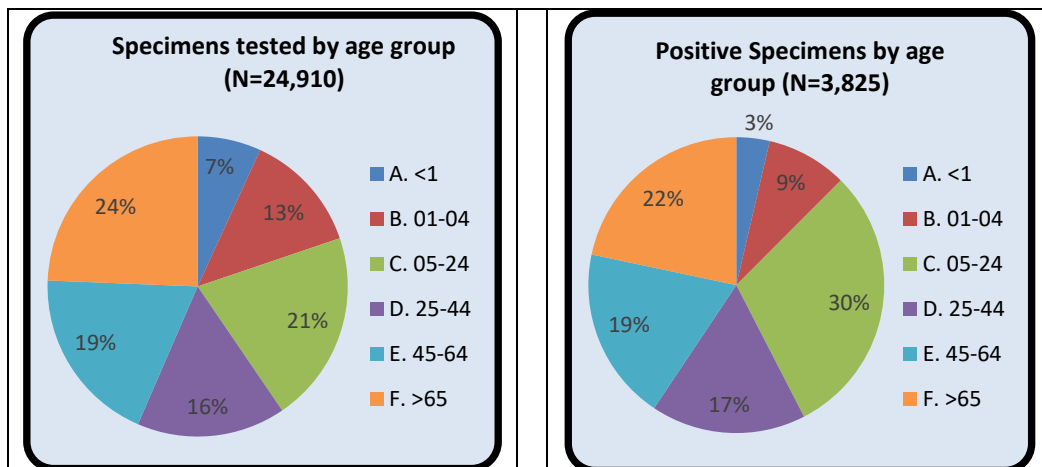
A. INFLUENZA:

- The following reflects laboratory findings for week 9 of the 2016-17 influenza season:
 - A total of **1,321** specimens have been tested statewide for influenza viruses (positive: **268 [20.3%]**). (Season to date: **24,910** tested [**15.4%** positive])
 - 981 (74.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 340 (25.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 1,053 (79.7%) were negative.

Influenza type	Current week 9 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.4)
Influenza A (H3)	1 (0.4)	188 (4.9)
Influenza A no subtyping	223 (83.2)	3066 (80.2)
Influenza B (Yamagata)	0 (0.0)	11 (0.3)
Influenza B (Victoria)	0 (0.0)	12 (0.3)
Influenza B no genotyping	44 (16.4)	534 (14.0)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

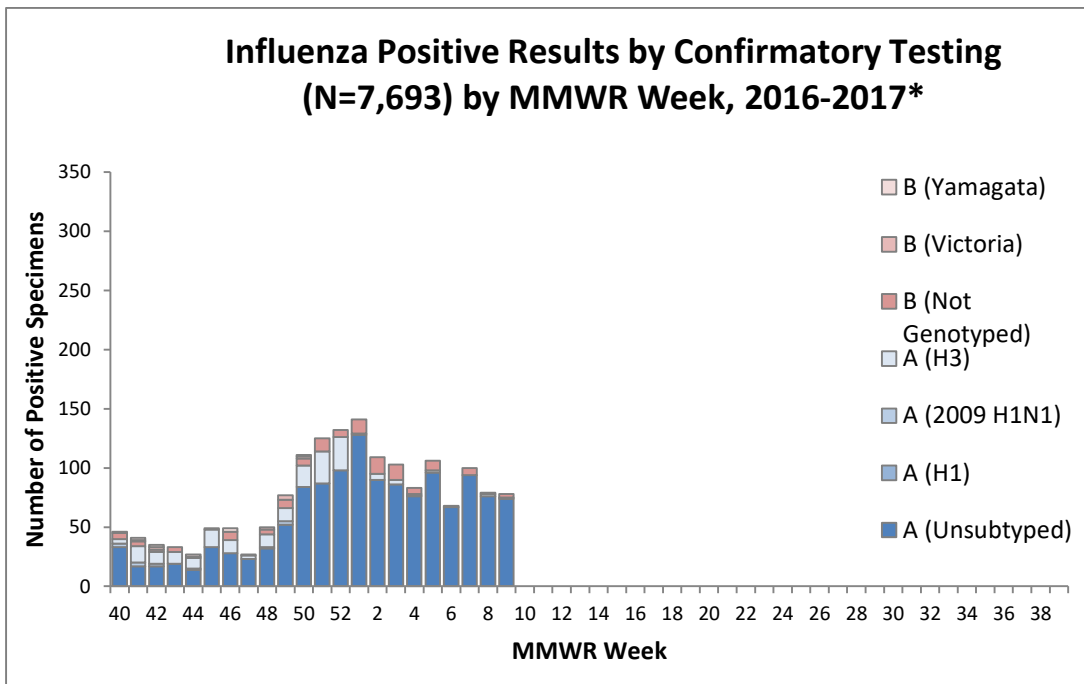
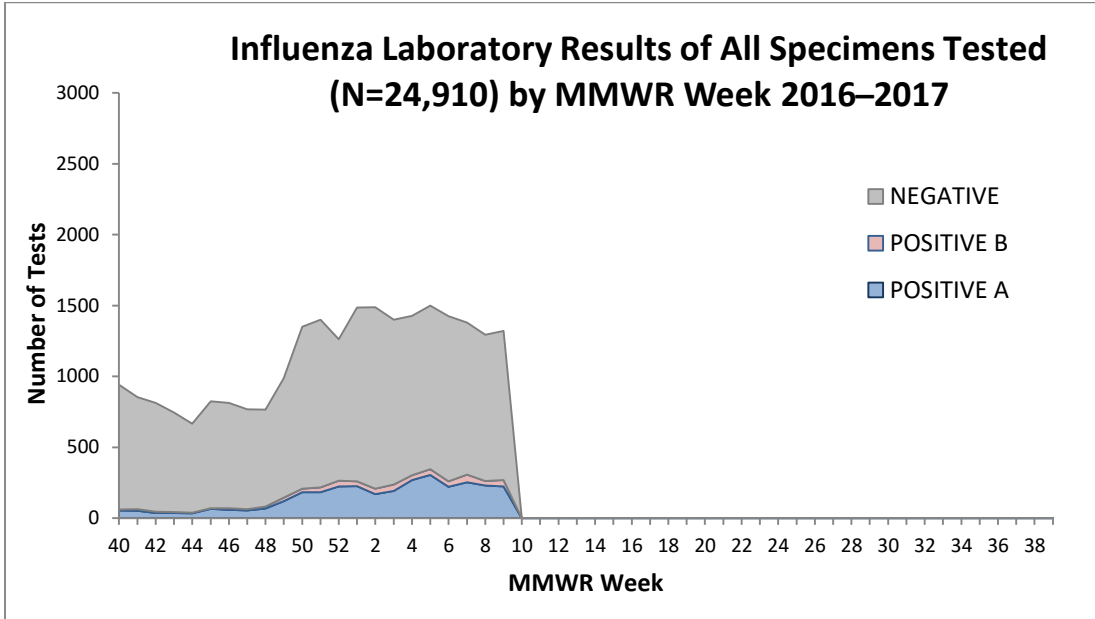


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⁶ All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2016–2017 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).

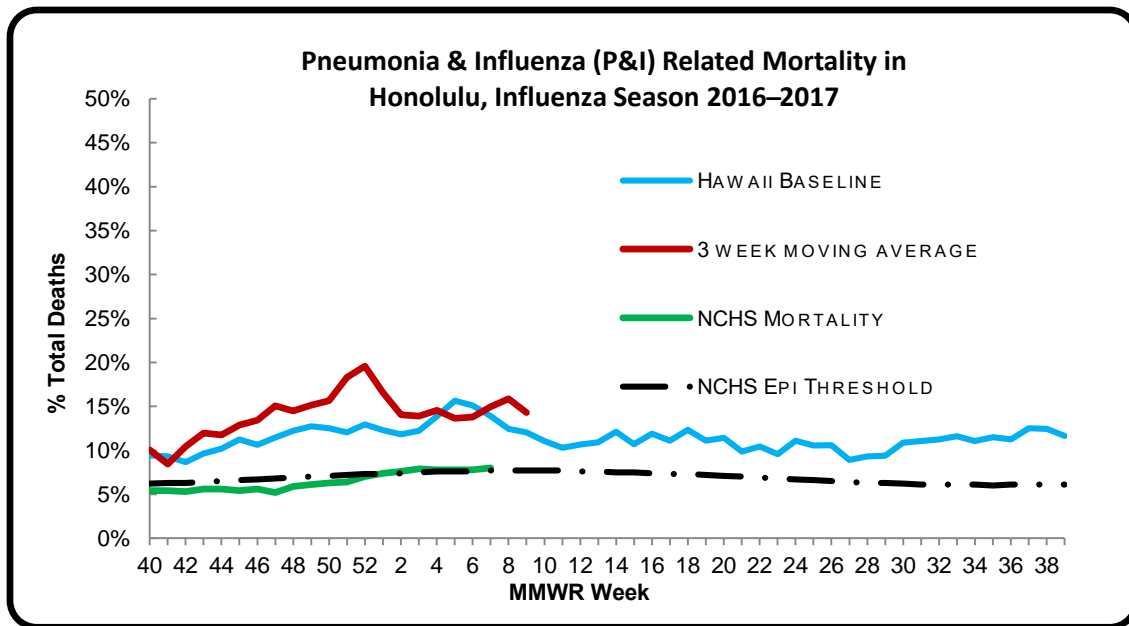


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III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *14.3% of all deaths that occurred in Honolulu during week 9 were related to pneumonia or influenza. For the current season (season to date: 13.8%), there have been 2,067 deaths from any cause, 285 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, eight influenza-associated pediatric deaths were reported to CDC during week 9. Two deaths were associated with an influenza A (H3) virus and occurred during weeks 7 and 8 (the weeks ending February 18, and February 25, 2017, respectively). One death was associated with an influenza A virus for which no subtyping

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was performed and occurred during week 8. Five deaths were associated with an influenza B virus and occurred during weeks 6, 7, and 8 (the weeks ending February 11, February 18, and February 25, 2017). (Season total: 48).

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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6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
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10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
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21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
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33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
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37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
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43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
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51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 10: MARCH 5, 2017–MARCH 11, 2017

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.**

REPORT SNAPSHOT FOR WEEK 10

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	5.1%	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	4	There have been 34 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	16.8%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	5	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	18.8%	Lower than the previous week. This number means that many, if not all, of the 81.2% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.5%	

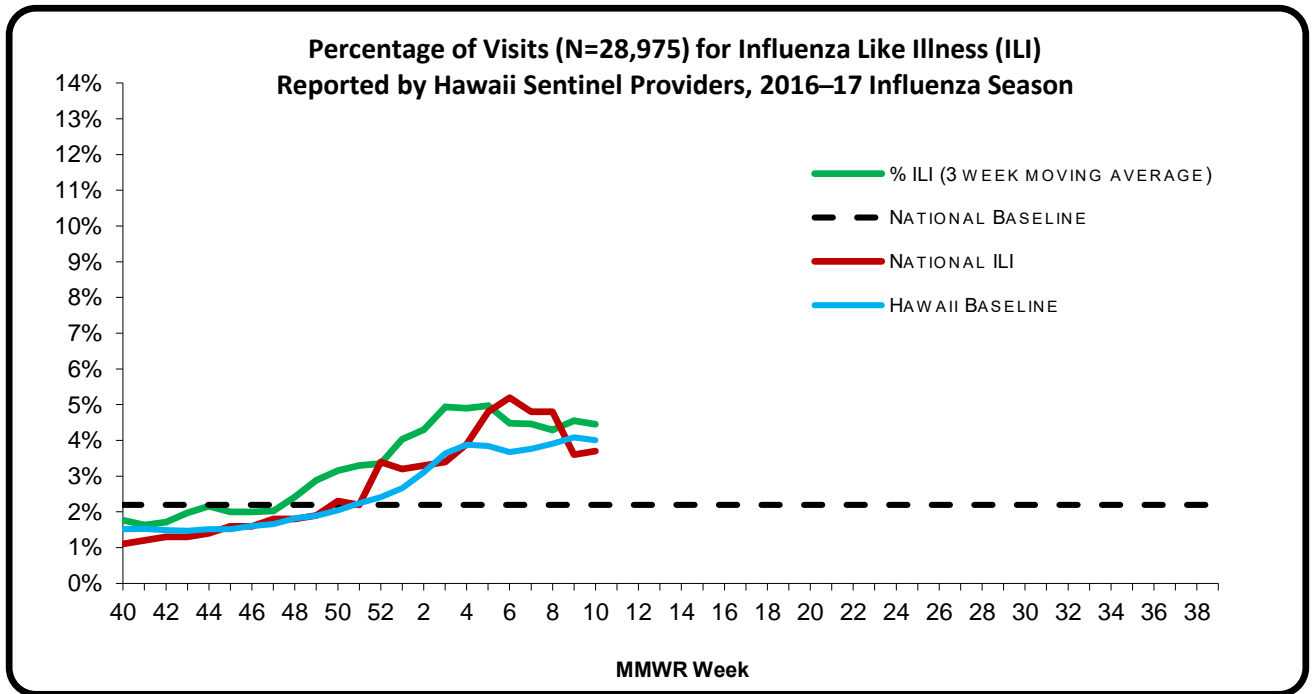
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **5.1%** (season to date: **3.3%**) 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 higher than the national ILI rate (3.7%) (i.e., outside the 95% confidence interval).
- **ILI Cluster Activity:** Four clusters were reported to HDOH during week 10. Three clusters occurred at long term care centers; one was on Maui and the other two were on Oahu. One cluster occurred at a high school on Maui. Three clusters had cases of influenza A and one had 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

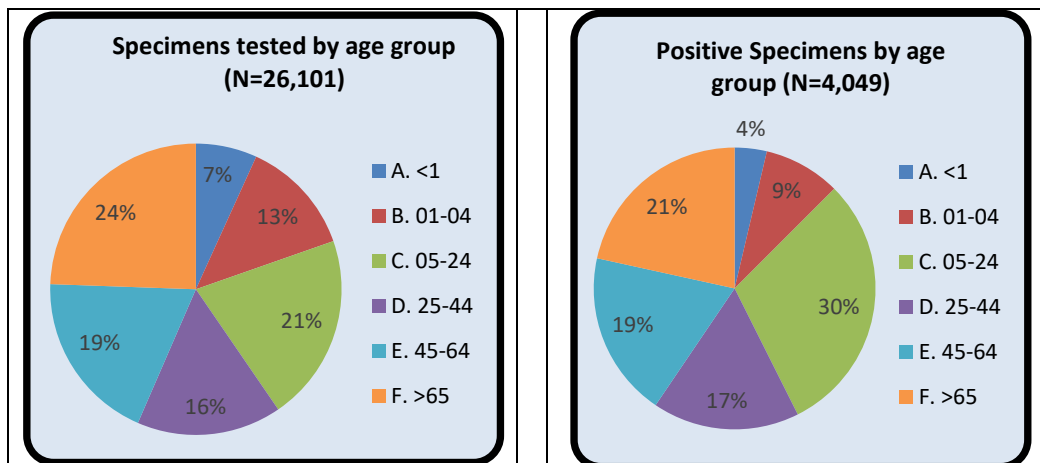
A. INFLUENZA:

- The following reflects laboratory findings for week 10 of the 2016-17 influenza season:
 - A total of **1,190** specimens have been tested statewide for influenza viruses (positive: **224 [18.8%]**). (Season to date: **26,101** tested [**15.5%** positive])
 - 898 (75.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 292 (24.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 966 (81.2%) were negative.

Influenza type	Current week 10 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	0 (0.0)	188 (4.6)
Influenza A no subtyping	181 (80.8)	3247 (80.2)
Influenza B (Yamagata)	0 (0.0)	11 (0.3)
Influenza B (Victoria)	0 (0.0)	12 (0.3)
Influenza B no genotyping	43 (19.2)	577 (14.3)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

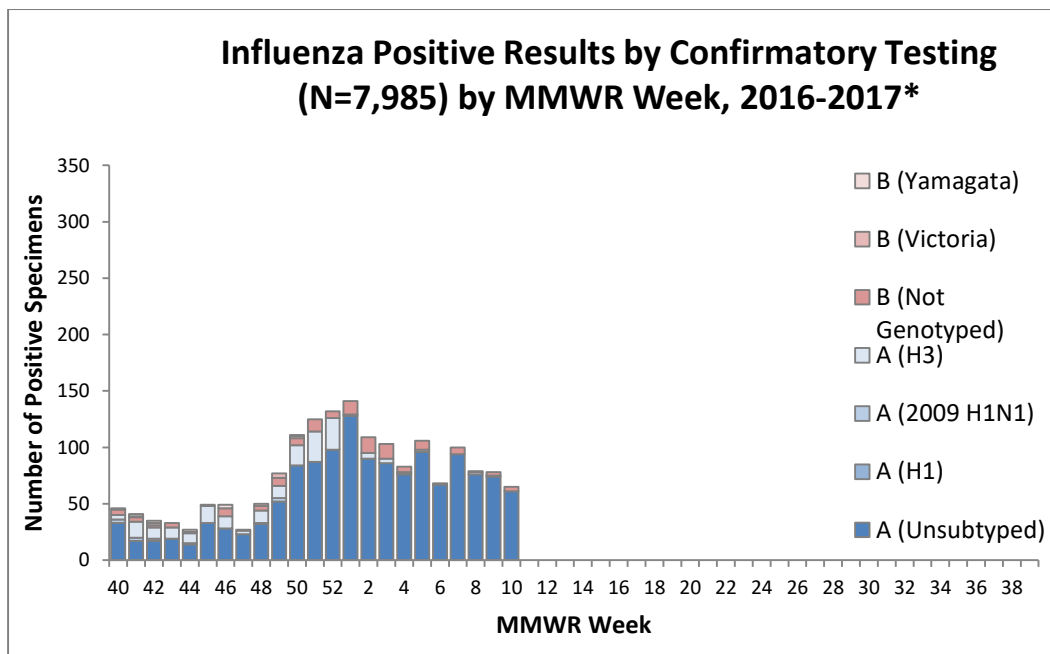
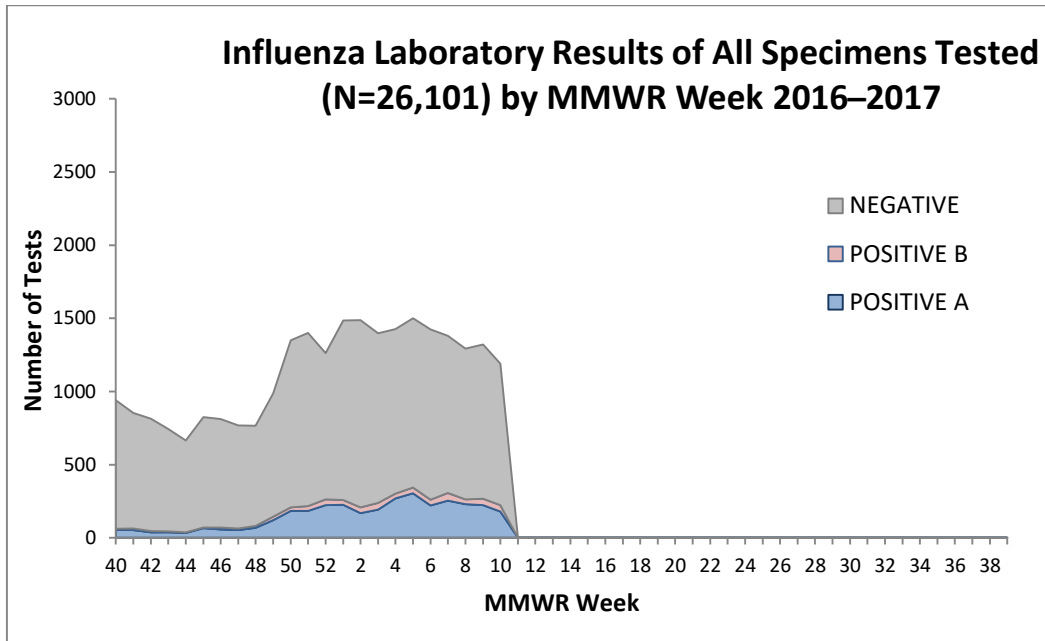


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

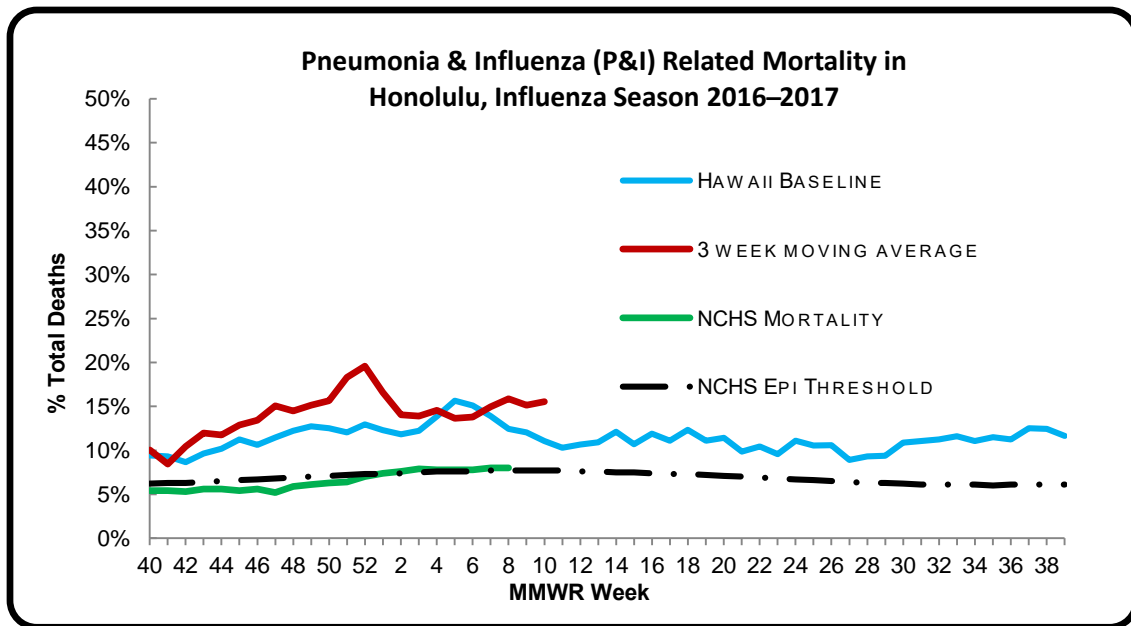


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *16.8% of all deaths that occurred in Honolulu during week 10 were related to pneumonia or influenza. For the current season (season to date: 13.9%), there have been 2,174 deaths from any cause, 303 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, five influenza-associated pediatric deaths were reported to CDC during week 10. Two deaths were associated with an influenza A (H3) virus and occurred during weeks 7 and 8 (the weeks ending February 18, and February 25, 2017, respectively). One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 4 (the week ending January 28, 2017). Two deaths were associated

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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.

with an influenza B virus and occurred during weeks 8 and 9 (the weeks ending February 25, and March 4, 2017). (Season total: 53).

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 14, 2017**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 11: MARCH 12, 2017–MARCH 18, 2017

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.**

REPORT SNAPSHOT FOR WEEK 11

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.1%	Lower than the previous week. Comparable to Hawaii’s historical baseline, the national ILI rate, and the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 34 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	13.7%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	2	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	18.1%	Lower than the previous week. This number means that many, if not all, of the 81.9% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.6%	

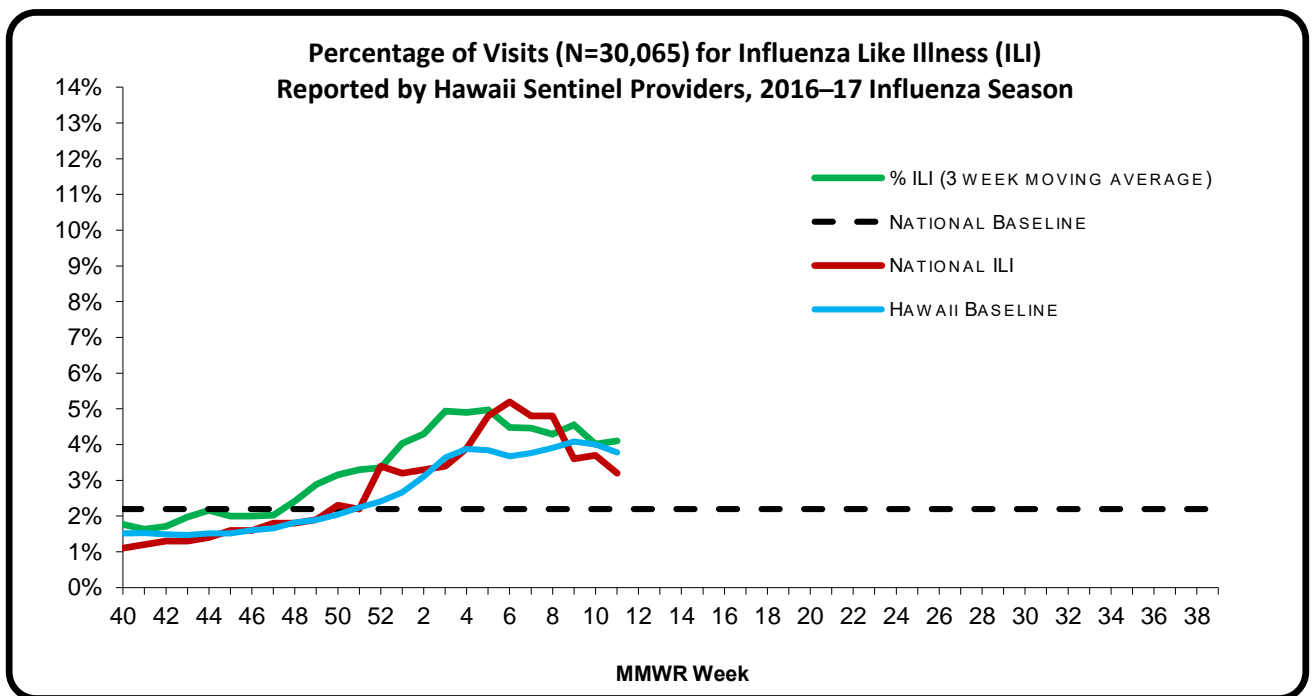
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 3.1% (season to date: 3.3%) 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 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).
- ILI Cluster Activity: No new clusters were reported to HDOH during week 11.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015).

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.

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 criteria⁵ 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](#)).

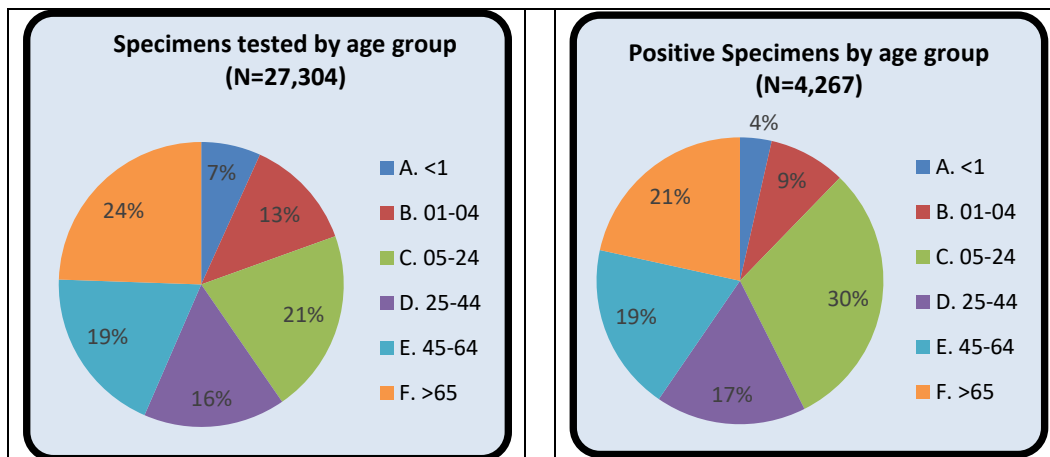
A. INFLUENZA:

- The following reflects laboratory findings for week 11 of the 2016-17 influenza season:
 - A total of **1,202** specimens have been tested statewide for influenza viruses (positive: **217 [18.1%]**). (Season to date: **27,304** tested [**15.6%** positive])
 - 859 (71.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 343 (28.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 985 (81.9%) were negative.

<i>Influenza type</i>	<i>Current week 11 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.3)
<i>Influenza A (H3)</i>	0 (0.0)	188 (4.4)
<i>Influenza A no subtyping</i>	164 (75.6)	3412 (80.0)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.3)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.3)
<i>Influenza B no genotyping</i>	53 (24.4)	630 (14.8)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

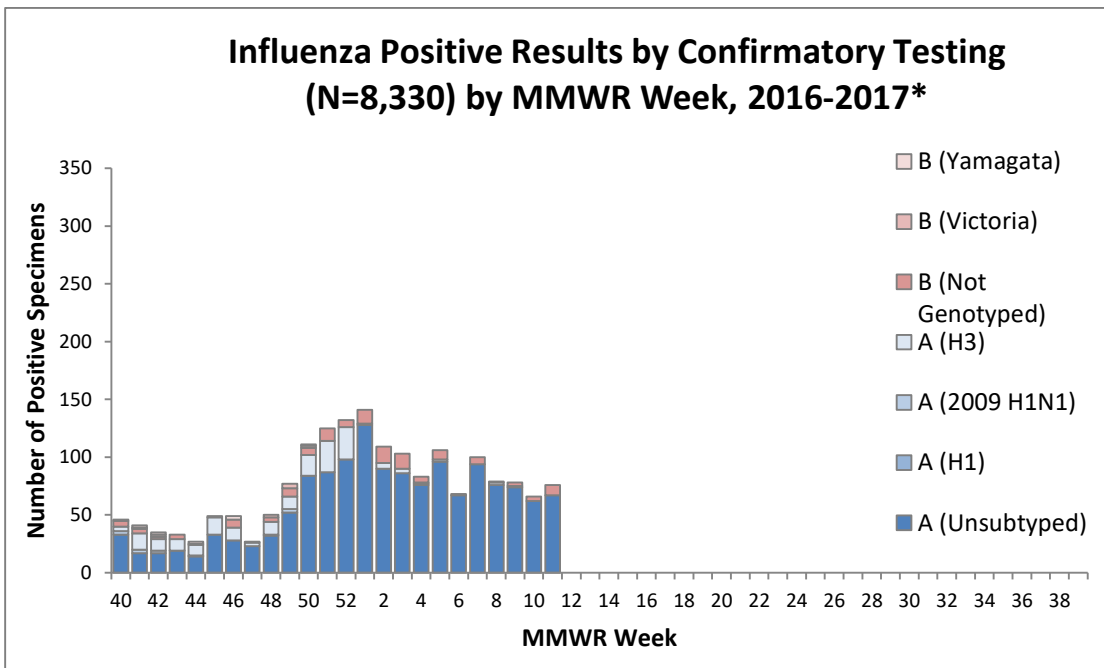
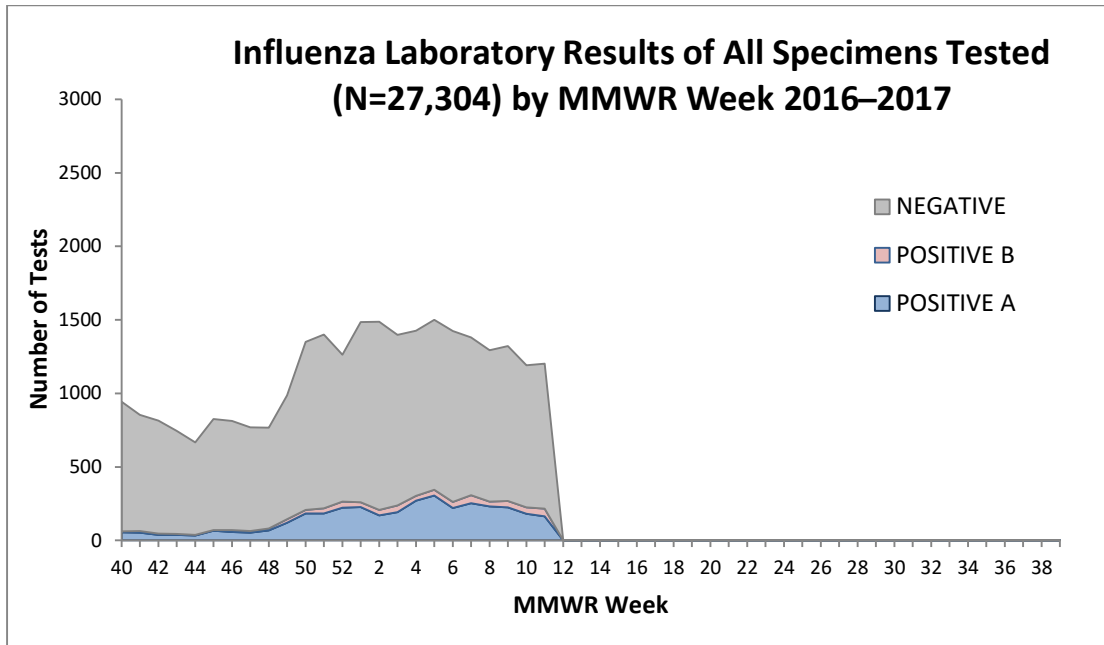


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

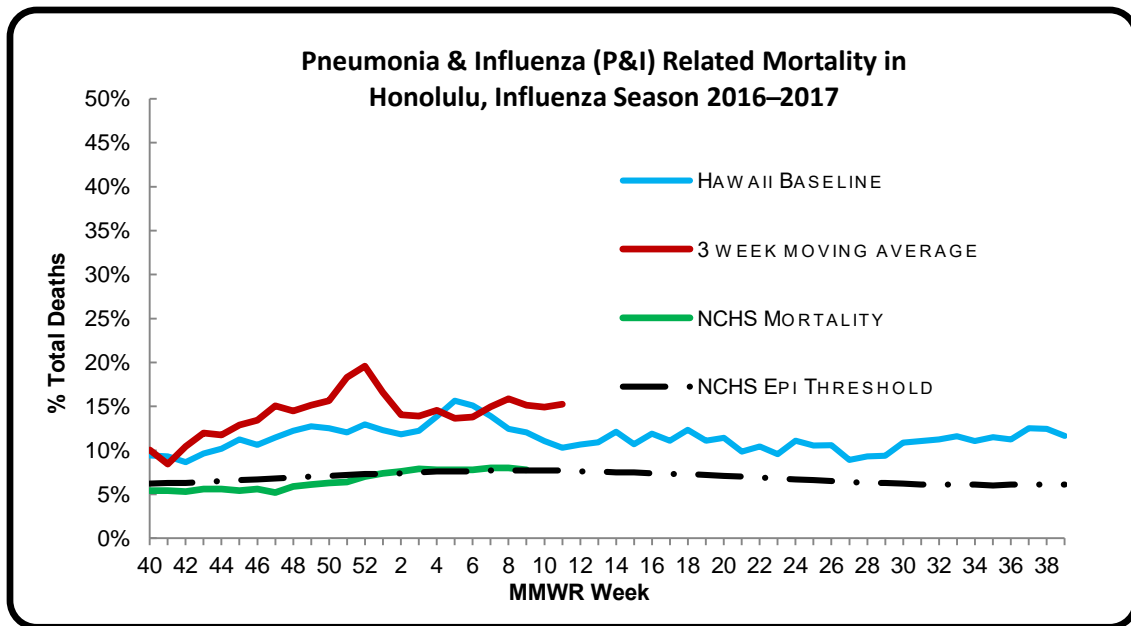


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 13.7% of all deaths that occurred in Honolulu during week 11 were related to pneumonia or influenza. For the current season (season to date: 13.9%), there have been 2,269 deaths from any cause, 316 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 11. Two influenza-associated pediatric deaths were reported to CDC during week 11. Both deaths were associated with an

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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.

influenza A (H3) virus and occurred during weeks 7 and 8 (the weeks ending February 18, and February 25, 2017, respectively). (Season total: 55).

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 **March 16, 2017**. Since the last update, two new laboratory-confirmed human cases of influenza A (H5N1) virus infection were reported to WHO from Egypt. Of the two cases, one fatality was reported. Both cases had contact with domestic birds or sick and dead backyard poultry. Also, 84 laboratory-confirmed human cases of influenza A (H7N9) virus infection were reported to WHO from China. Of the 84 cases, there were at least 12 fatalities. Reported exposures included contact with domestic poultry, live poultry markets, occupational exposure, and contact with a confirmed case.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 12: MARCH 19, 2017–MARCH 25, 2017

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.**

REPORT SNAPSHOT FOR WEEK 12

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.8%	Higher than the previous week. Comparable to Hawaii's historical baseline, the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 35 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	16.7%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	6	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	19.3%	Higher than the previous week. This number means that many, if not all, of the 80.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.8%	

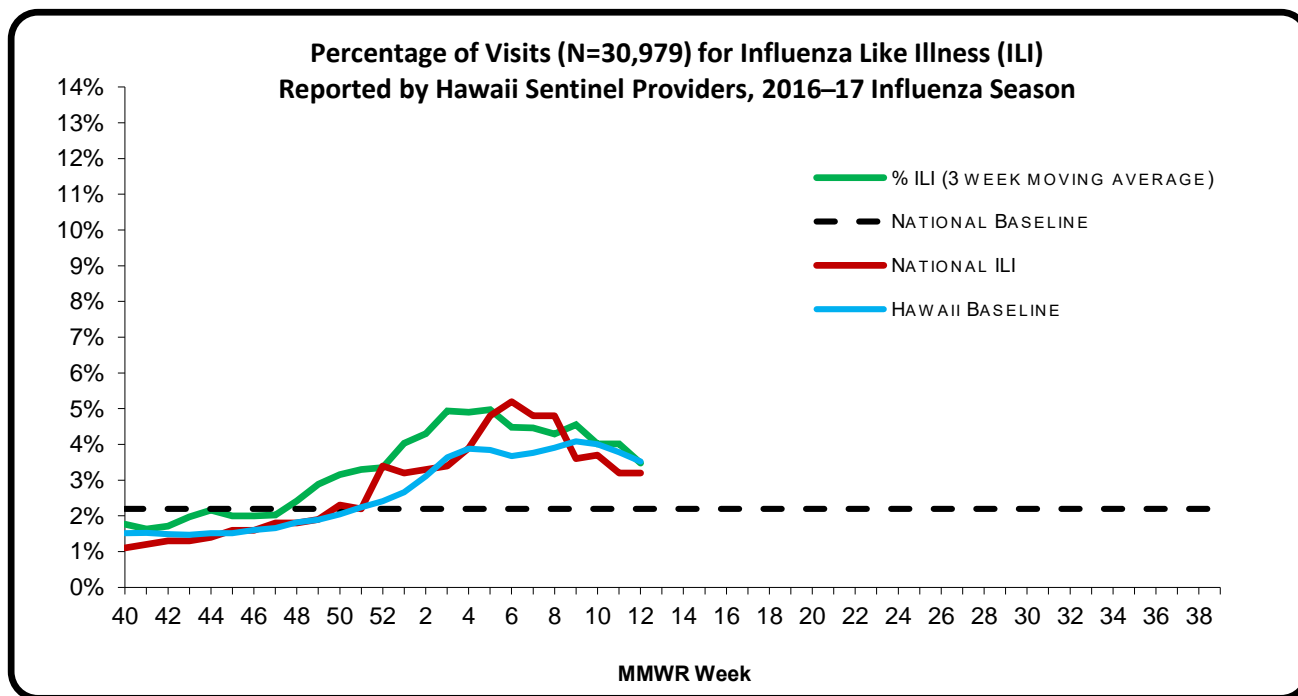
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 3.8% (season to date: 3.3%) 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 (3.2%) (i.e., inside the 95% confidence interval).
- ILI Cluster Activity: One new cluster was reported to HDOH during week 12. This cluster occurred at a long-term care facility on Oahu and contained cases of Influenza A virus.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

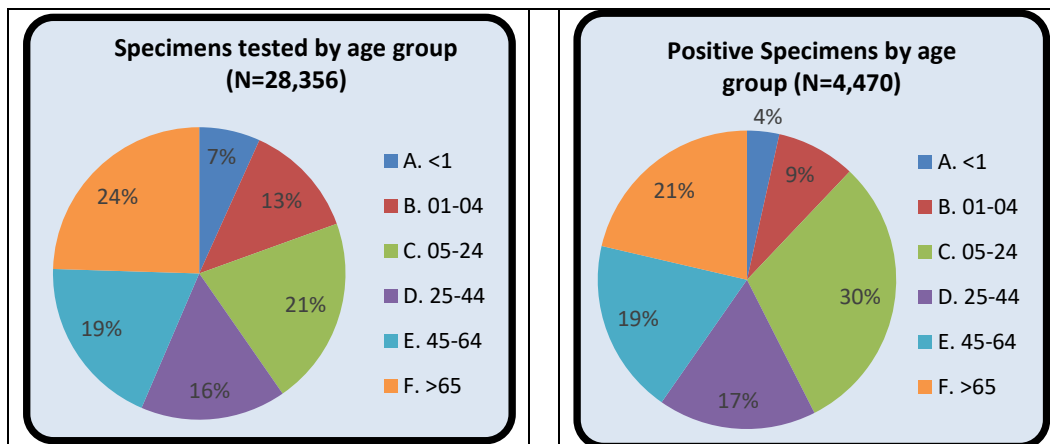
A. INFLUENZA:

- The following reflects laboratory findings for week 12 of the 2016-17 influenza season:
 - A total of **1,052** specimens have been tested statewide for influenza viruses (positive: **203 [19.3%]**). (Season to date: **28,356** tested [**15.8%** positive])
 - 756 (71.9%) were screened only by rapid antigen tests with no confirmatory testing
 - 296 (28.1%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 849 (80.7%) were negative.

<i>Influenza type</i>	<i>Current week 12 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.3)
<i>Influenza A (H3)</i>	0 (0.0)	188 (4.2)
<i>Influenza A no subtyping</i>	156 (76.8)	3568 (79.8)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.3)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.3)
<i>Influenza B no genotyping</i>	47 (23.2)	677 (15.1)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

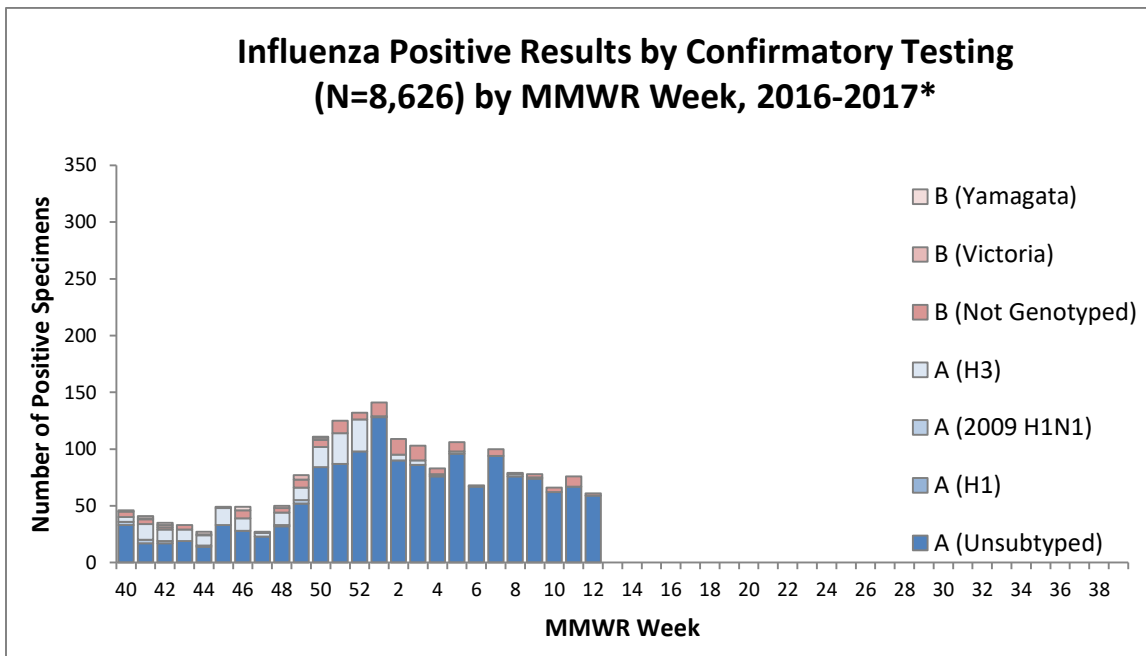
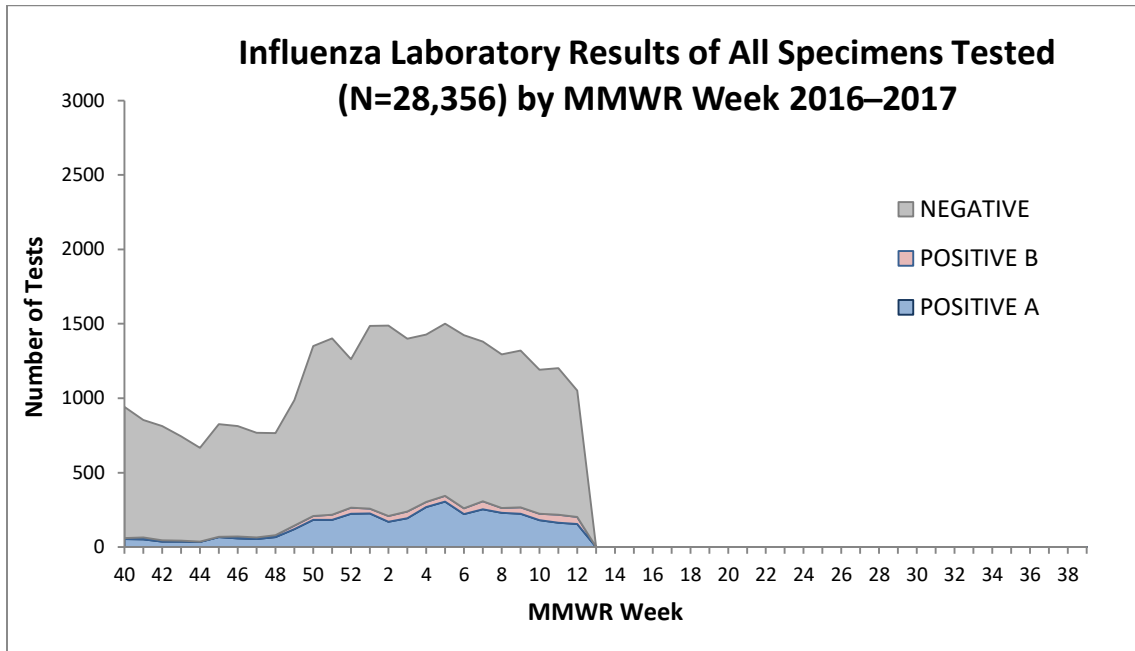


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

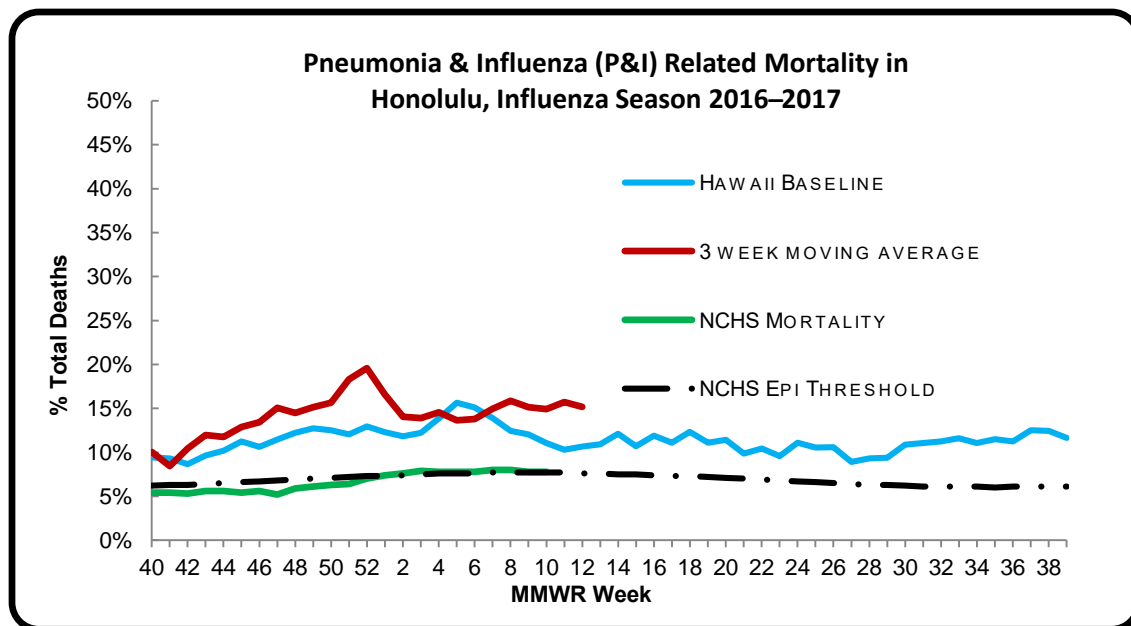


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **16.7%** of all deaths that occurred in Honolulu during week 12 were related to pneumonia or influenza. For the current season (season to date: **14.0%**), there have been 2,359 deaths from any cause, 331 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, six influenza-associated pediatric deaths were reported to CDC during week 12. Three deaths were associated with an influenza A (H3) virus and occurred during weeks 8, 10, and 11 (the weeks ending February 25, March 11, and March 18, 2017, respectively). Two deaths were associated with an influenza A virus for

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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.

which no subtyping was performed and occurred during weeks 8 and 11. One death was associated with influenza B and occurred during week 11. (Season total: 61).

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 **March 16, 2017**.

APPENDIX 1: ADDITIONAL INFORMATION

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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	2013	2014	2015	2016	2017
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 13: MARCH 26, 2017–APRIL 1, 2017

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.**

REPORT SNAPSHOT FOR WEEK 13

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.6%	Lower than the previous week. Comparable to Hawaii's historical baseline, the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 35 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	20.2%	Higher than the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	7	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	16.2%	Lower 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	15.8%	

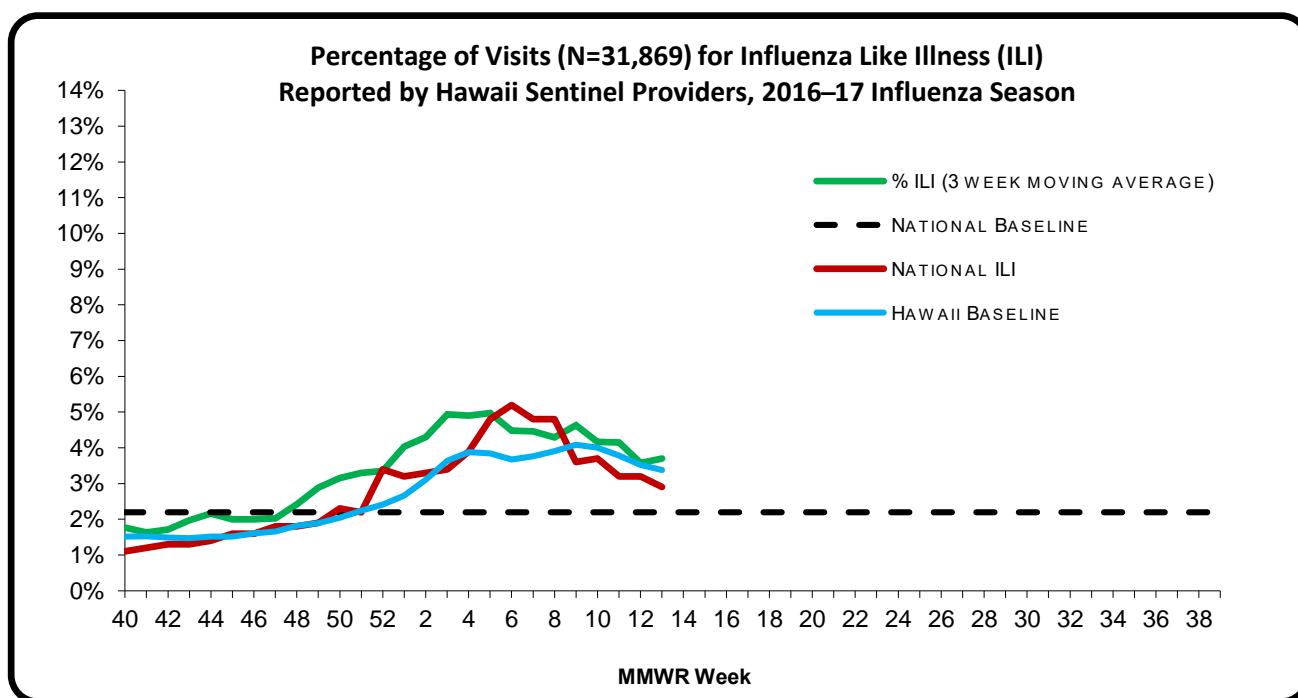
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 3.6% (season to date: 3.3%) 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 (2.9%) (i.e., inside the 95% confidence interval).
- ILI Cluster Activity: No new clusters were reported to HDOH during week 13.



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

² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

may perform viral culture on select specimens). Specimens meeting priority criteria⁵ 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](#)).

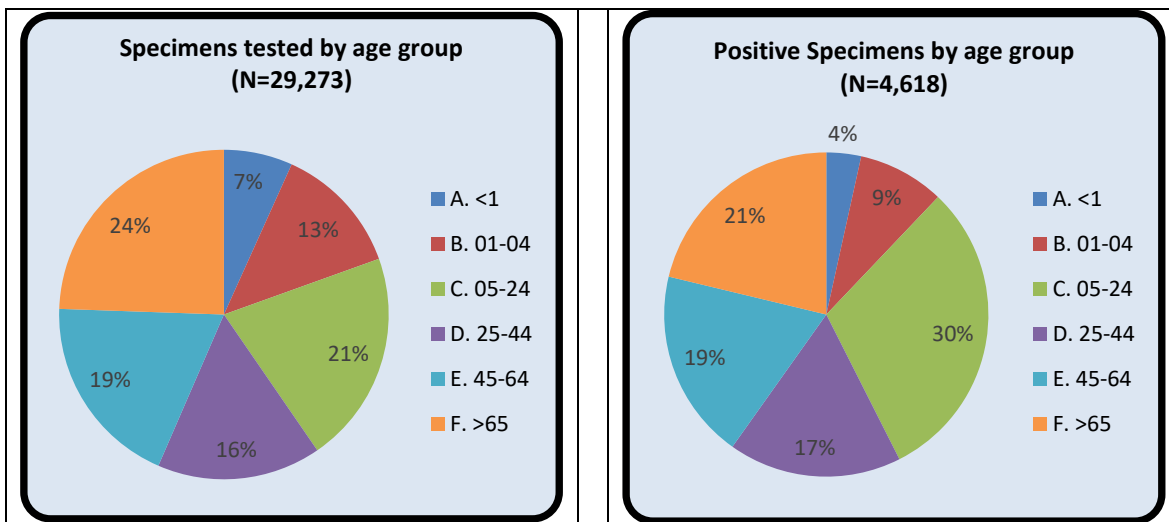
A. INFLUENZA:

- The following reflects laboratory findings for week 13 of the 2016-17 influenza season:
 - A total of **916** specimens have been tested statewide for influenza viruses (positive: **148 [16.2%]**). (Season to date: **29,273** tested [**15.8%** positive])
 - 681 (74.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 235 (25.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 768 (83.8%) were negative.

Influenza type	Current week 13 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	0 (0.0)	188 (4.1)
Influenza A no subtyping	120 (81.1)	3688 (79.9)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.3)
Influenza B no genotyping	28 (18.9)	705 (15.3)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

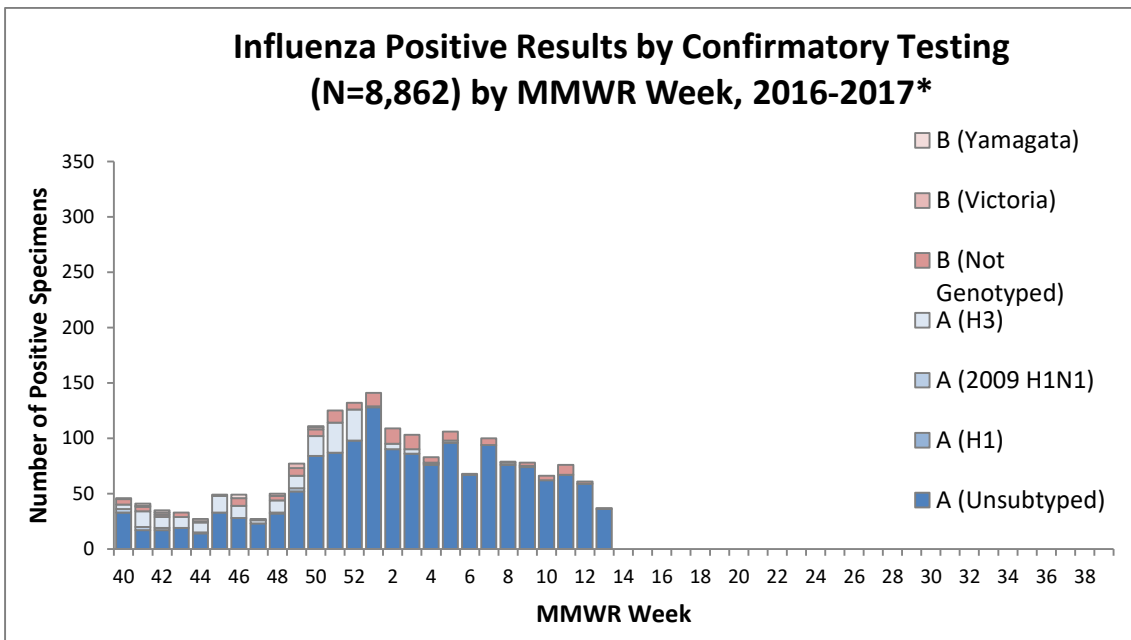
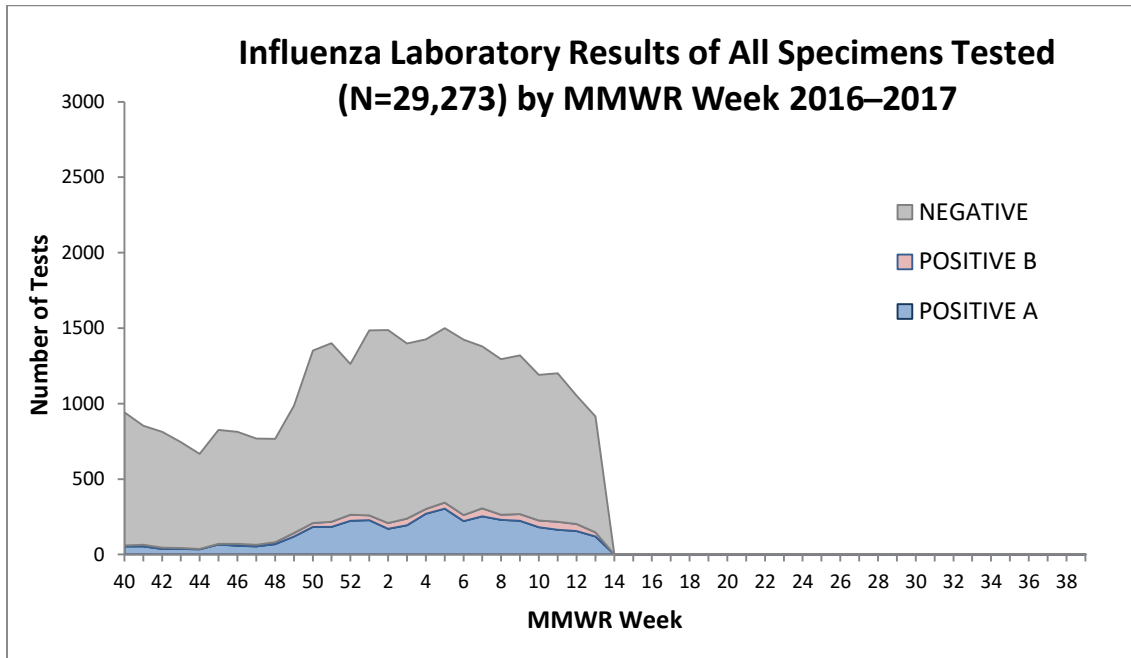


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).

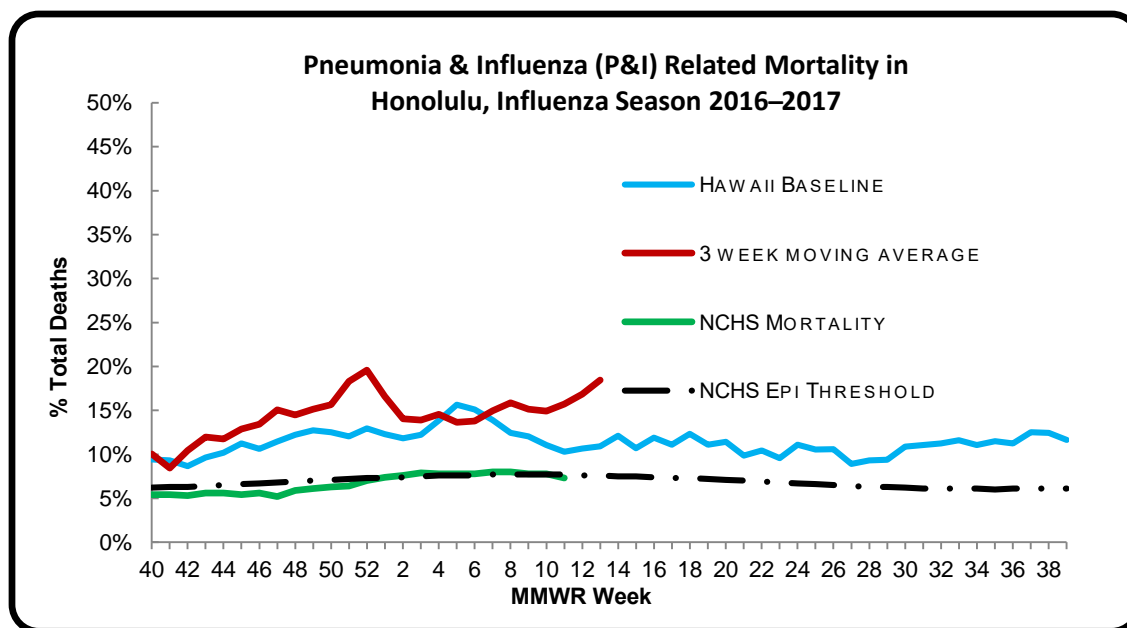


* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY: P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *20.2% of all deaths that occurred in Honolulu during week 13 were related to pneumonia or influenza. For the current season (season to date: 14.2%), there have been 2,443 deaths from any cause, 348 of which were due to P&I.*
- *The P&I rate was higher than the historical baseline in Hawaii⁷ (i.e., outside the 95% confidence interval).*
- *The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, seven influenza-associated pediatric deaths were reported to CDC during week 13. Two deaths were associated with an influenza A (H3) virus and occurred during weeks 50 and 11 (the weeks ending December 17, 2016, and March 18, 2017, respectively). One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 13 (the week ending April 1, 2017). Four deaths were

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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.

associated with an influenza B virus and occurred during weeks 1, 7, 10, and 12 (the weeks ending January 7, February 18, March 11, and March 25, 2017, respectively). (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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
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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: APRIL 2, 2017–APRIL 8, 2017

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.**

REPORT SNAPSHOT FOR WEEK 14

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.7%	Higher than the previous week. Comparable to Hawaii's historical baseline, the national ILI rate, and higher than the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 35 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	12.3%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	5	

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	15.7%	

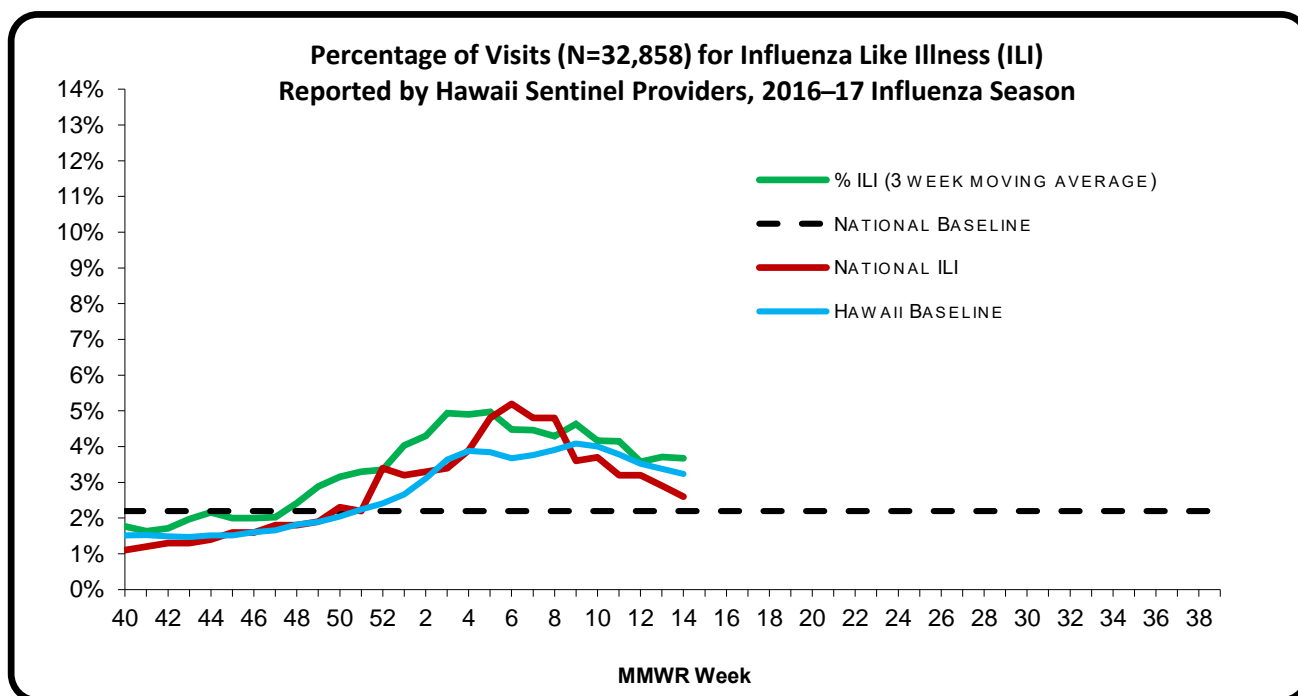
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 3.7% (season to date: 3.3%) 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 higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and comparable to the national ILI rate (2.6%) (i.e., inside the 95% confidence interval).
- ILI Cluster Activity: No new clusters were reported to HDOH during week 14.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

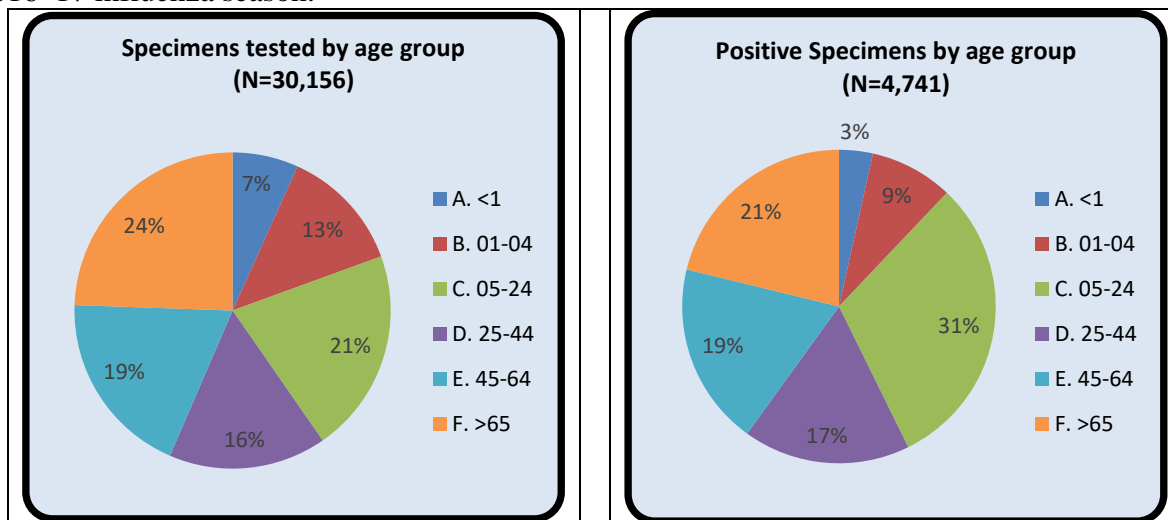
A. INFLUENZA:

- The following reflects laboratory findings for week 14 of the 2016-17 influenza season:
 - A total of 885 specimens have been tested statewide for influenza viruses (positive: 123 [13.9%]). (Season to date: 30,156 tested [15.7% positive])
 - 647 (73.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 238 (26.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 762 (86.1%) were negative.

Influenza type	Current week 14 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	0 (0.0)	188 (4.0)
Influenza A no subtyping	88 (71.5)	3776 (79.6)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.3)
Influenza B no genotyping	35 (28.5)	740 (15.6)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

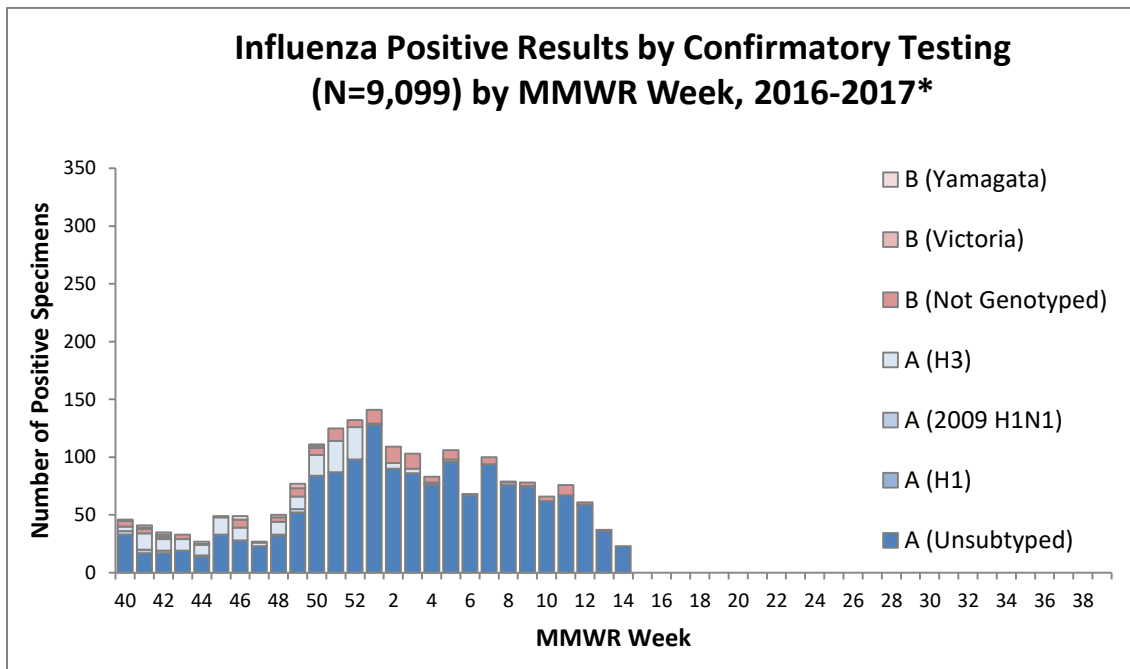
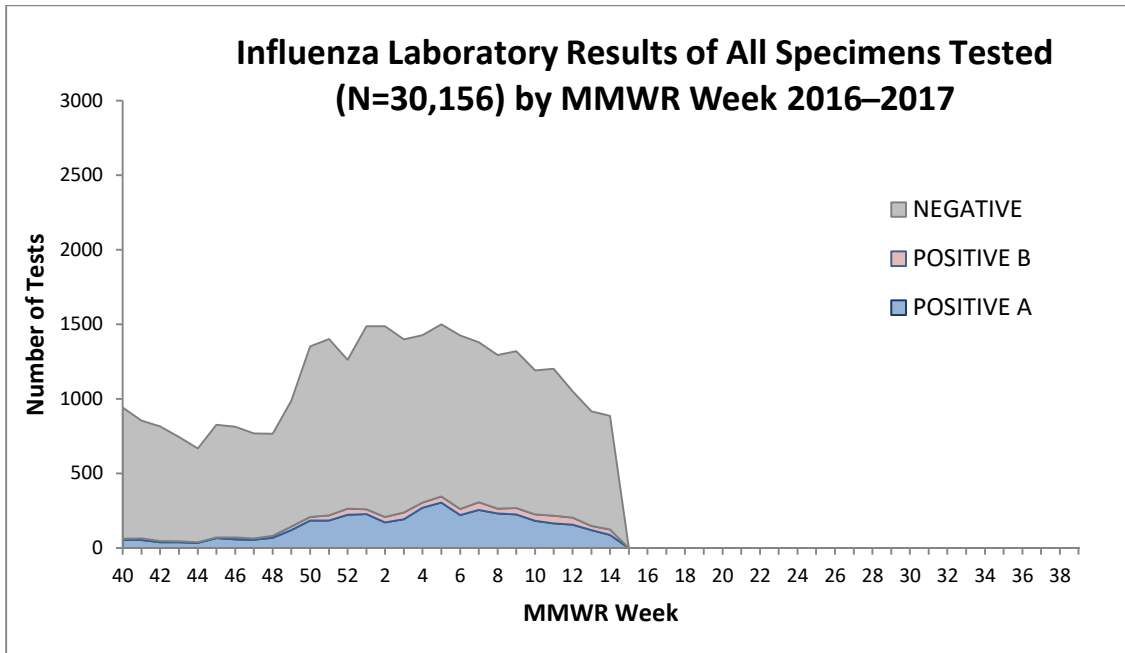


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



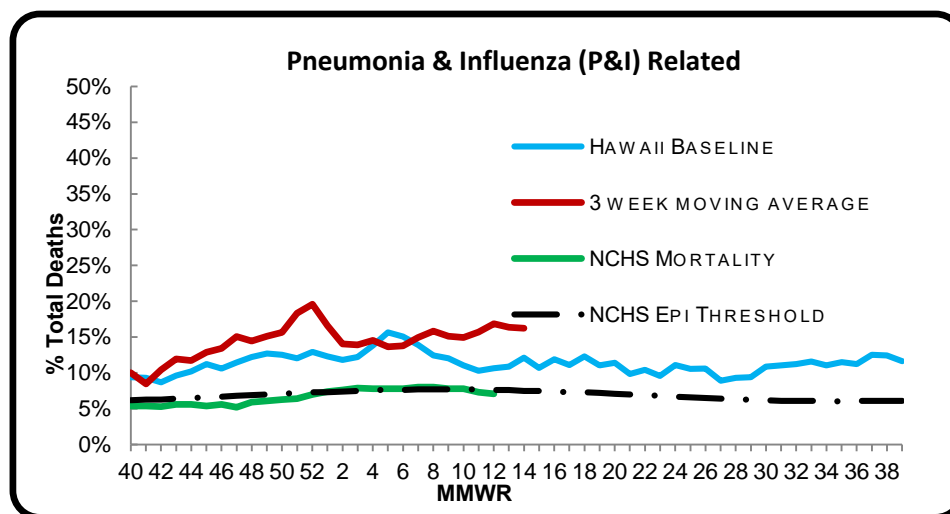
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *12.3% of all deaths that occurred in Honolulu during week 14 were related to pneumonia or influenza. For the current season (season to date: 14.2%), there have been 2,557 deaths from any cause, 362 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, five influenza-associated pediatric deaths were reported to CDC during week 14. Three deaths were associated with an influenza A (H3) virus and occurred during weeks 12 and 13 (the weeks ending March 25, and April 1, 2017, respectively). One death was associated with an influenza B virus and occurred during week 14 (the week ending April 8, 2017). One influenza-associated pediatric death that occurred during the 2010–2011 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 pediatric deaths occurring during that season to 124. (Season total: 72).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14).

⁸ 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.

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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 20, 2017**. Since the previous update, no new laboratory-confirmed human cases of influenza A(H5) infection were reported to WHO. However, 86 laboratory-confirmed human cases of influenza A(H7N9) were reported from China. Of the 86 cases, there were at least 9 fatalities. Reported exposures included contact with domestic poultry, live poultry markets and occupational exposure. Additionally, one new laboratory-confirmed human case of influenza A(H9N2) was reported to WHO, also from China. The case was an 11-month old patient with exposure to backyard poultry. This was the first human case of influenza A (H9N2) reported since December 2016.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 15: APRIL 9, 2017–APRIL 15, 2017

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.**

REPORT SNAPSHOT FOR WEEK 15

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.1%	Lower than the previous week. Comparable to Hawaii's historical baseline, the national ILI rate, and the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 35 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	10.1%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	5	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	12.1%	Lower than the previous week. This number means that many, if not all, of the 87.9% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.5%	

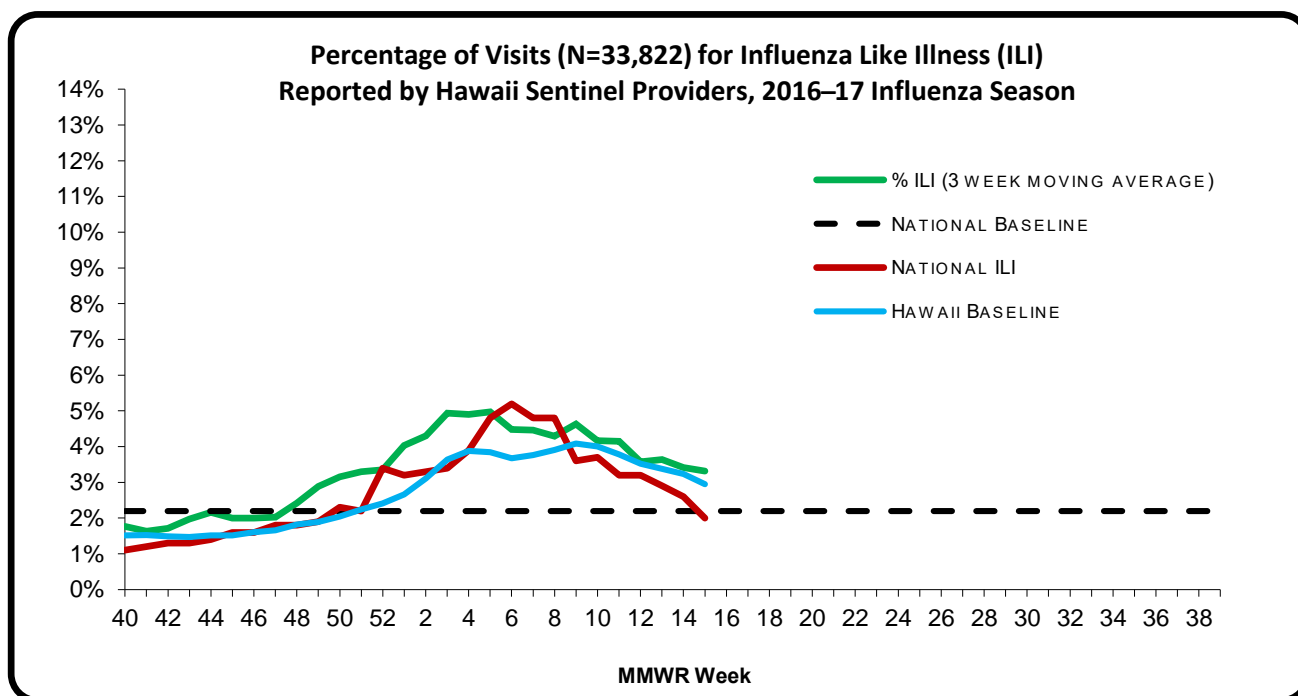
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **3.1%** (season to date: **3.3%**) 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 (2.0%) (i.e., inside the 95% confidence interval).
- *ILI Cluster Activity:* No new clusters were reported to HDOH during week 15.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

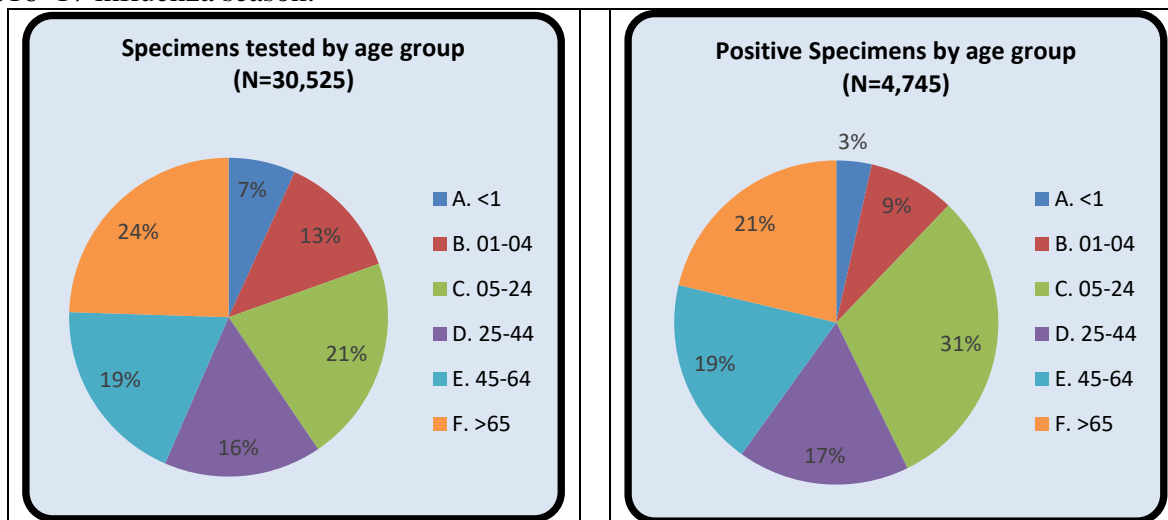
A. INFLUENZA:

- The following reflects laboratory findings for week 15 of the 2016-17 influenza season:
 - A total of 821 specimens have been tested statewide for influenza viruses (positive: 99 [12.1%]). (Season to date: 30,525 tested [15.5% positive])
 - 596 (72.6%) were screened only by rapid antigen tests with no confirmatory testing
 - 225 (27.4%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 722 (87.9%) were negative.

Influenza type	Current week 15 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	1 (1.0)	188 (4.0)
Influenza A no subtyping	70 (70.7)	3768 (79.4)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.3)
Influenza B no genotyping	28 (28.3)	752 (15.8)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

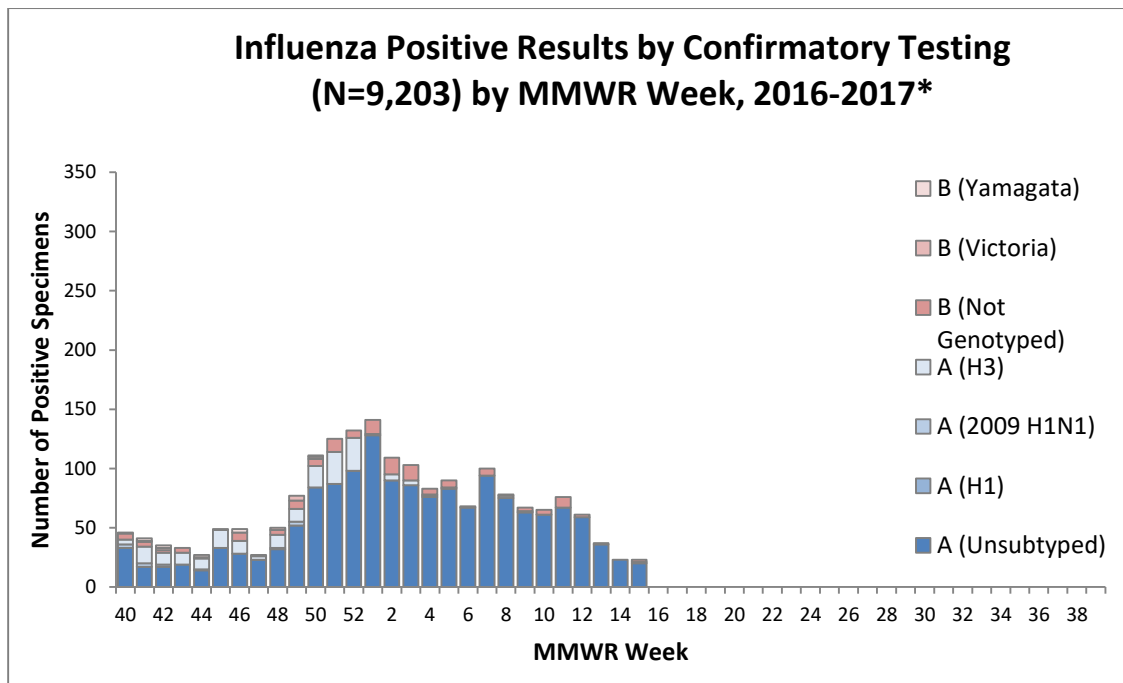
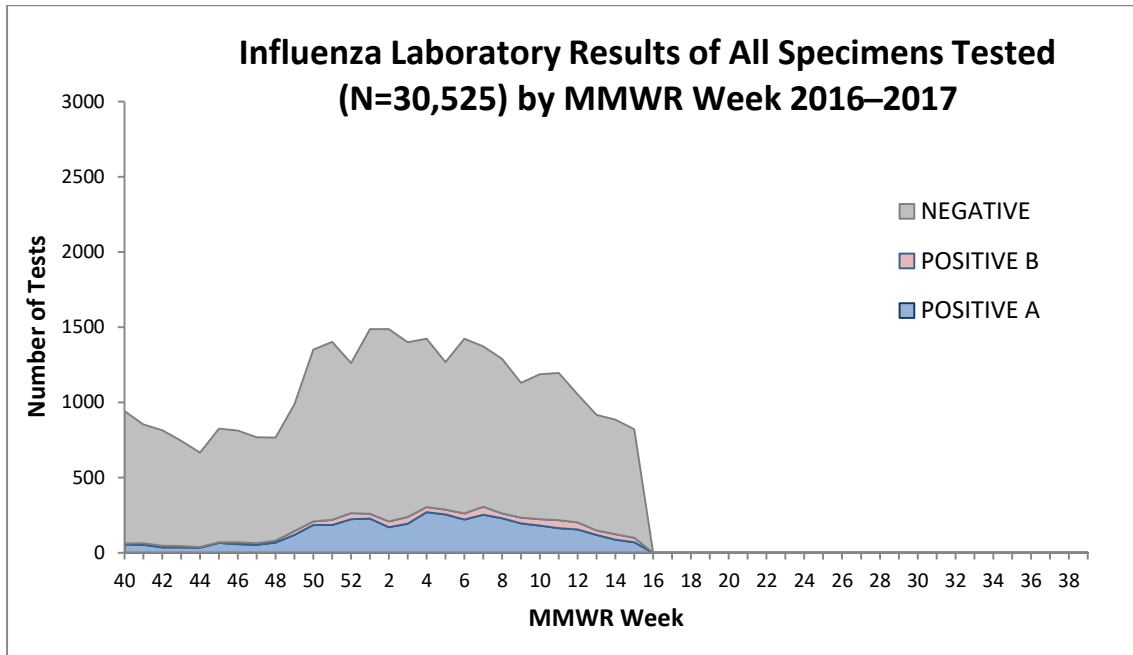


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



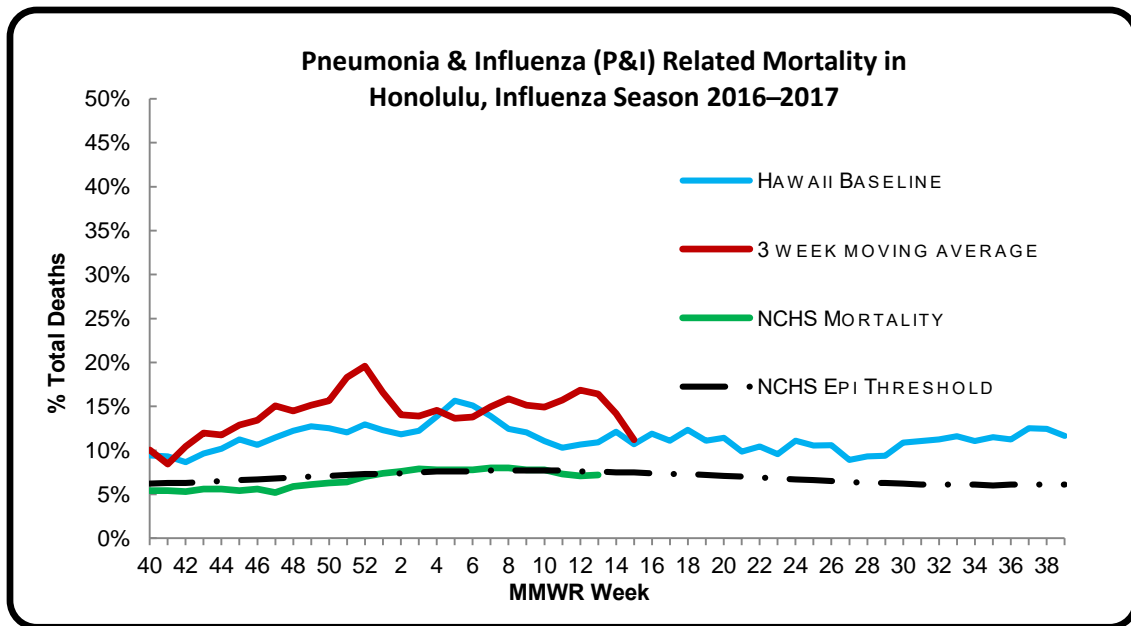
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *10.1% of all deaths that occurred in Honolulu during week 15 were related to pneumonia or influenza. For the current season (season to date: 14.0%), there have been 2,656 deaths from any cause, 372 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, five influenza-associated pediatric deaths were reported to CDC during week 15. Four deaths were associated with an influenza A (H3) virus and occurred during weeks 10, 14 and 15 (the weeks ending March 11, April 8, and April 15, 2017, respectively). One death was associated with an influenza B virus and occurred during week 48 (the week ending December 3, 2016). (Season total: 77).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *One human infection with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, has been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 20, 2017**.

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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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21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
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26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
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34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
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45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 16: APRIL 16, 2017–APRIL 22, 2017

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.**

REPORT SNAPSHOT FOR WEEK 16

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	3.5%	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	0	There have been 35 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	9.2%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	6	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	9.2%	Lower than the previous week. This number means that many, if not all, of the 90.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.5%	

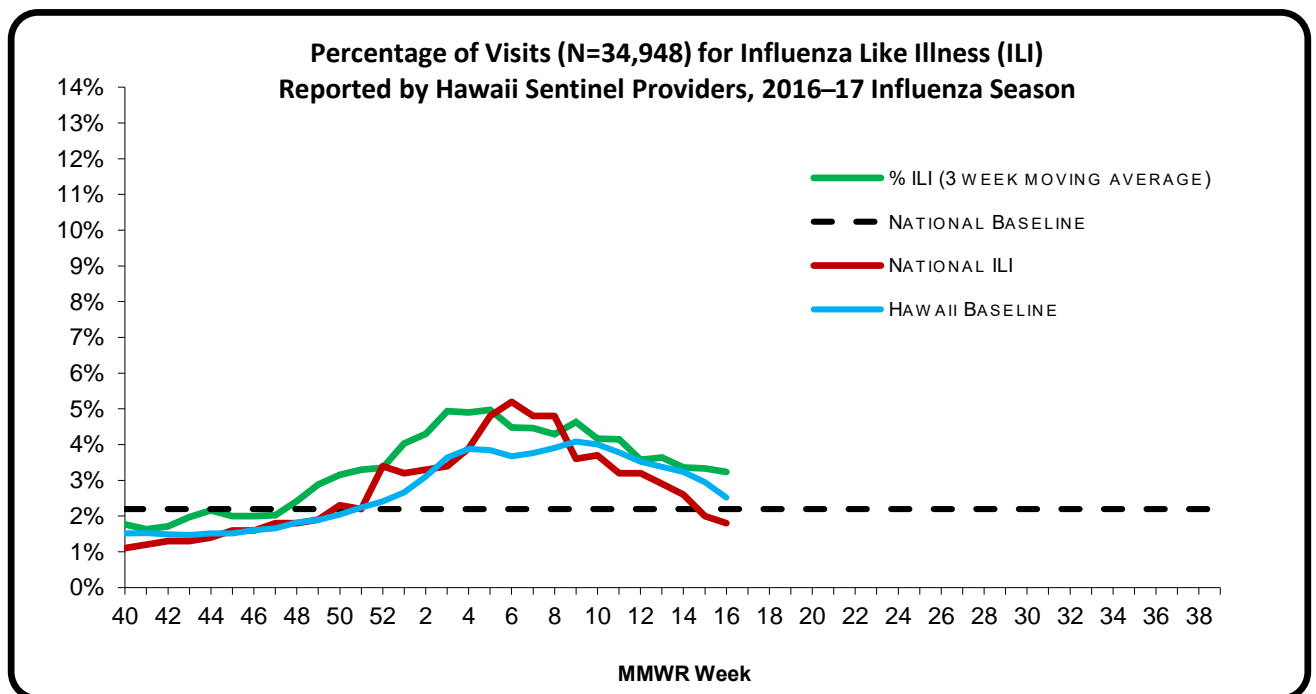
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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 16** of the current influenza season:

- **3.5%** (season to date: **3.3%**) 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 higher than the national baseline (2.2%)⁴ (i.e., outside the 95% confidence interval) and higher than the national **ILI** rate (1.8%) (i.e., outside the 95% confidence interval).
- **ILI Cluster Activity:** No new clusters were reported to HDOH during week 16.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

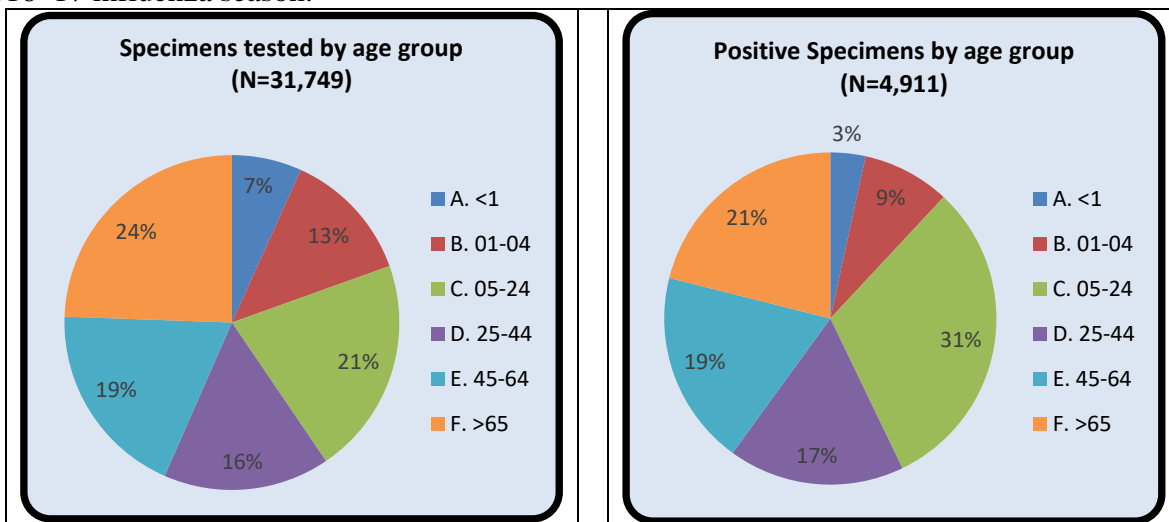
A. INFLUENZA:

- The following reflects laboratory findings for week 16 of the 2016-17 influenza season:
 - A total of 771 specimens have been tested statewide for influenza viruses (positive: 71 [9.2%]). (Season to date: 31,749 tested [15.5% positive])
 - 551 (71.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 220 (28.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 700 (90.8%) were negative.

Influenza type	Current week 16 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	1 (1.4)	190 (3.9)
Influenza A no subtyping	41 (57.7)	3887 (79.1)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.2)
Influenza B no genotyping	29 (40.8)	797 (16.2)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

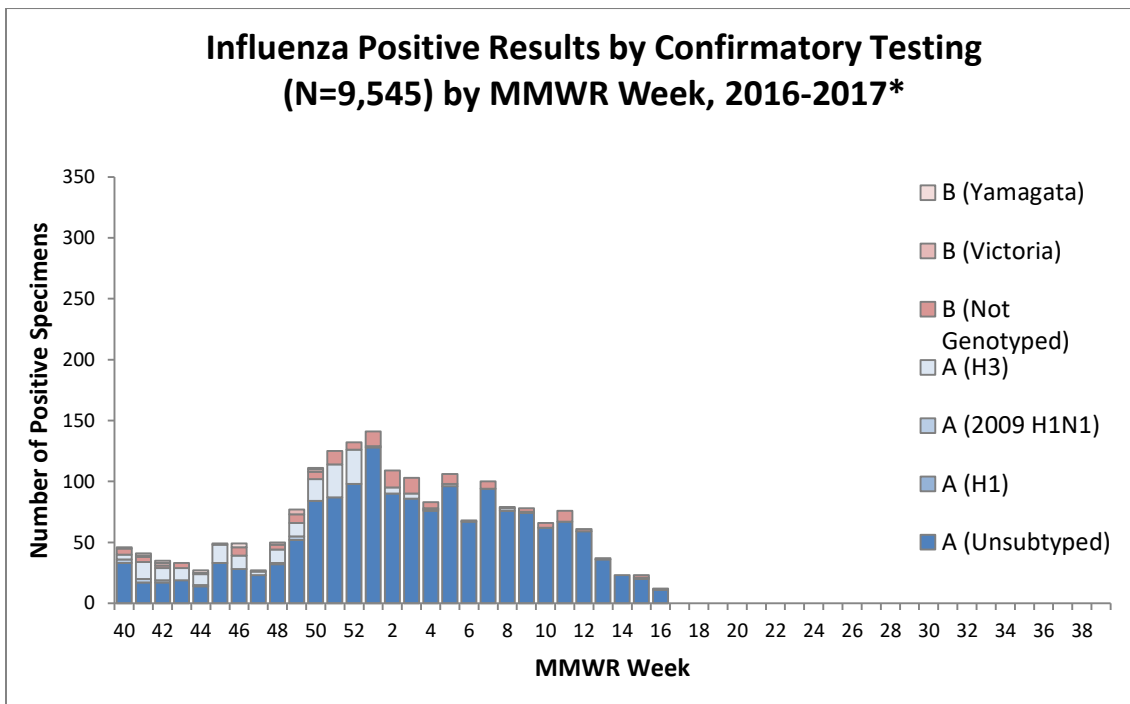
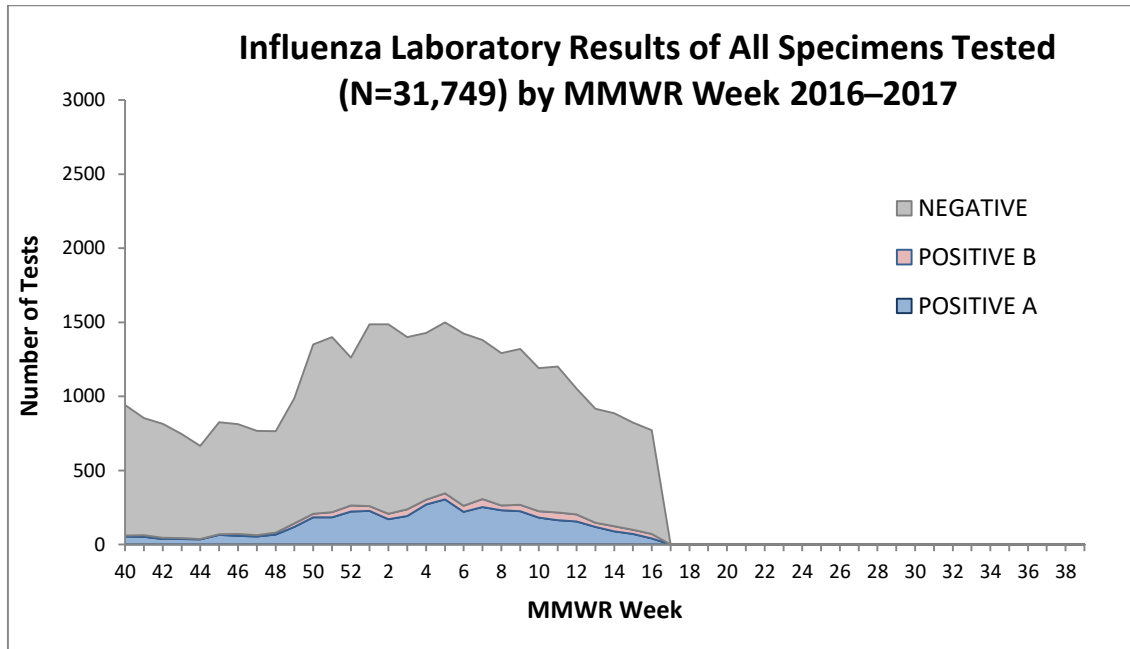


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



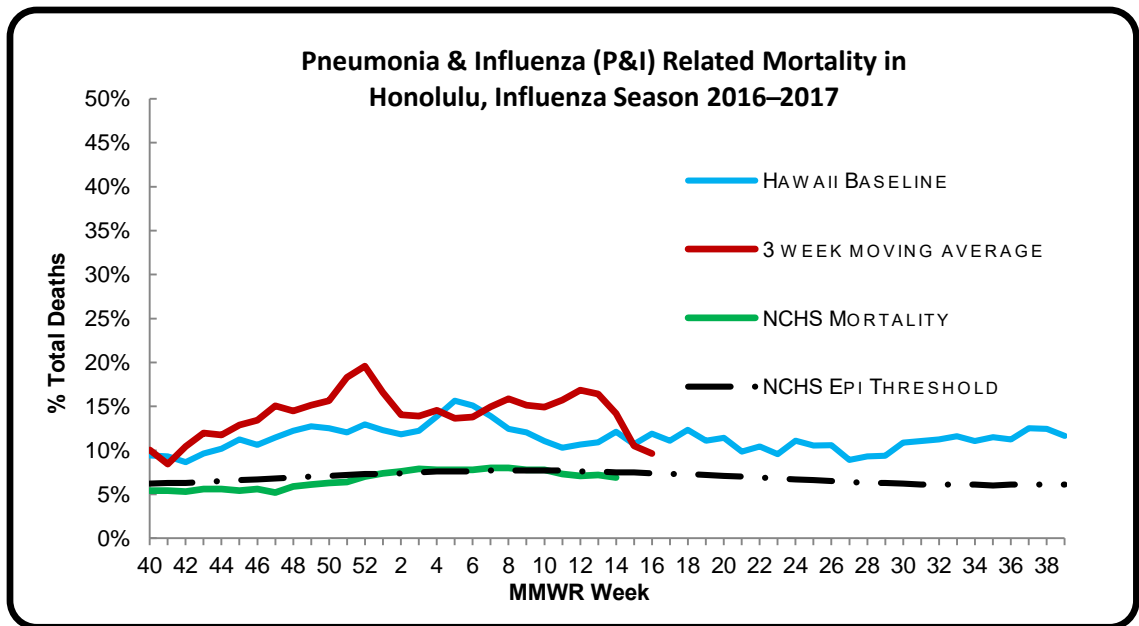
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **9.2%** of all deaths that occurred in Honolulu during week 16 were related to pneumonia or influenza. For the current season (season to date: **13.9%**), there have been 2,743 deaths from any cause, 380 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, six influenza-associated pediatric deaths were reported to CDC during week 16. One death was associated with influenza A (H3) virus and occurred during week 6 (the week ending February 11, 2017, respectively). One death was associated with an influenza A virus for which no subtyping was performed and

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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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23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
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32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 17: APRIL 23, 2017–APRIL 29, 2017

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.**

REPORT SNAPSHOT FOR WEEK 17

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.5%	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 36 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	10.9%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	10	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	7.3%	Lower than the previous week. This number means that many, if not all, of the 92.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.3%	

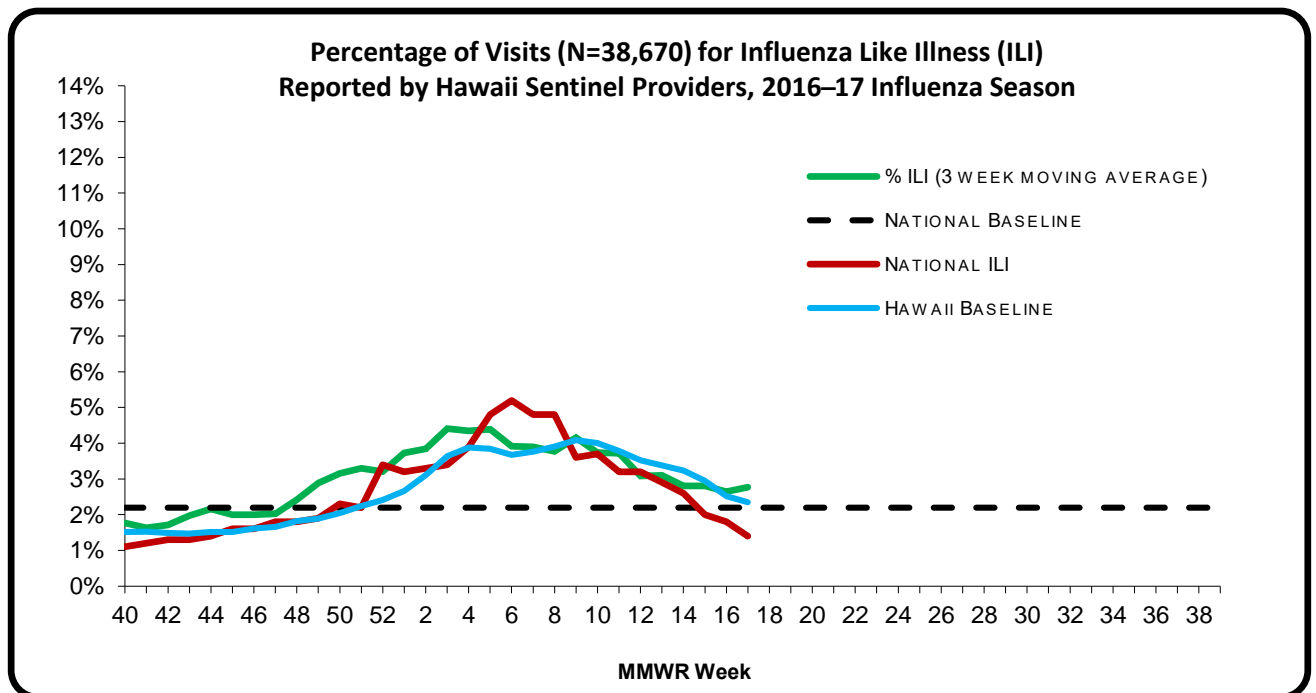
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **2.5%** (season to date: **3.1%**) 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 (1.4%) (i.e., outside the 95% confidence interval).
- **ILI Cluster Activity:** One new cluster was reported to HDOH during week 17. This cluster occurred at a school on Oahu and contained cases of 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

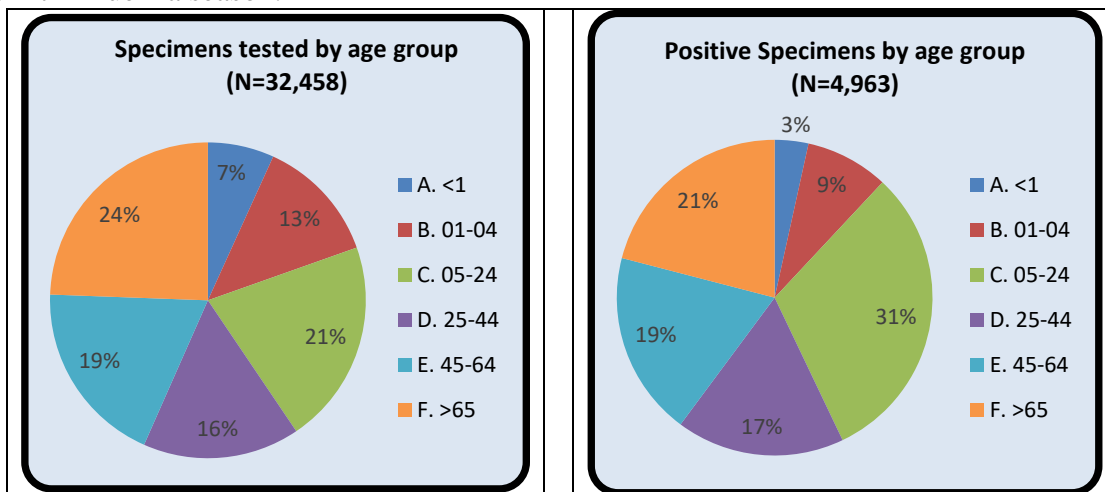
A. INFLUENZA:

- The following reflects laboratory findings for week 17 of the 2016-17 influenza season:
 - A total of 709 specimens have been tested statewide for influenza viruses (positive: 52 [7.3%]). (Season to date: 32,458 tested [15.3% positive])
 - 515 (72.6%) were screened only by rapid antigen tests with no confirmatory testing
 - 194 (27.4%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 657 (92.7%) were negative.

Influenza type	Current week 17 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	1 (1.9)	191 (3.8)
Influenza A no subtyping	30 (57.7)	3917 (78.9)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.2)
Influenza B no genotyping	21 (40.4)	818 (16.5)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

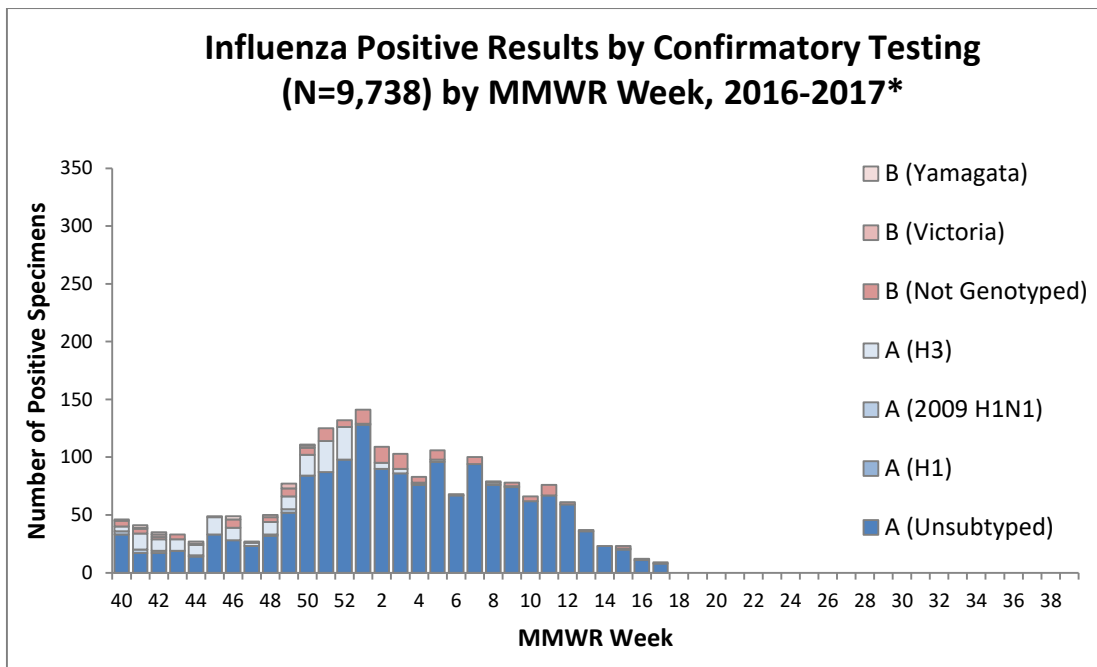
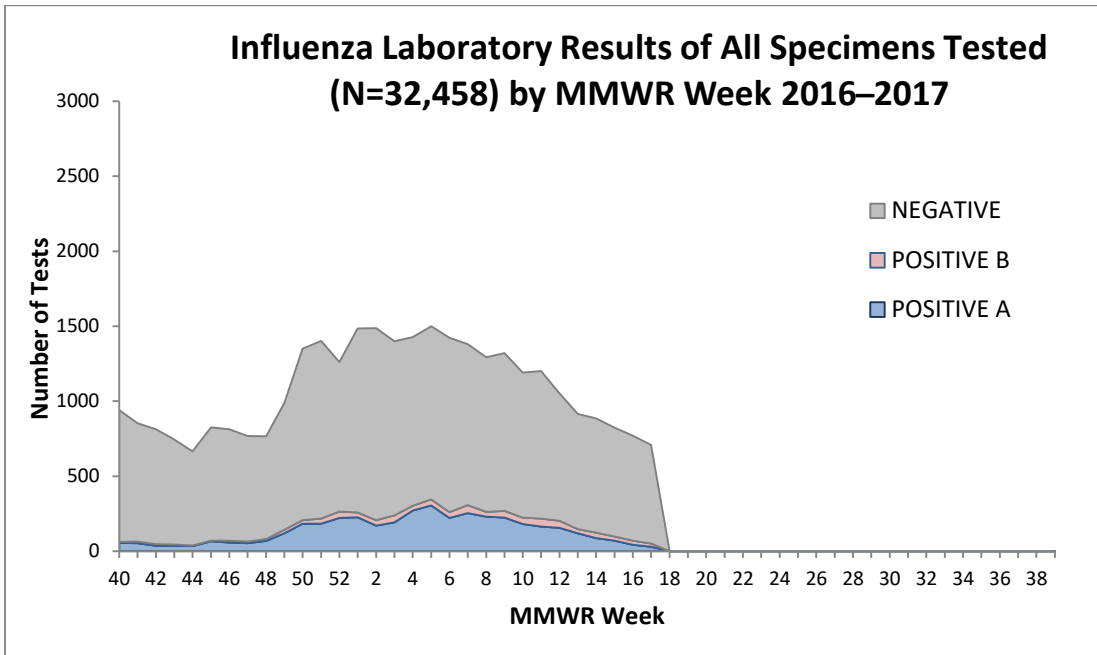


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



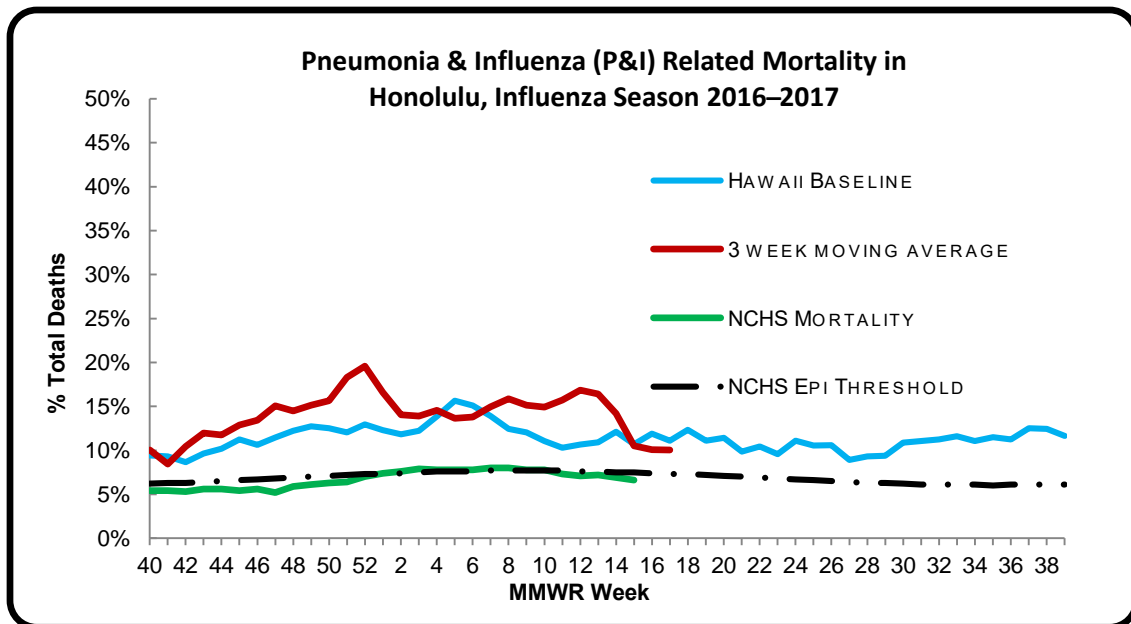
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **10.9%** of all deaths that occurred in Honolulu during week 17 were related to pneumonia or influenza. For the current season (season to date: **13.7%**), there have been 2,853 deaths from any cause, 392 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, ten influenza-associated pediatric deaths were reported to CDC during week 17. One death was associated with an influenza A (H3) virus and occurred during week 17 (the week ending April 29, 2017). One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 10 (the week ending March 11, 2017). Five deaths were associated with an influenza B virus and

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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.

occurred during weeks 7, 15, and 16 (the weeks ending February 18, April 15, and April 22, 2017, respectively). One death that was reported earlier this season was reclassified by the reporting jurisdiction.

Three influenza-associated pediatric deaths that occurred during the 2015-2016 season were reported to CDC. One death was associated with an influenza A (H1N1)pdm09 virus, one was associated with an influenza A virus for which no subtyping was performed, and one was associated with an influenza B virus. (Season total: 89).

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *Two human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 20, 2017**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
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43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 18: APRIL 30, 2017–MAY 6, 2017

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.**

REPORT SNAPSHOT FOR WEEK 18

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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, higher than the national ILI rate, and comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 36 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	22.6%	Higher than the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	2	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	7.9%	Higher than the previous week. This number means that many, if not all, of the 92.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.1%	

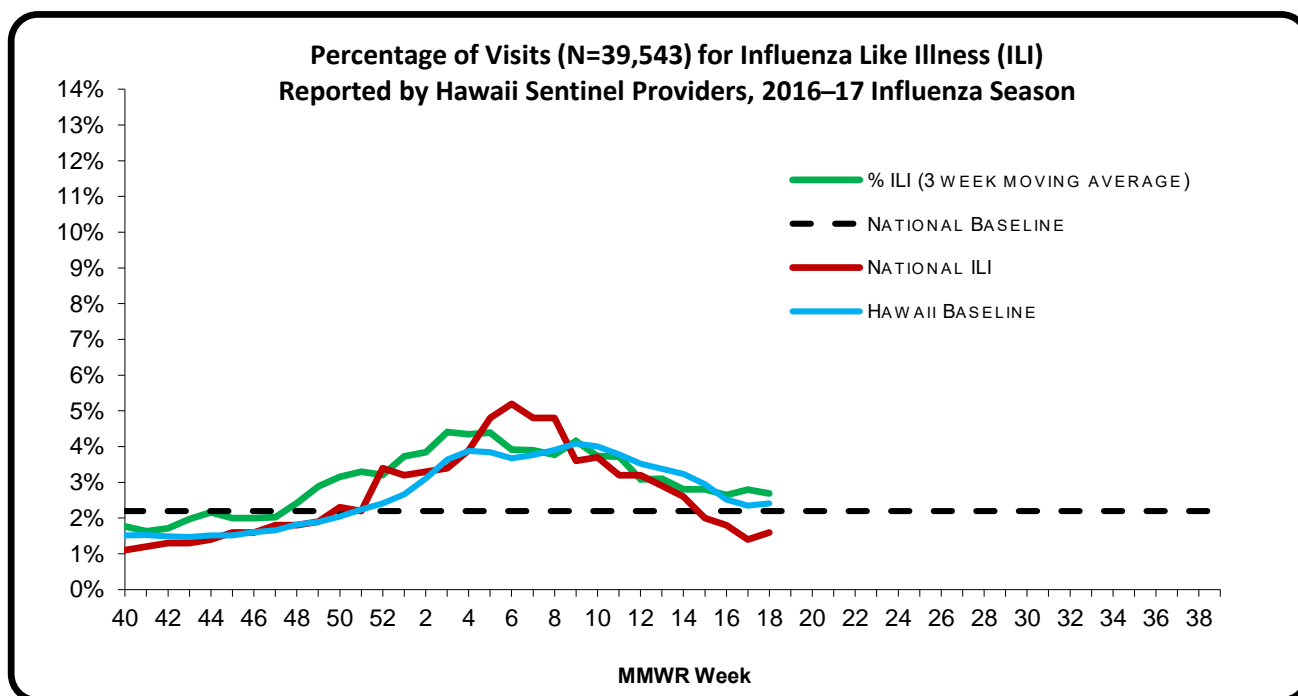
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INFLUENZA SURVEILLANCE

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 18 of the current influenza season:

- **2.9%** (season to date: **3.1%**) 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 (1.6%) (i.e., outside the 95% confidence interval).
- **ILI Cluster Activity:** No new clusters were reported to HDOH during week 18.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

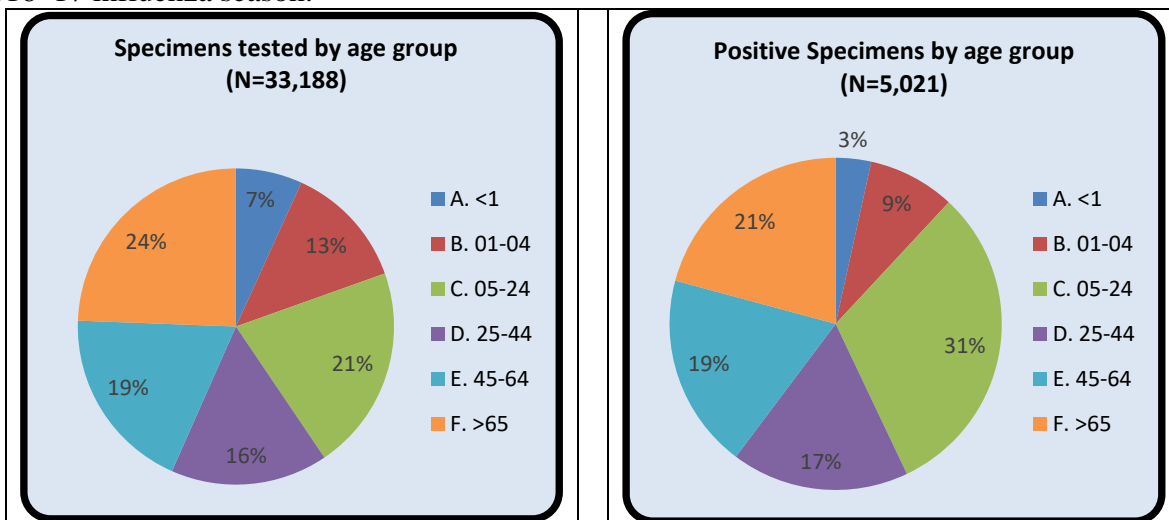
A. INFLUENZA:

- The following reflects laboratory findings for week 18 of the 2016-17 influenza season:
 - A total of 730 specimens have been tested statewide for influenza viruses (positive: 58 [7.9%]). (Season to date: 33,188 tested [15.1% positive])
 - 507 (69.5%) were screened only by rapid antigen tests with no confirmatory testing
 - 223 (30.5%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 672 (92.1%) were negative.

Influenza type	Current week 18 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	1 (1.7)	192 (3.8)
Influenza A no subtyping	38 (65.5)	3955 (78.8)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.2)
Influenza B no genotyping	19 (32.8)	837 (16.7)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

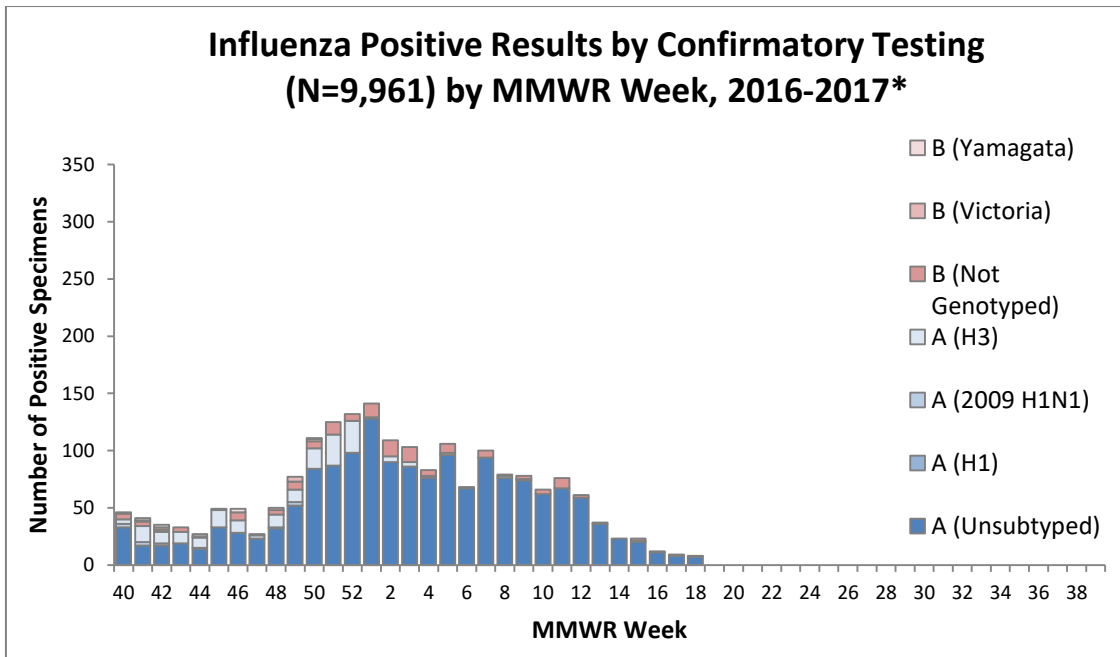
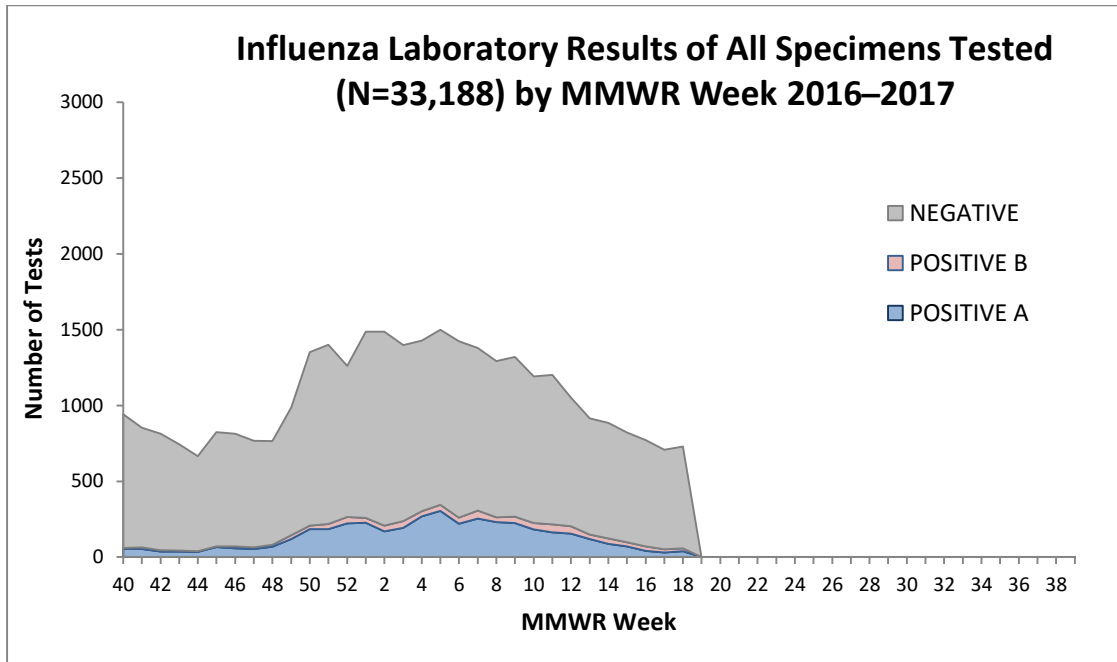


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



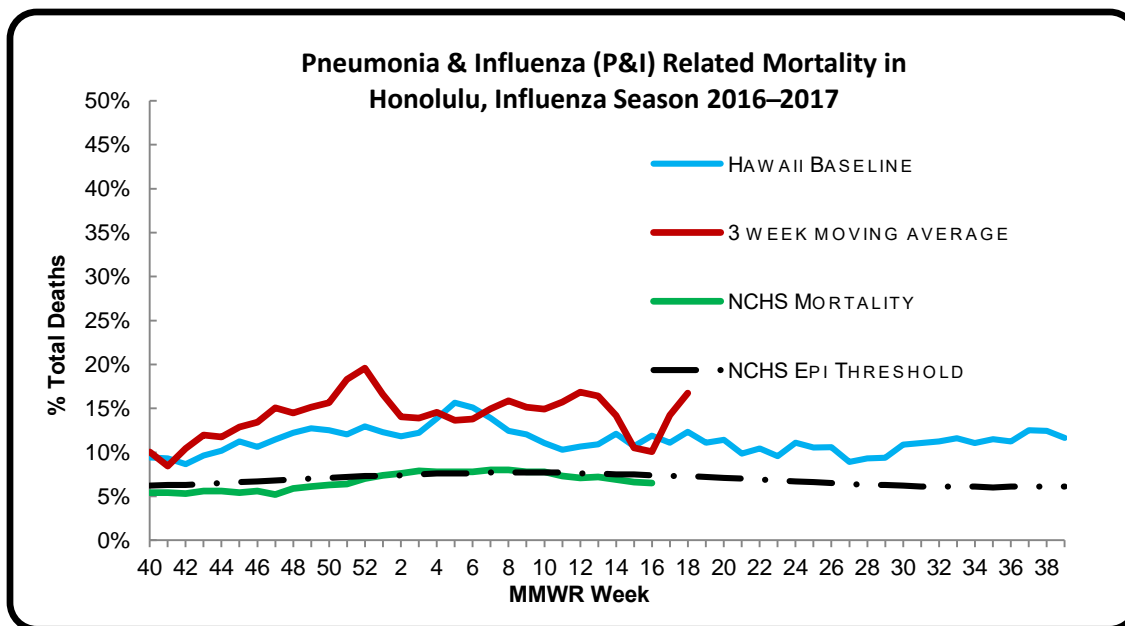
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **22.6%** of all deaths that occurred in Honolulu during week 18 were related to pneumonia or influenza. For the current season (season to date: **14.0%**), there have been 2,946 deaths from any cause, 413 of which were due to P&I.
- The P&I rate was higher than the historical baseline in Hawaii⁷ (i.e., outside the 95% confidence interval).
- The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 18. One death was associated with an influenza A (H1N1)pdm09 virus and occurred during week 17 (the week ending April 29,

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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.

2017). One death was associated with an influenza B virus and occurred during week 14 (the week ending April 8, 2017). (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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *Two human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 20, 2017**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
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42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
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45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 19: MAY 7, 2017–MAY 13, 2017

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.**

REPORT SNAPSHOT FOR WEEK 19

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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 comparable to the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 37 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	9.9%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	1	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	7.8%	Lower than the previous week. This number means that many, if not all, of the 92.2% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	15.0%	

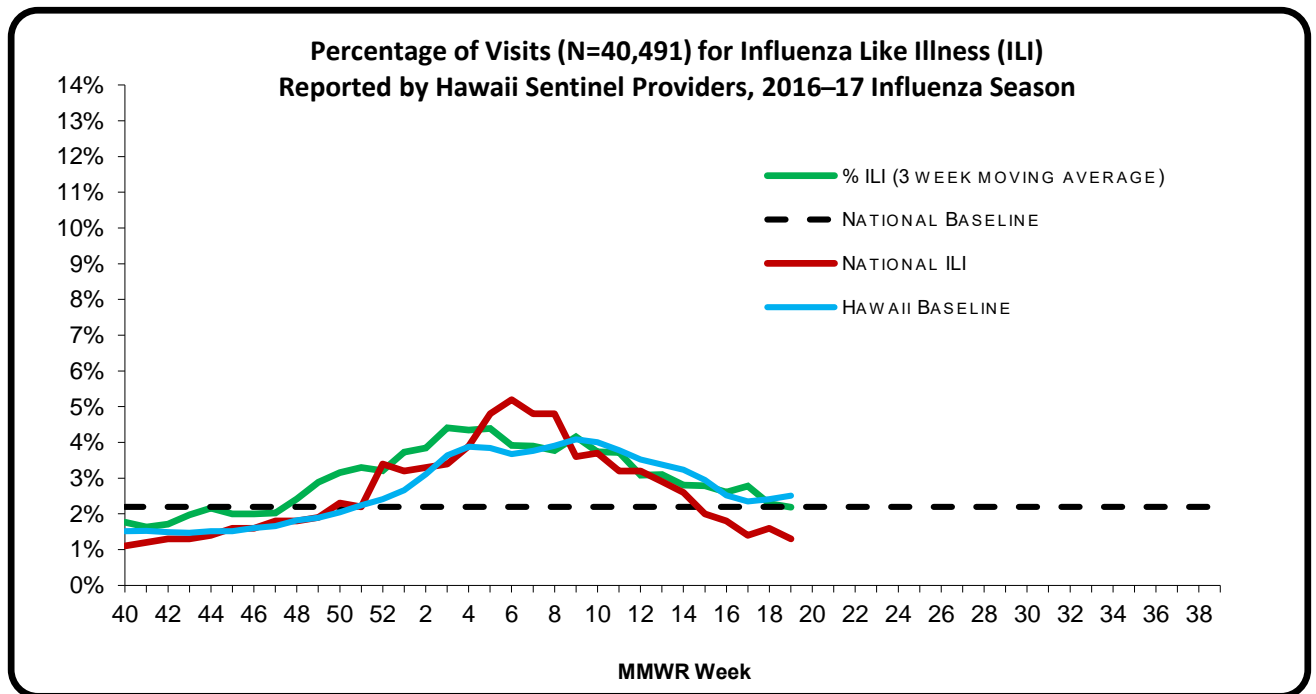
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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: **3.0%**) 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 (1.3%) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** One new cluster was reported to HDOH during week 19. This cluster occurred at a long-term care facility on Oahu. This cluster did not have cases of influenza A or B.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

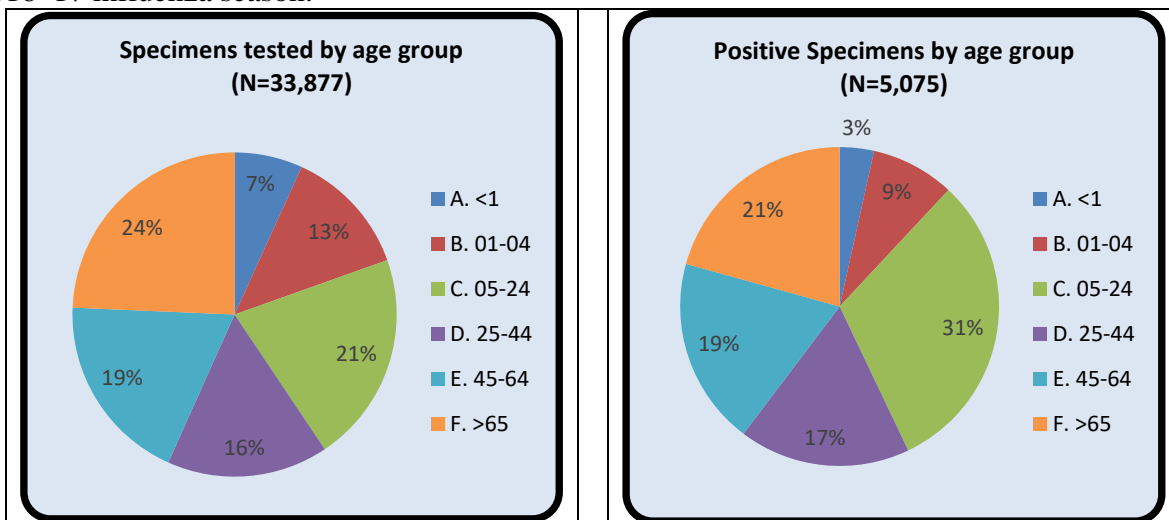
A. INFLUENZA:

- The following reflects laboratory findings for week 19 of the 2016-17 influenza season:
 - A total of **689** specimens have been tested statewide for influenza viruses (positive: **54 [7.8%]**). (Season to date: **33,877** tested [**15.0%** positive])
 - 502 (72.9%) were screened only by rapid antigen tests with no confirmatory testing
 - 187 (27.1%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 635 (92.2%) were negative.

<i>Influenza type</i>	<i>Current week 19 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.3)
<i>Influenza A (H3)</i>	1 (1.9)	193 (3.8)
<i>Influenza A no subtyping</i>	31 (57.4)	3986 (78.5)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	22 (40.7)	859 (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 2016–17 influenza season.

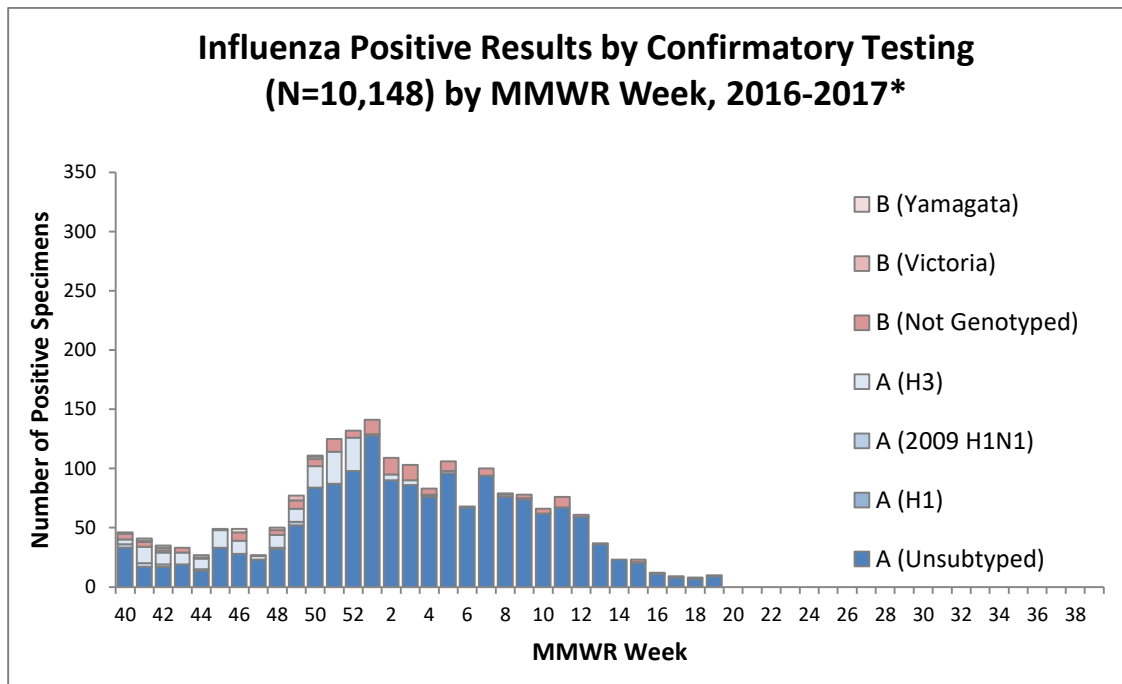
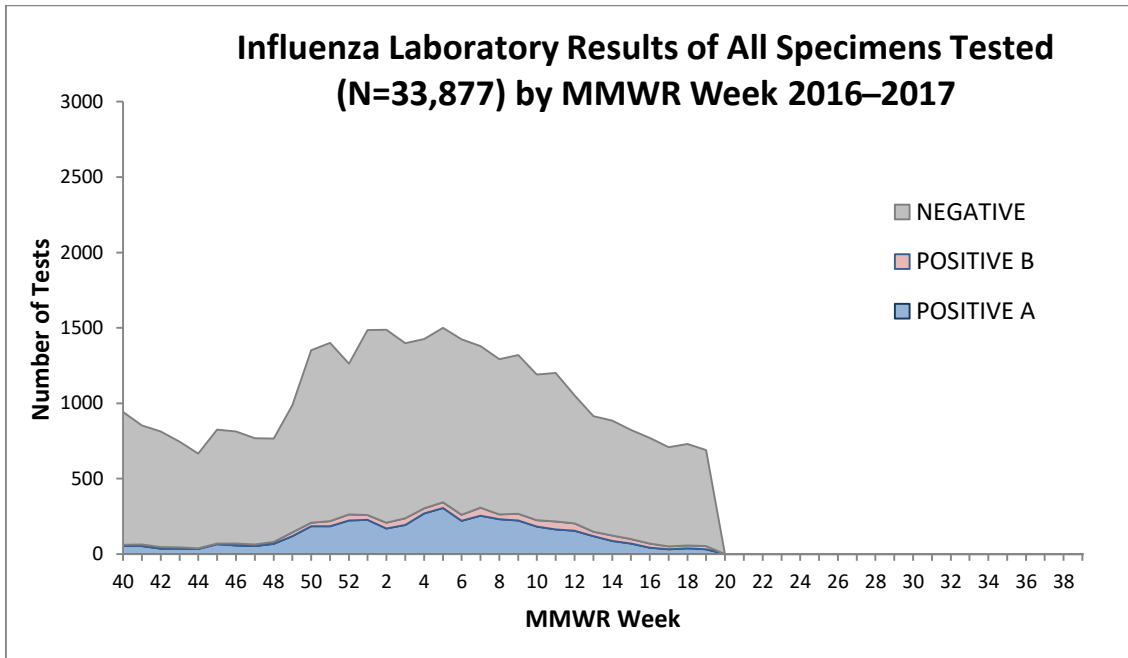


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



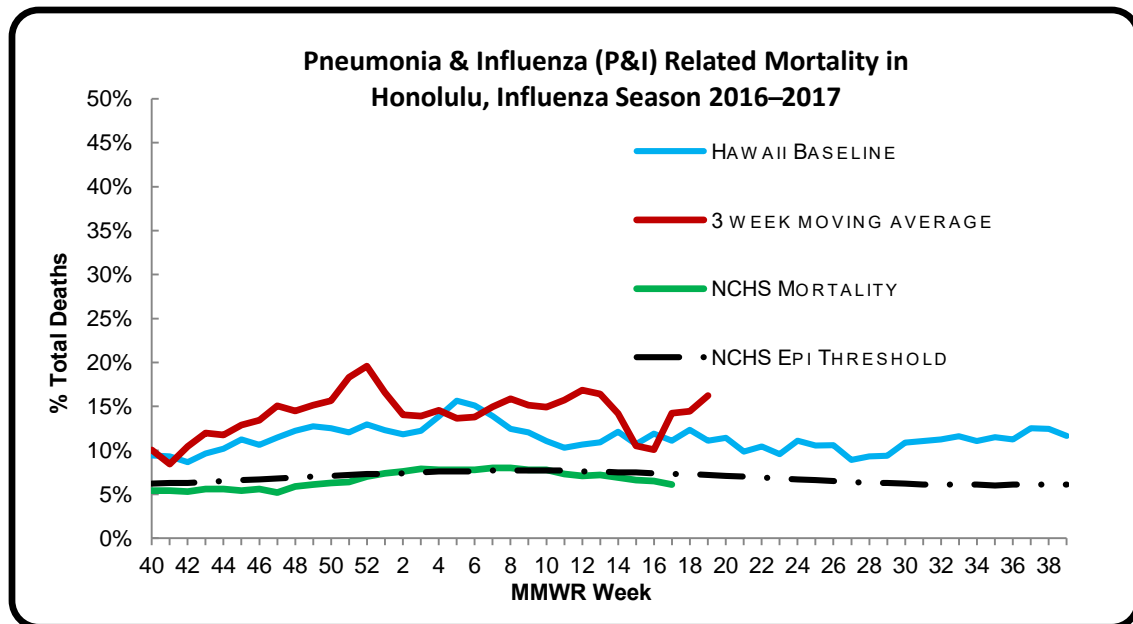
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P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. CDC collects the 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:

- **9.9%** of all deaths that occurred in Honolulu during week 19 were related to pneumonia or influenza. For the current season (season to date: **13.9%**), there have been 3,017 deaths from any cause, 420 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 19. This death was associated with an influenza B virus and occurred during week 5 (the week ending February 4, 2017). (Season total: 92).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

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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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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](#)).

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APPENDIX 1: ADDITIONAL INFORMATION

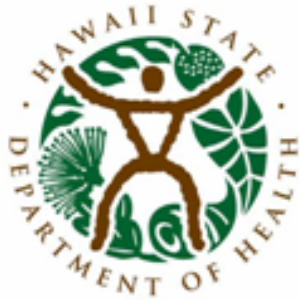
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4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
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51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
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HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 20: MAY 14, 2017–MAY 20, 2017

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.**

REPORT SNAPSHOT FOR WEEK 20

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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 have been 37 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	19.3%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	3	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	8.0%	Higher than the previous week. This number means that many, if not all, of the 92.0% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	14.8%	

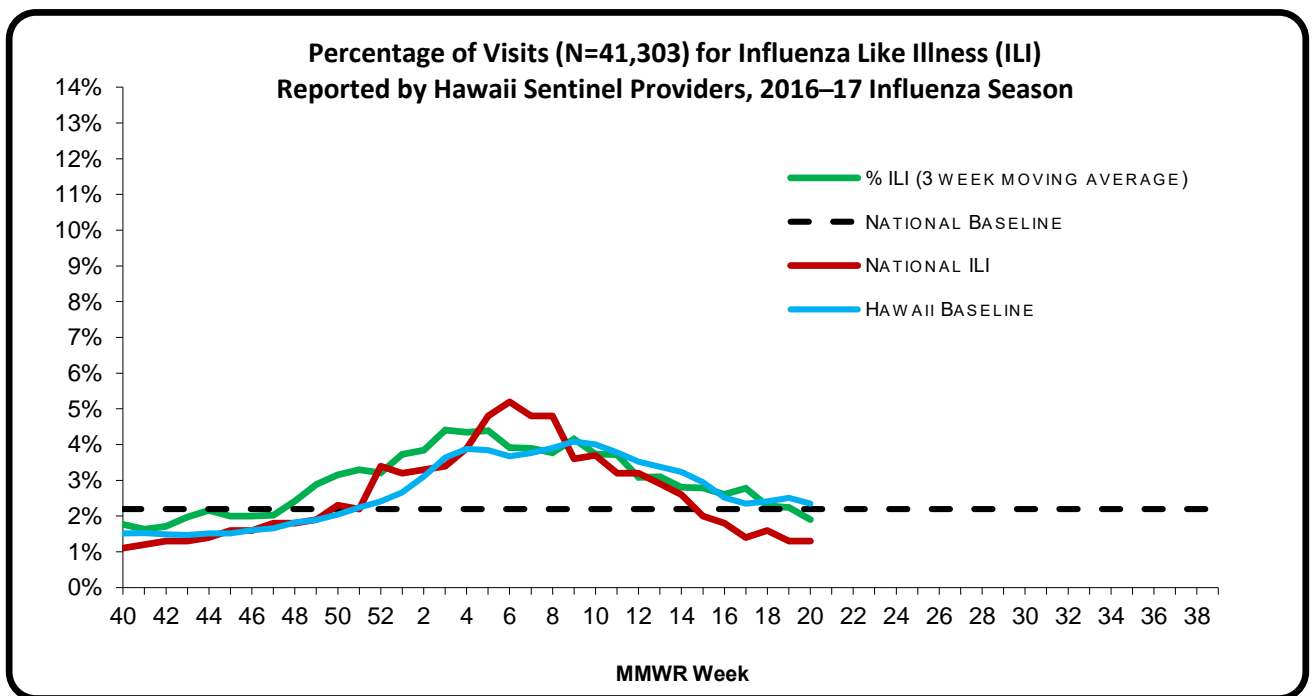
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 2.3% (season to date: 3.0%) 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 (1.3%) (i.e., inside the 95% confidence interval).
- ILI Cluster Activity: No new clusters were reported to HDOH during week 20.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

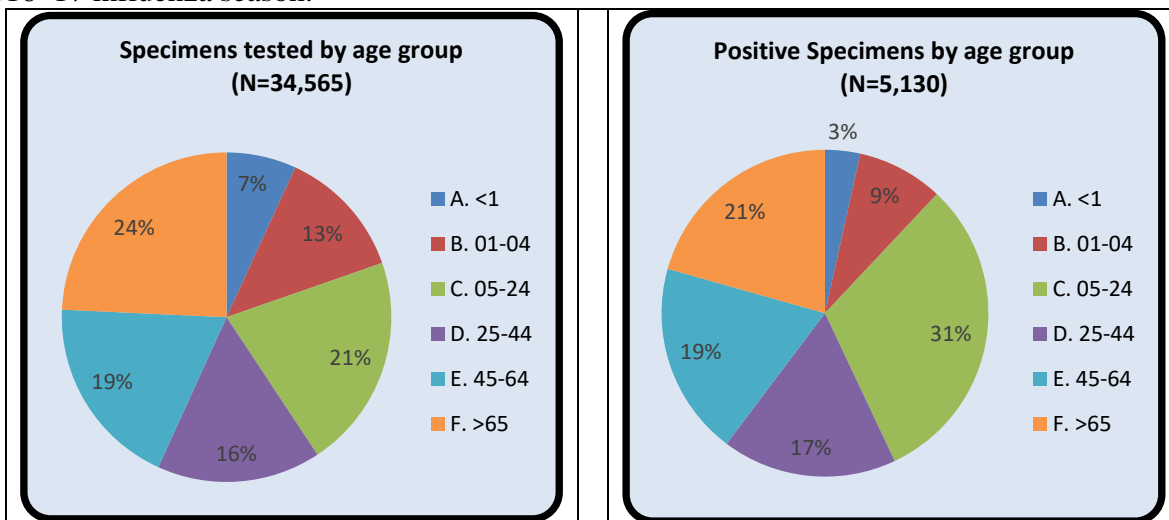
A. INFLUENZA:

- The following reflects laboratory findings for week 20 of the 2016-17 influenza season:
 - A total of **687 specimens** have been tested statewide for influenza viruses (positive: **55 [8.0%]**). (Season to date: **34,565 tested [14.8% positive]**)
 - 513 (74.7%) were screened only by rapid antigen tests with no confirmatory testing
 - 174 (25.3%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 632 (92.0%) were negative.

<i>Influenza type</i>	<i>Current week 20 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.3)
<i>Influenza A (H3)</i>	0 (0.0)	193 (3.8)
<i>Influenza A no subtyping</i>	29 (52.7)	4015 (78.3)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	26 (47.3)	885 (17.3)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

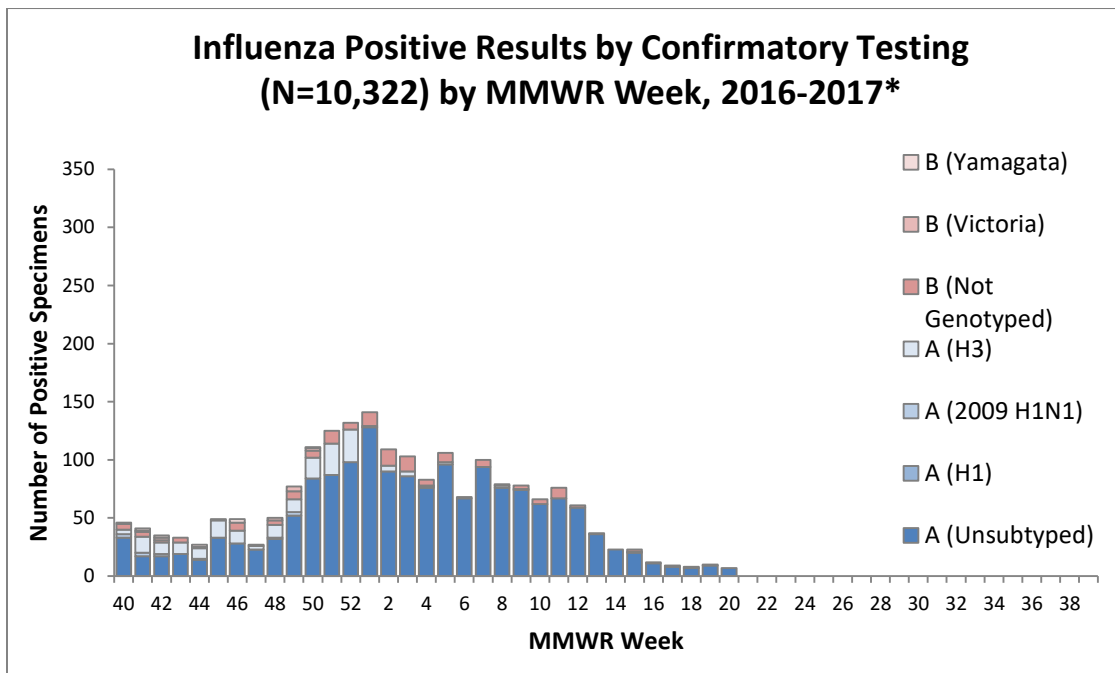
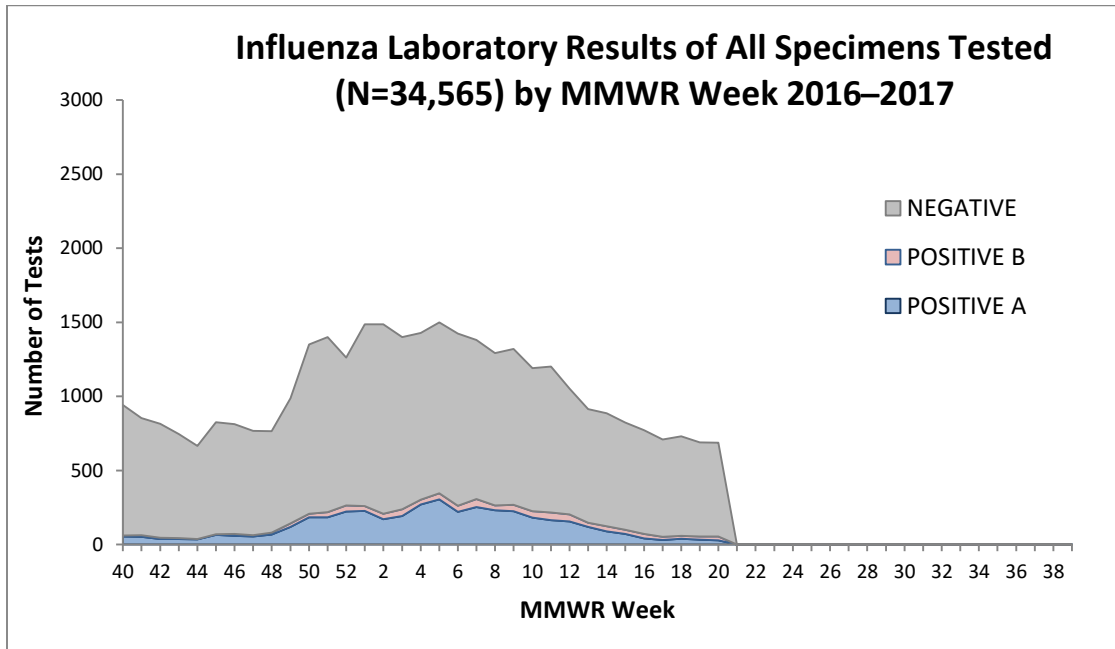


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



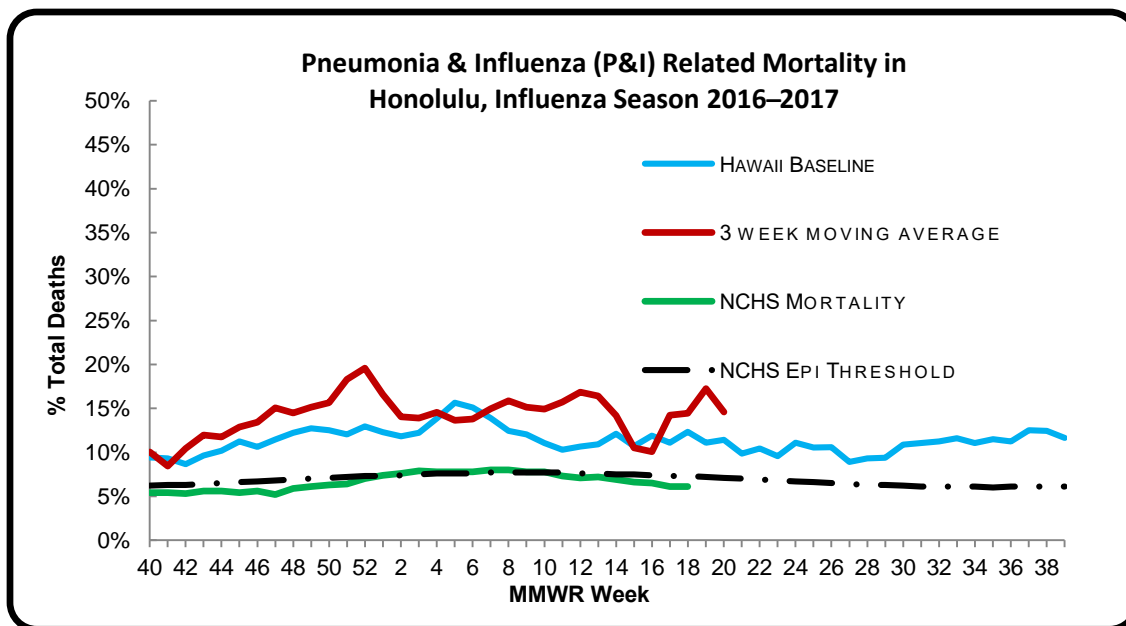
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *19.3% of all deaths that occurred in Honolulu during week 20 were related to pneumonia or influenza. For the current season (season to date: 14.1%), there have been 3,131 deaths from any cause, 442 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 20. Two deaths were associated with an influenza A (H3) virus and occurred during weeks 51 and 16 (the weeks ending

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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.

December 24, 2016, and April 22, 2017, respectively). One death was associated with an influenza B virus and occurred during week 18 (the week ending May 6, 2017). (Season total: 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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *Two human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016-2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016-2017 influenza season.*

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, but a few subtypes may pass the species barrier and cause sickness 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 potential public health concern. 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 16, 2017**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 21: MAY 21, 2017–MAY 27, 2017

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.**

REPORT SNAPSHOT FOR WEEK 21

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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 comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 37 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	8.6%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	3	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	10.0%	Higher than the previous week. This number means that many, if not all, of the 90.0% 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%	

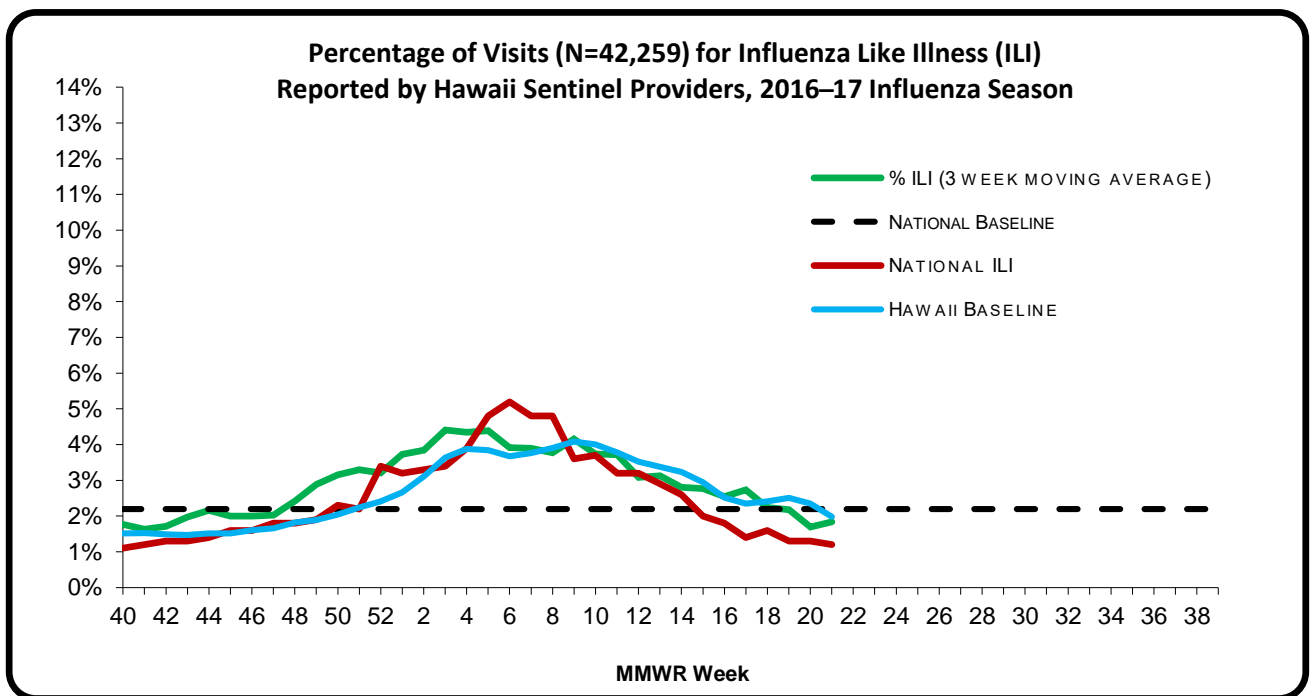
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 1.5% (season to date: 3.0%) 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 (1.2%) (i.e., inside the 95% confidence interval).
- ILI Cluster Activity: No new clusters were reported to HDOH during week 21.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

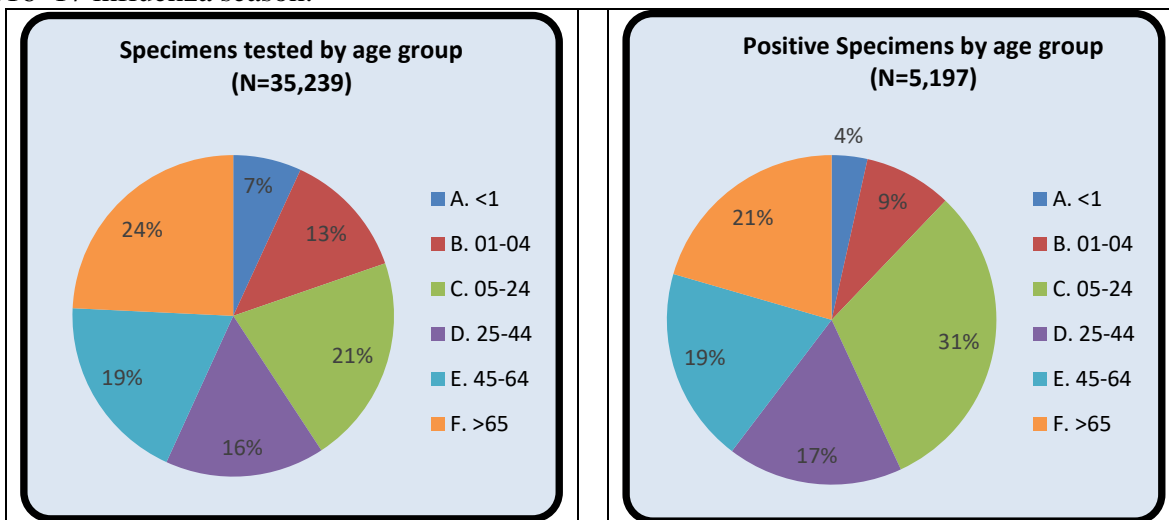
A. INFLUENZA:

- The following reflects laboratory findings for week 21 of the 2016-17 influenza season:
 - A total of 673 specimens have been tested statewide for influenza viruses (positive: 67 [10.0%]). (Season to date: 35,239 tested [14.7% positive])
 - 474 (70.4%) were screened only by rapid antigen tests with no confirmatory testing
 - 199 (29.6%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 606 (90.0%) were negative.

Influenza type	Current week 21 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	1 (1.5)	194 (3.7)
Influenza A no subtyping	43 (64.2)	4058 (78.1)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.2)
Influenza B no genotyping	23 (34.3)	908 (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 2016–17 influenza season.

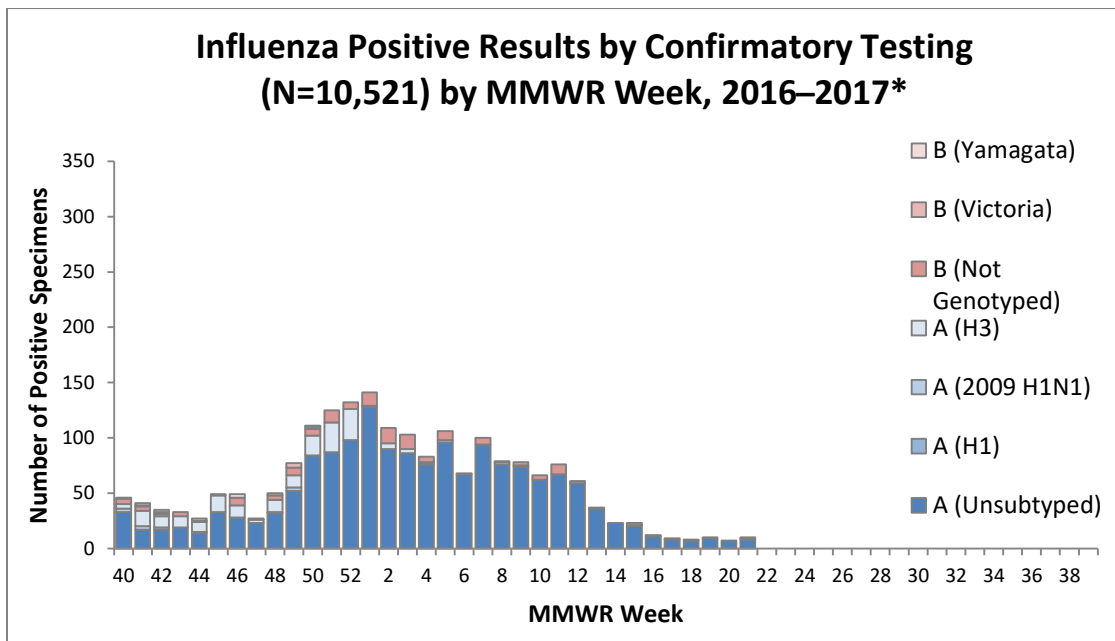
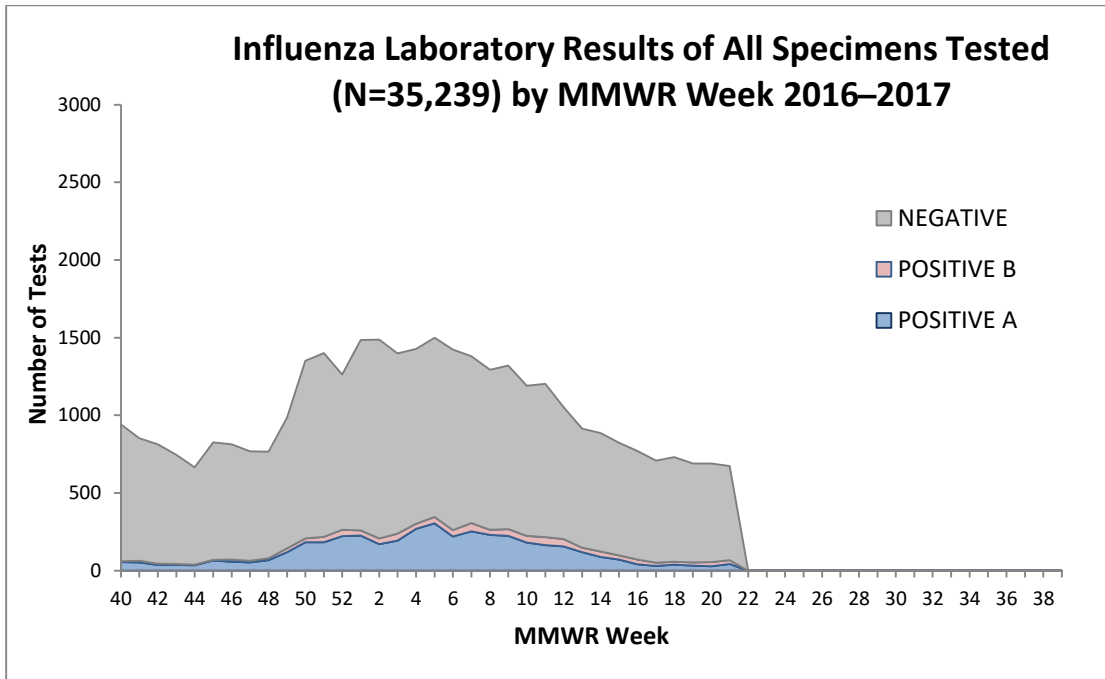


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



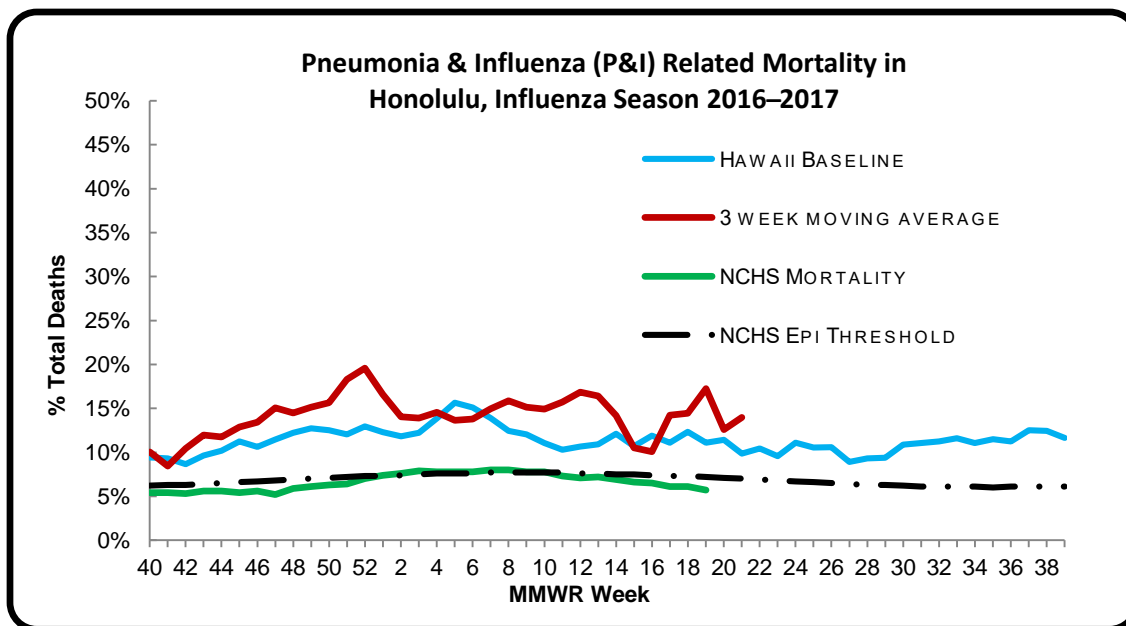
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 8.6% of all deaths that occurred in Honolulu during week 21 were related to pneumonia or influenza. For the current season (season to date: 13.9%), there have been 3,247 deaths from any cause, 452 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, three influenza-associated pediatric deaths were reported to CDC during week 21. One death was associated with an influenza A (H3) virus and occurred during week 11 (the week ending March 11, 2017). One death was associated with an influenza A (H1N1) pdm09 virus and occurred during week 17 (the week

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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.

ending April 29, 2017). One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 15 (the week ending April 15, 2017). (Season total: 98).

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *Two human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, 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 potential public health concern. 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 16, 2017**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 22: MAY 28, 2017–JUNE 3, 2017

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.**

REPORT SNAPSHOT FOR WEEK 22

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.8%	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 38 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	10.9%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	0	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	8.2%	Lower than the previous week. This number means that many, if not all, of the 91.8% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	14.6%	

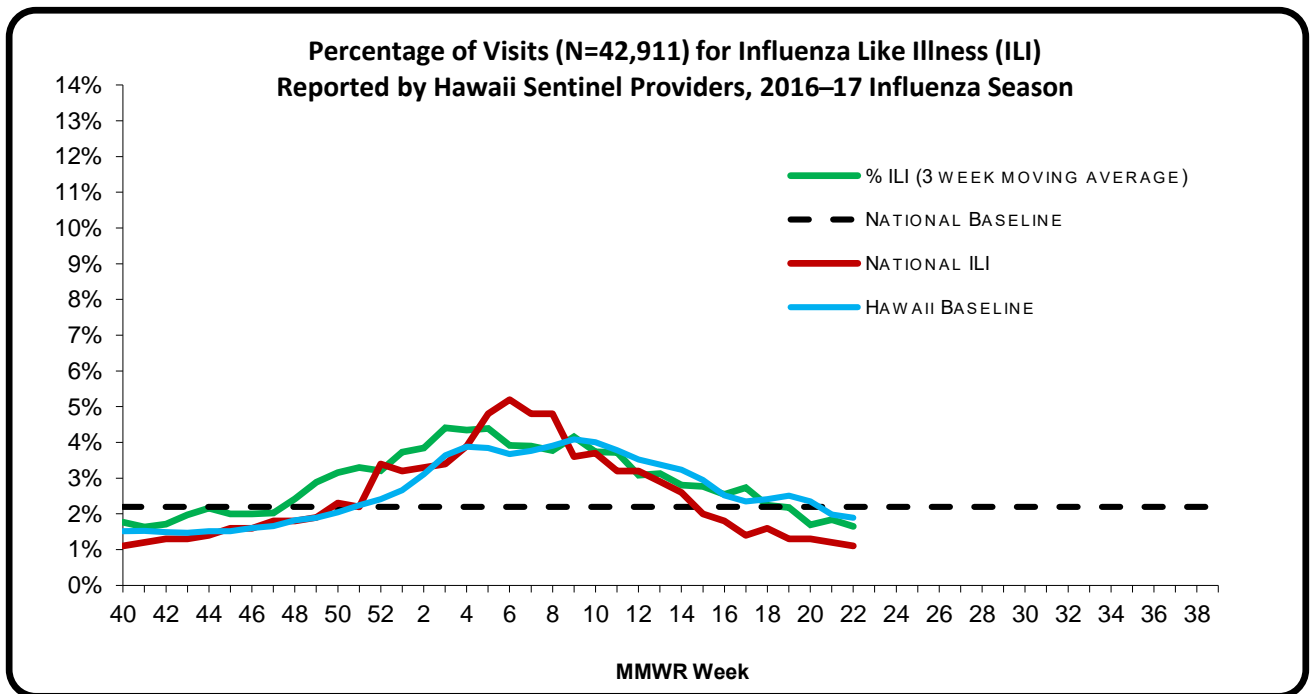
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **1.8%** (season to date: **3.0%**) 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).
- **ILI Cluster Activity:** One new cluster was reported to HDOH during week 22. This cluster occurred at a long term care facility in Hawaii and contained 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

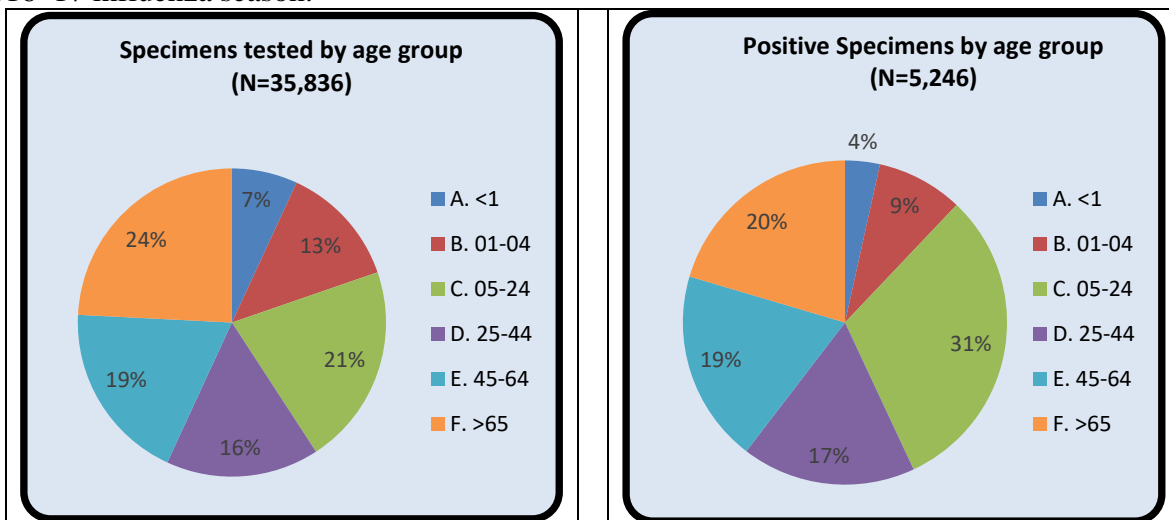
A. INFLUENZA:

- The following reflects laboratory findings for week 22 of the 2016-17 influenza season:
 - A total of 597 specimens have been tested statewide for influenza viruses (positive: 49 [8.2%]). (Season to date: 35,836 tested [14.6% positive])
 - 450 (75.4%) were screened only by rapid antigen tests with no confirmatory testing
 - 147 (24.6%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 548 (91.8%) were negative.

Influenza type	Current week 22 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	0 (0.0)	194 (3.7)
Influenza A no subtyping	29 (59.2)	4087 (77.9)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.2)
Influenza B no genotyping	20 (40.8)	928 (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 2016–17 influenza season.

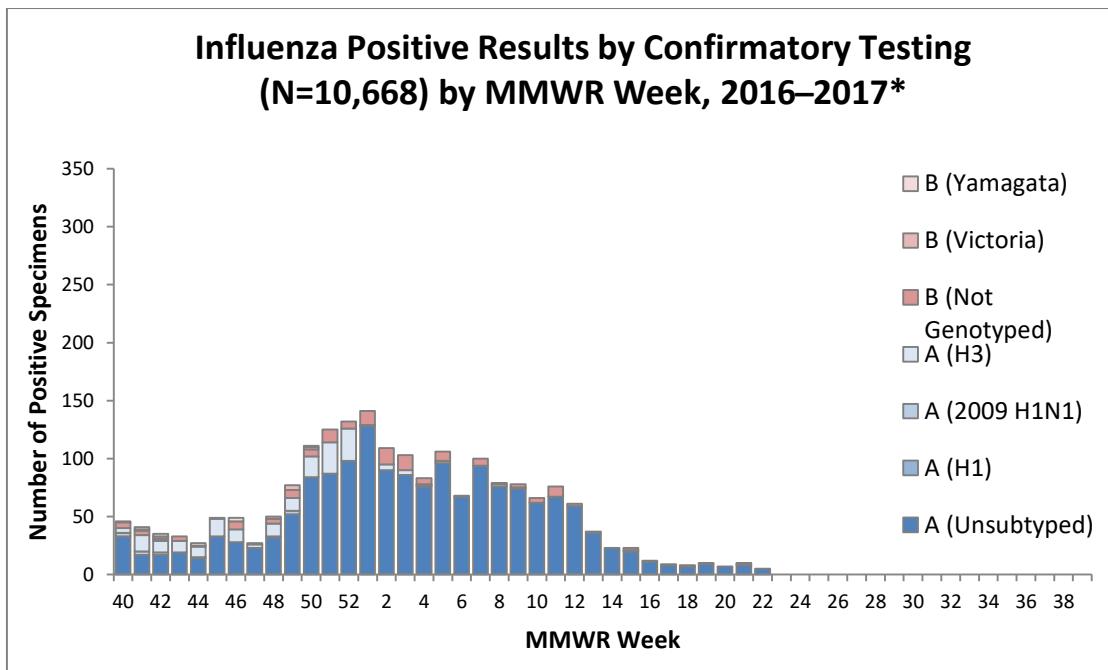
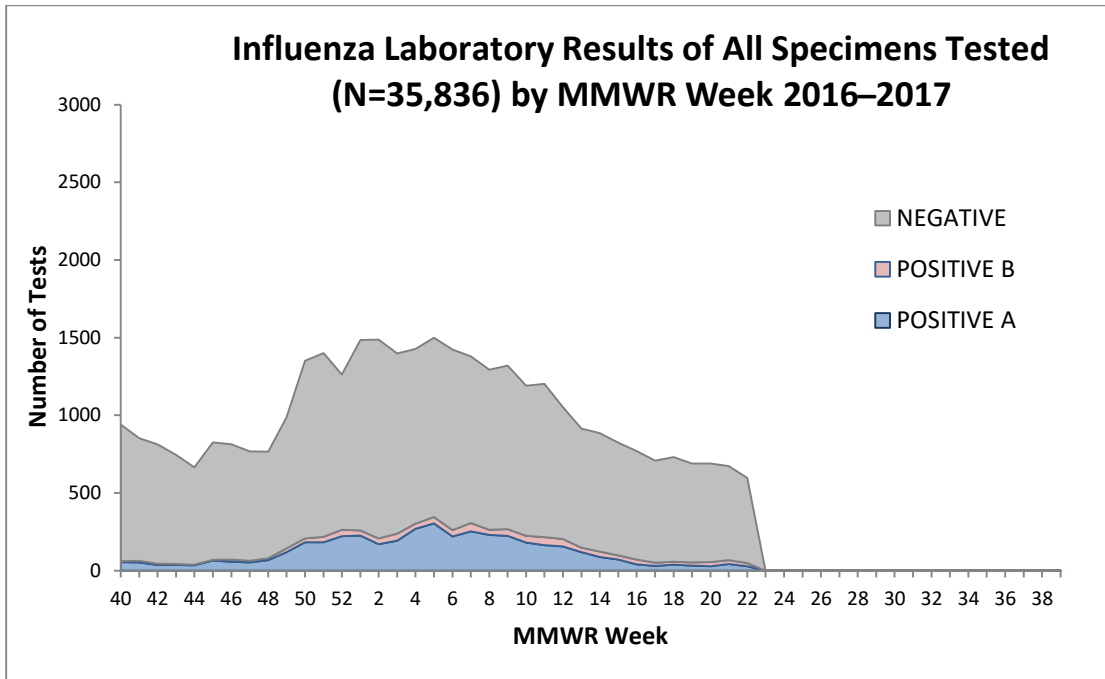


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



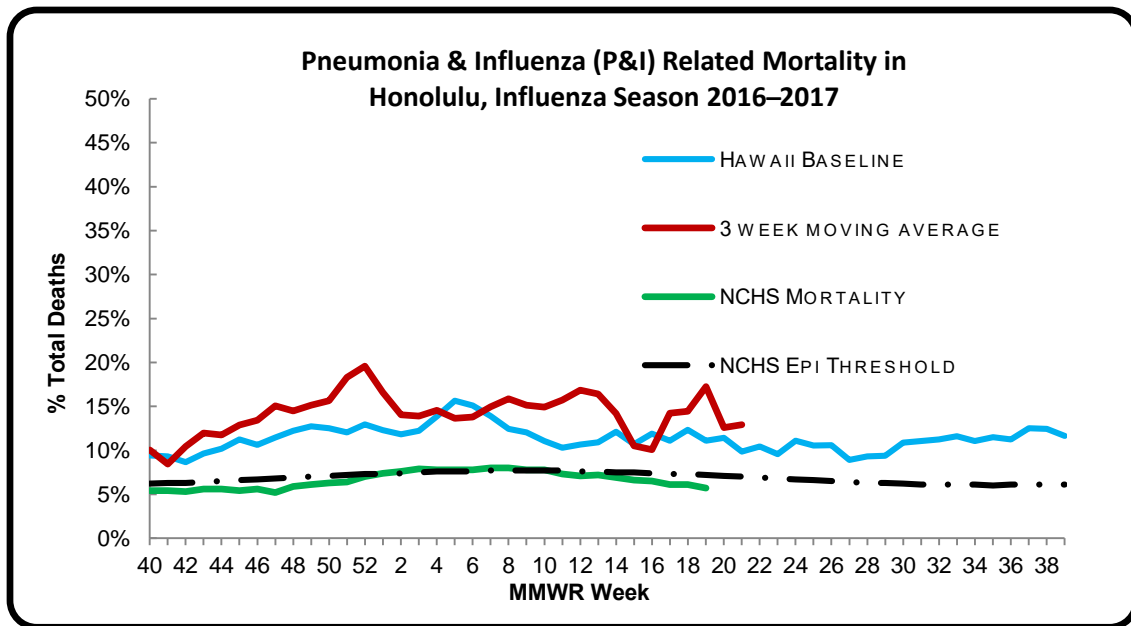
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III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 10.9% of all deaths that occurred in Honolulu during week 22 were related to pneumonia or influenza. For the current season (season to date: 13.9%), there have been 3,293 deaths from any cause, 457 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, zero influenza-associated pediatric deaths were reported to CDC during week 22. (Season total: 98).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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.

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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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *Two human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, 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 potential public health concern. 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 16, 2017**.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
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7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
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52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 23: JUNE 4, 2017–JUNE 10, 2017

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.**

REPORT SNAPSHOT FOR WEEK 23

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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 comparable to the national baseline.
Number of ILI clusters reported to HDOH	0	There have been 38 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	7.0%	Comparable to the historical baseline for Hawaii. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed.
Number of influenza-associated pediatric deaths reported nationwide	1	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	7.4%	Lower than the previous week. This number means that many, if not all, of the 92.6% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	14.5%	

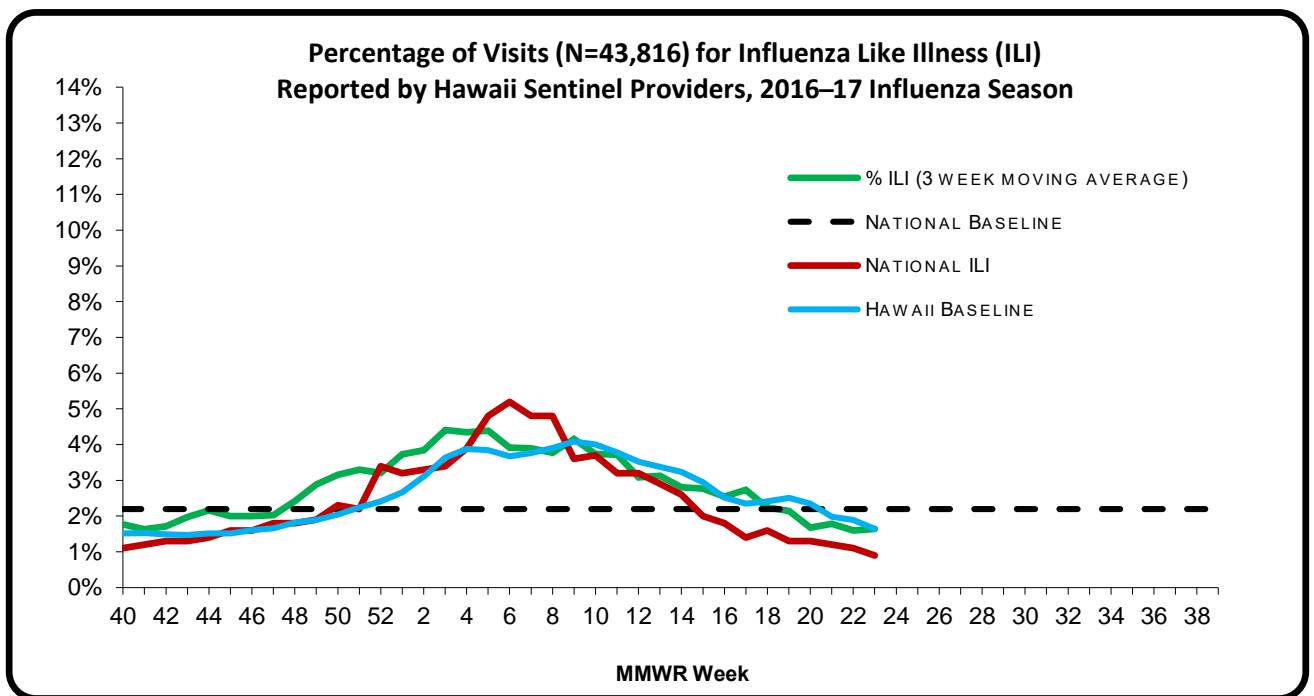
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 1.5% (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 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 (0.9%) (i.e., inside the 95% confidence interval).
- 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

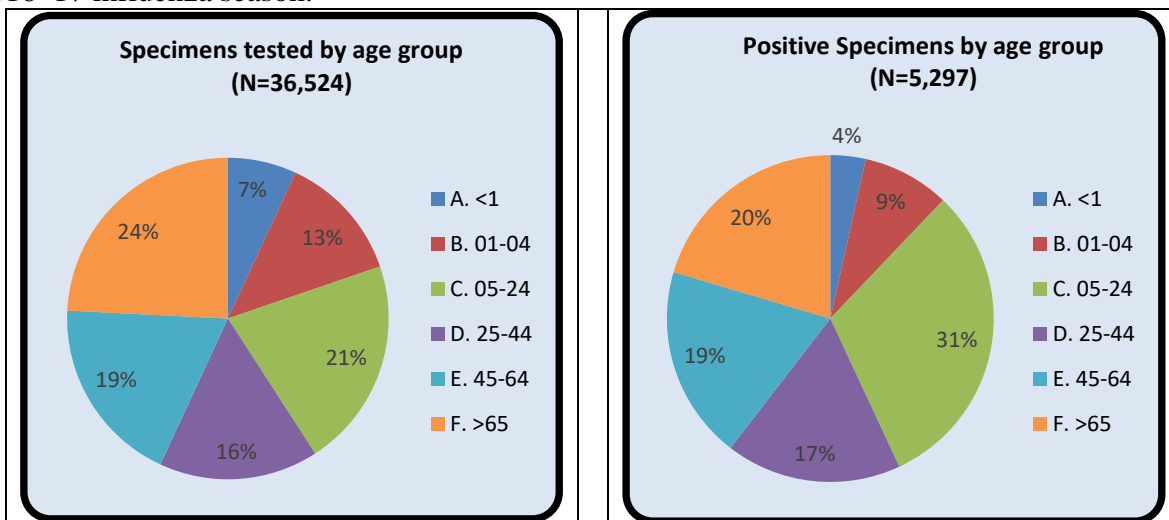
A. INFLUENZA:

- The following reflects laboratory findings for week 23 of the 2016-17 influenza season:
 - A total of 688 specimens have been tested statewide for influenza viruses (positive: 51 [7.4%]). (Season to date: 36,524 tested [14.5% positive])
 - 511 (74.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 177 (25.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 637 (92.6%) were negative.

Influenza type	Current week 23 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	0 (0.0)	194 (3.7)
Influenza A no subtyping	28 (54.9)	4115 (77.7)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.2)
Influenza B no genotyping	23 (45.1)	951 (18.0)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

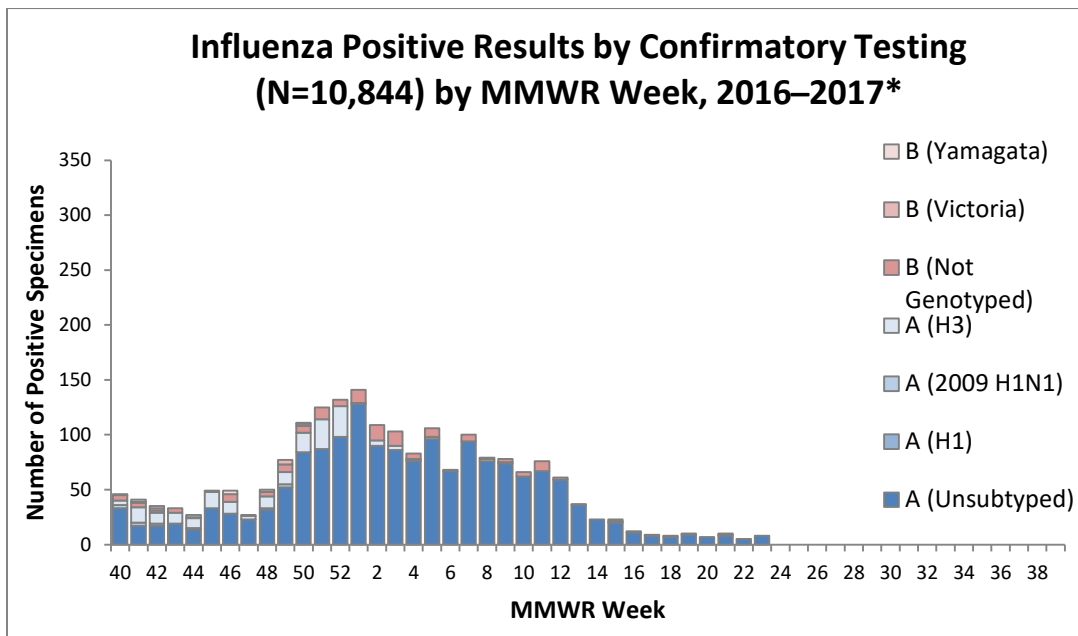
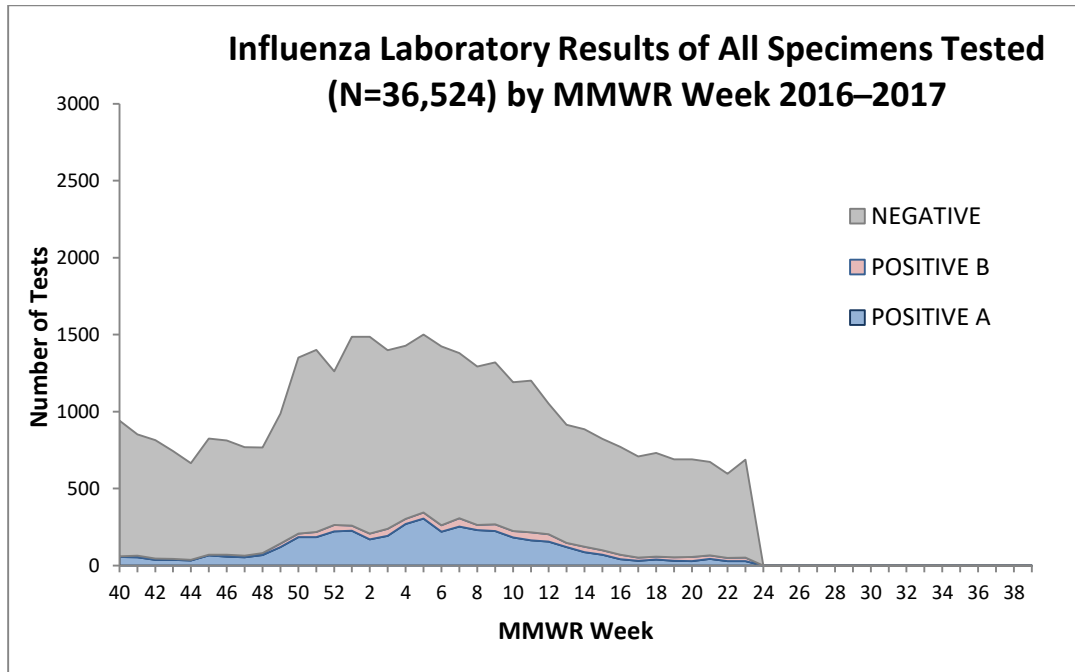


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



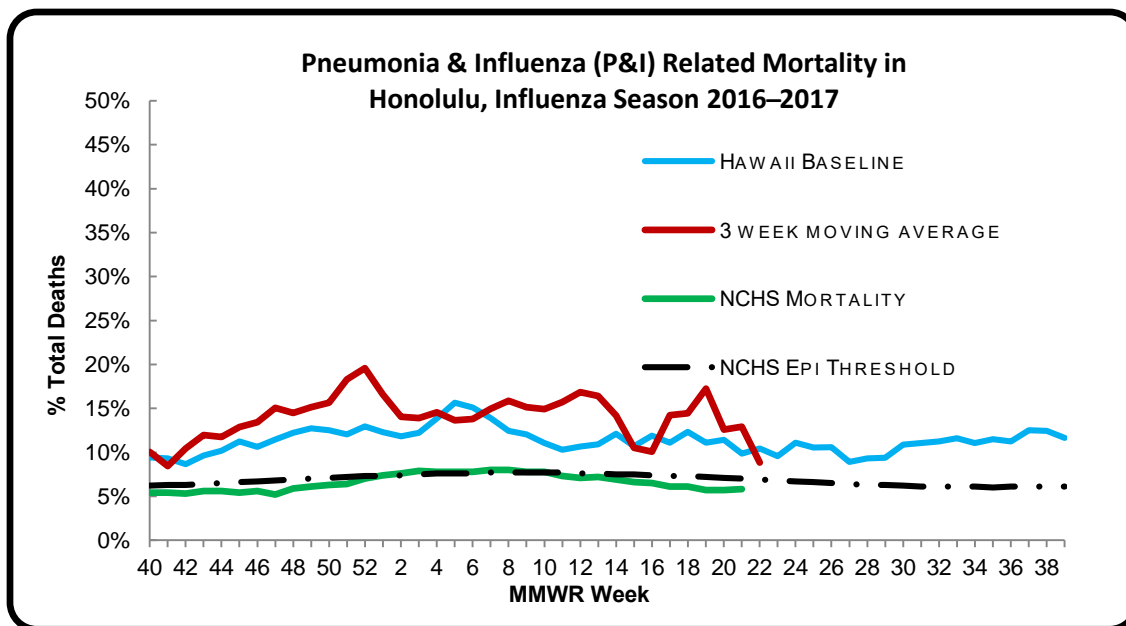
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 7.0% of all deaths that occurred in Honolulu during week 23 were related to pneumonia or influenza. For the current season (season to date: 13.7%), there have been 3,364 deaths from any cause, 462 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 23. This death was associated with an influenza A (H3) virus and occurred during week 20 (the week ending May 20, 2017). (Season total: 99).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *Two human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, 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 potential public health concern. 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 15, 2017**. Since the last update, 47 laboratory-confirmed cases of human cases of influenza A (H7N9) virus infection were reported to WHO from China. Of the 47 cases, there were at least three fatalities. Reported exposures included contact with domestic poultry, live poultry markets, occupational exposure and contact with a confirmed case.

APPENDIX 1: ADDITIONAL INFORMATION

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

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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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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 24: JUNE 11, 2017–JUNE 17, 2017

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.**

REPORT SNAPSHOT FOR WEEK 24

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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 comparable to the national baseline.
Number of ILI clusters reported to HDOH	2	There have been 40 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	8.9%	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	2	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	8.6%	Lower 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	14.4%	

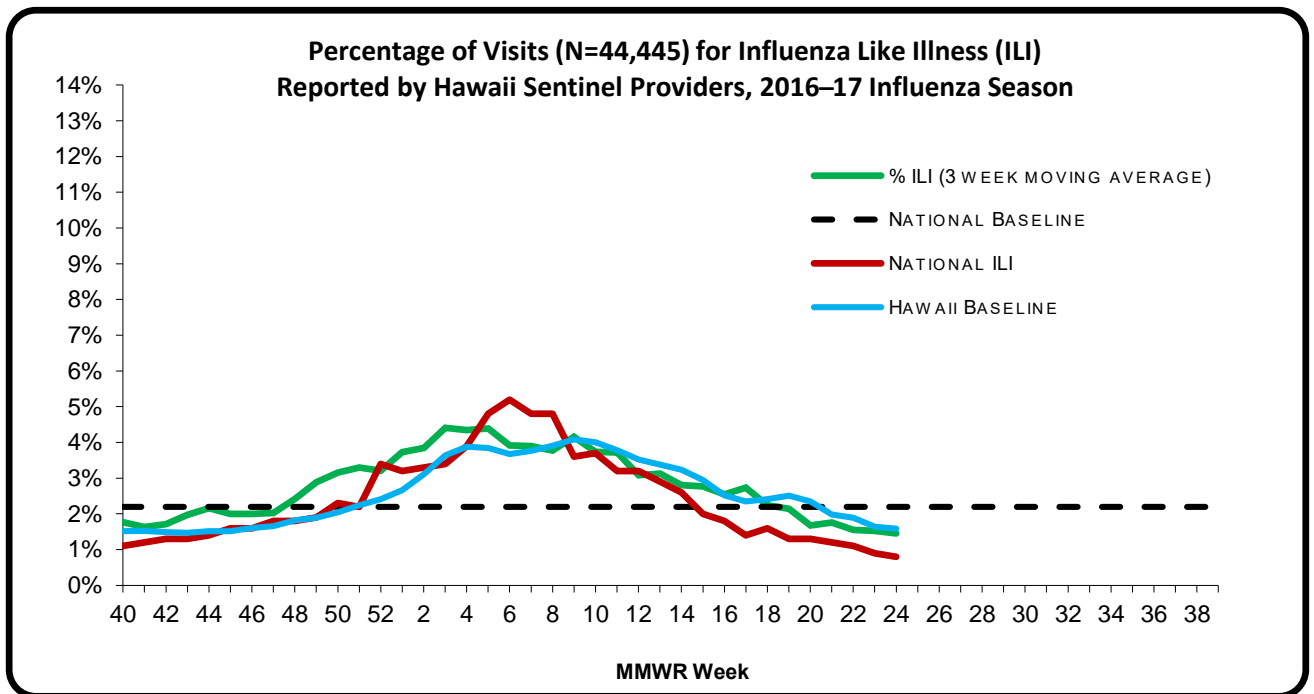
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **1.4%** (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 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 (0.8%) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** Two new clusters were reported to HDOH during week 24. These clusters occurred at long term care facilities on Oahu and included cases of influenza A and 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

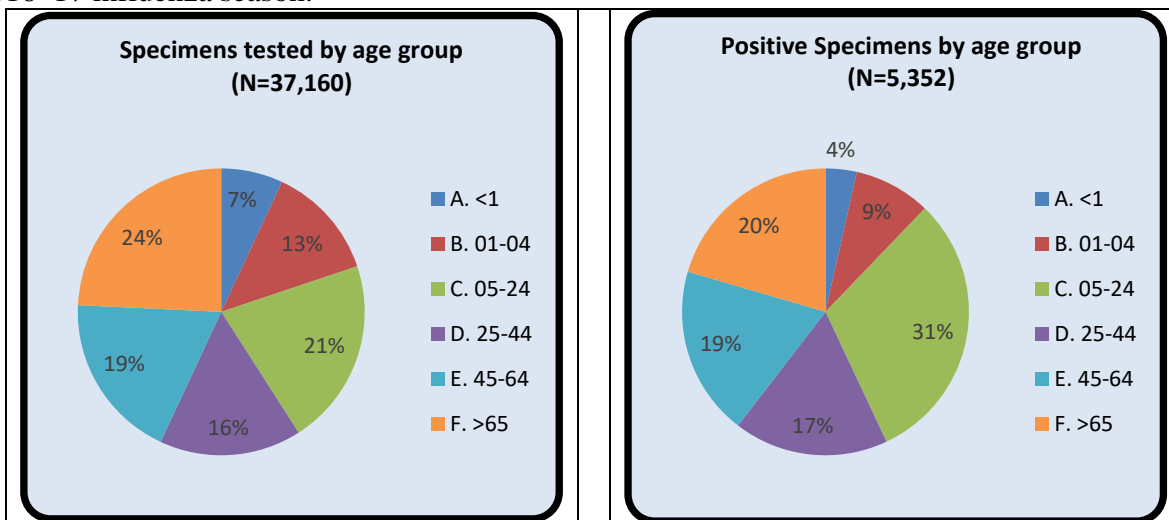
A. INFLUENZA:

- The following reflects laboratory findings for week 24 of the 2016-17 influenza season:
 - A total of **636** specimens have been tested statewide for influenza viruses (positive: **55 [8.6%]**). (Season to date: **37,160** tested [**14.4%** positive])
 - 433 (68.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 203 (31.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 581 (91.4%) were negative.

<i>Influenza type</i>	<i>Current week 24 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	1 (0.02)
<i>Influenza A (H3)</i>	0 (0.0)	194 (3.6)
<i>Influenza A no subtyping</i>	38 (69.1)	4153 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	17 (30.9)	968 (18.1)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

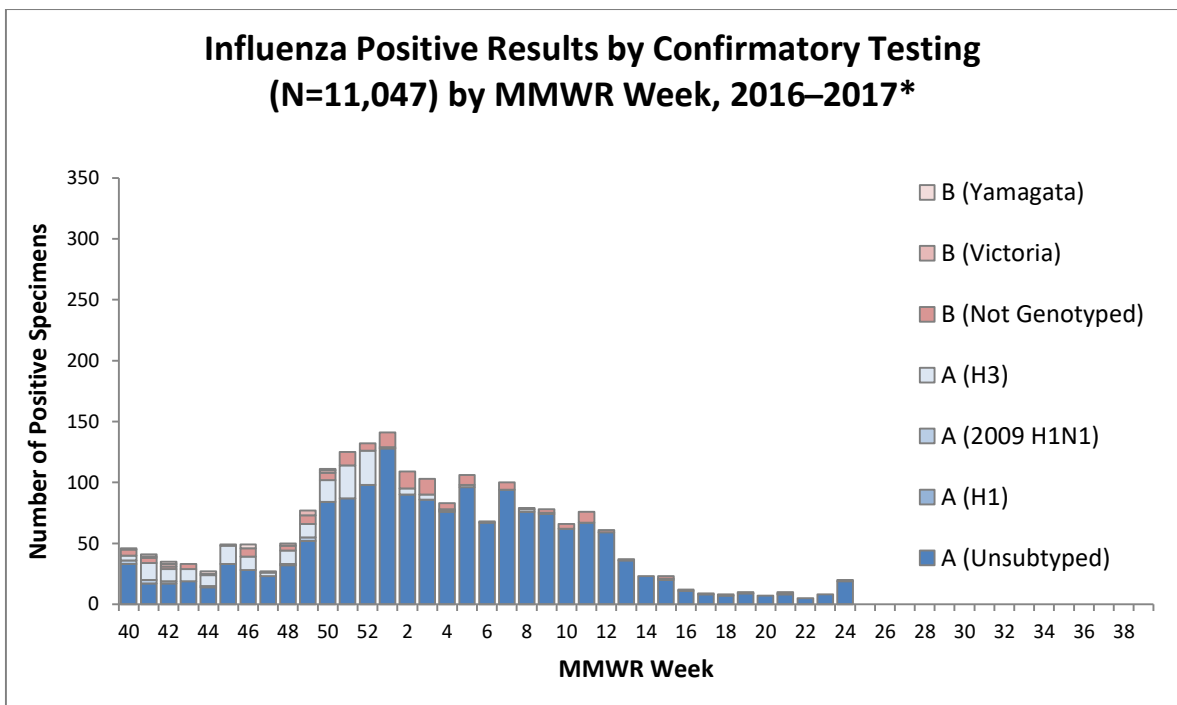
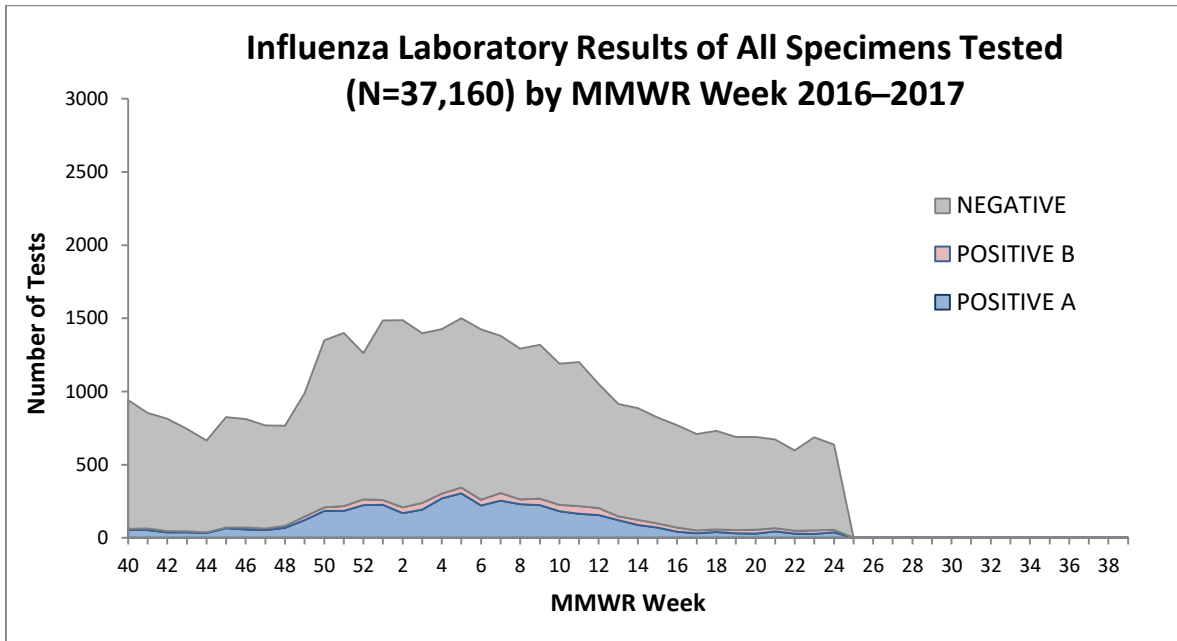


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



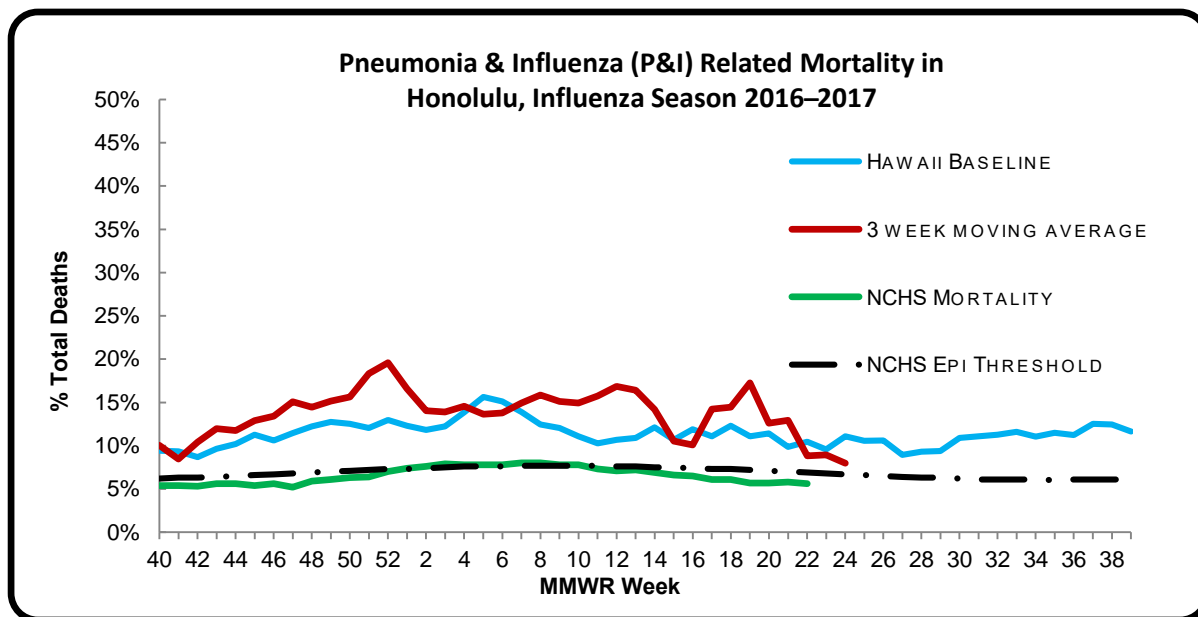
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 8.9% of all deaths that occurred in Honolulu during week 24 were related to pneumonia or influenza. For the current season (season to date: 13.6%), there have been 3,454 deaths from any cause, 470 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 24. One death was associated with an influenza B virus and occurred during week 21 (week ending May 27, 2017), and one death was associated with an influenza virus for which the type was not determined and occurred during week 24 (week ending June 17, 2017). There have been 101 influenza-associated pediatric deaths this season.

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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 2016–2017 influenza season.*
- *Two human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, 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 potential public health concern. 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 15, 2017**.

APPENDIX 1: ADDITIONAL INFORMATION

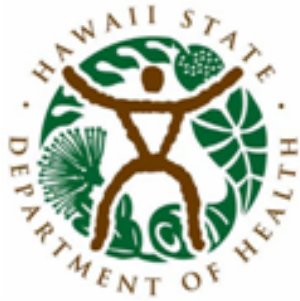
For more information regarding local and national influenza surveillance programs, visit the following sites.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 25: JUNE 18, 2017–JUNE 24, 2017

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.**

REPORT SNAPSHOT FOR WEEK 25

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.6%	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 have been 40 clusters this season.

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	12.1%	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	

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	8.8%	Lower than the previous week. This number means that many, if not all, of the 91.2% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	14.3%	

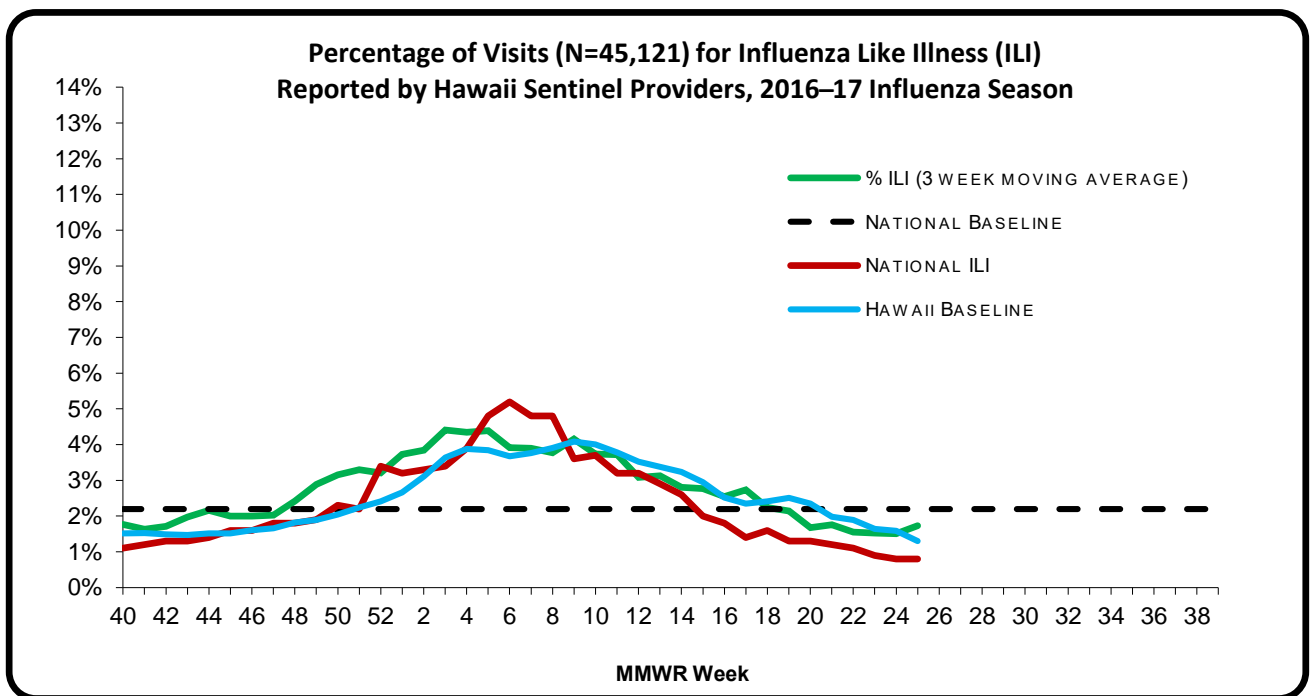
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **1.6%** (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 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 (0.8%) (i.e., inside the 95% confidence interval).
- **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 (2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015).

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.

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 criteria⁵ 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](#)).

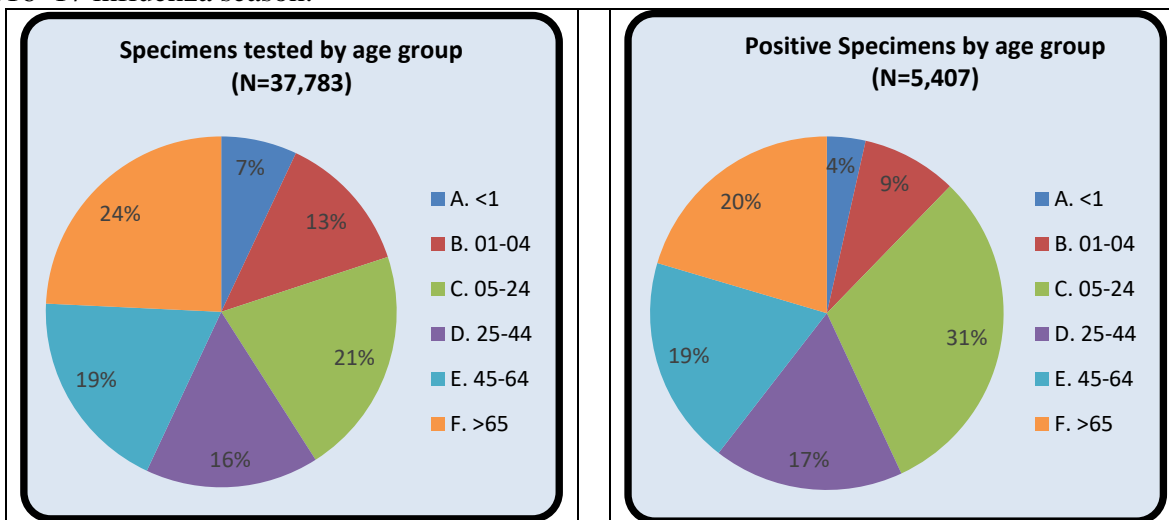
A. INFLUENZA:

- The following reflects laboratory findings for week 25 of the 2016-17 influenza season:
 - A total of **624 specimens** have been tested statewide for influenza viruses (positive: **55 [8.8%]**). (Season to date: **37,783 tested [14.3% positive]**)
 - 430 (68.9%) were screened only by rapid antigen tests with no confirmatory testing
 - 194 (31.1%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 569 (91.2%) were negative.

<i>Influenza type</i>	<i>Current week 25 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.3)
<i>Influenza A (H3)</i>	0 (0.0)	194 (3.6)
<i>Influenza A no subtyping</i>	45 (81.8)	4198 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	10 (18.2)	978 (18.1)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

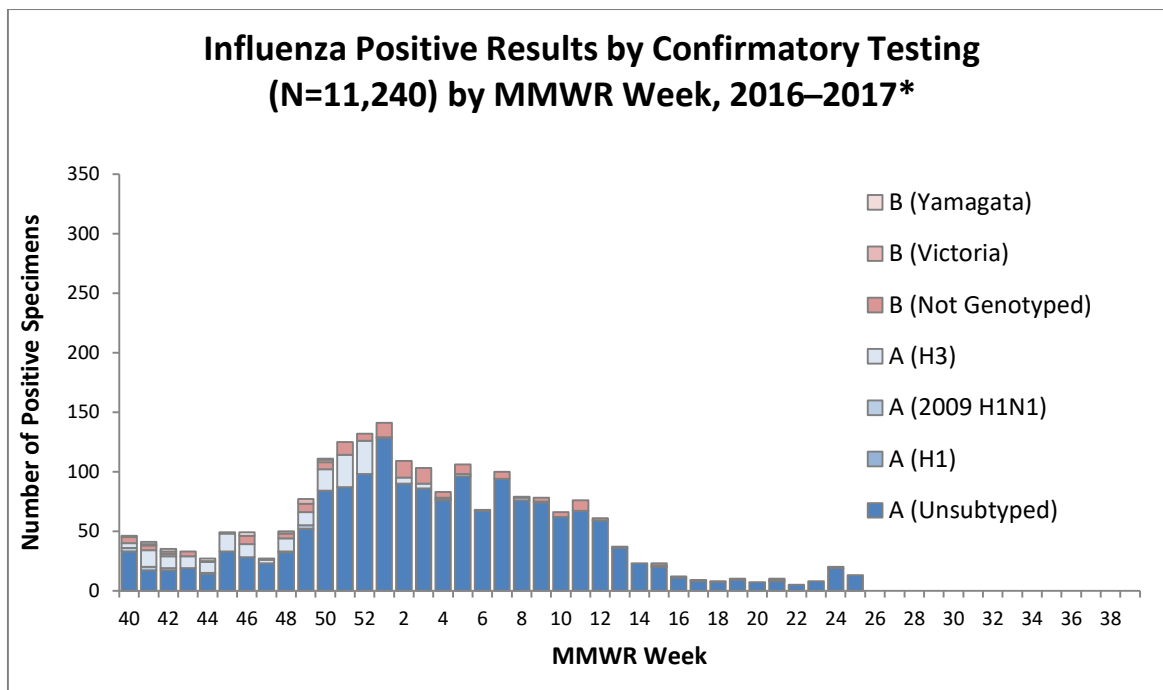
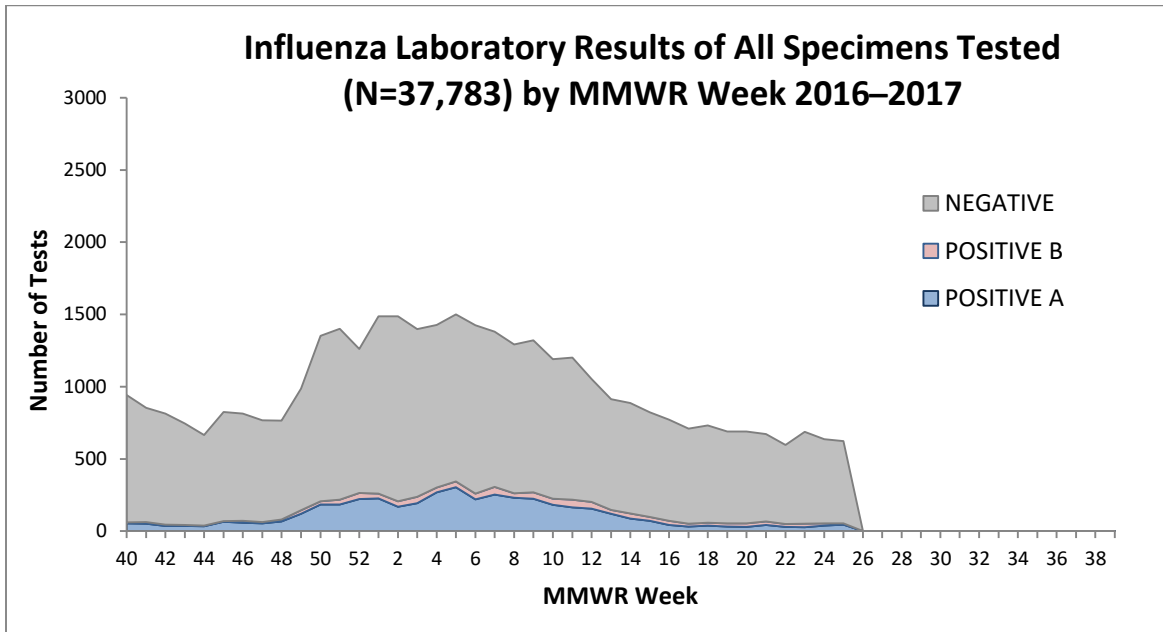


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



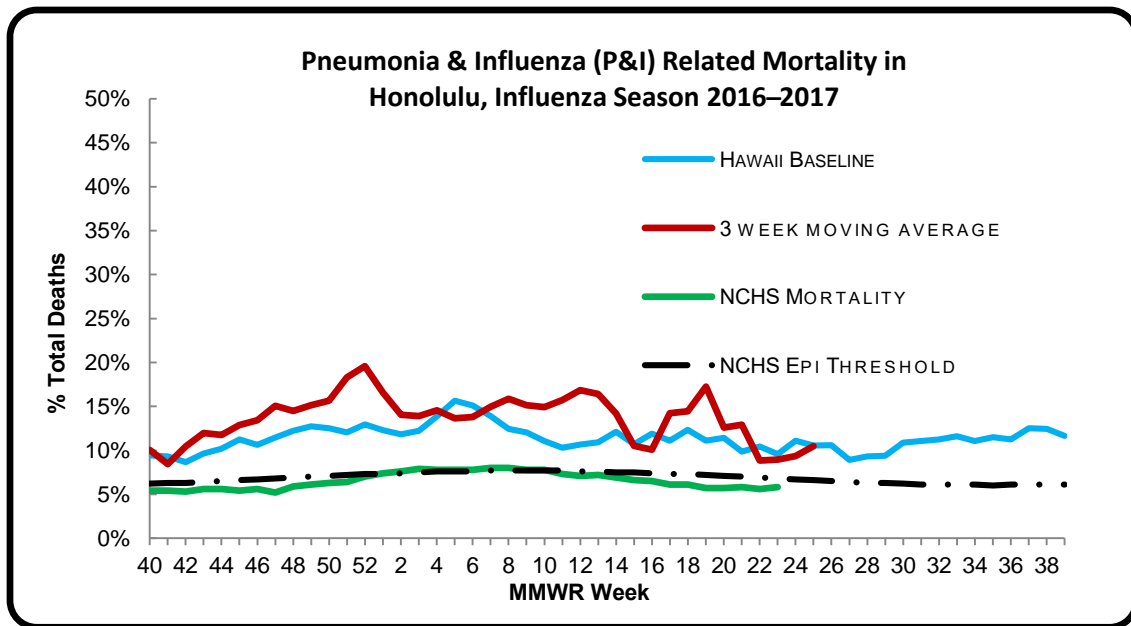
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 12.1% of all deaths that occurred in Honolulu during week 25 were related to pneumonia or influenza. For the current season (season to date: 13.6%), there have been 3,512 deaths from any cause, 477 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, zero influenza-associated pediatric deaths were reported to CDC during week 25. (Season total: 101).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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, and in 2012, 309 such cases across 12 states, including one case in Hawaii, were detected. 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](#)).

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- *Two human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
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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, 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 potential public health concern. 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 15, 2017**.

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Flu.gov	General Influenza Information
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 26: JUNE 25, 2017–JULY 1, 2017

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.**

REPORT SNAPSHOT FOR WEEK 26

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.8%	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 41 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	5.5%	Lower 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	14.2%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	3.1%	Lower 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	0	

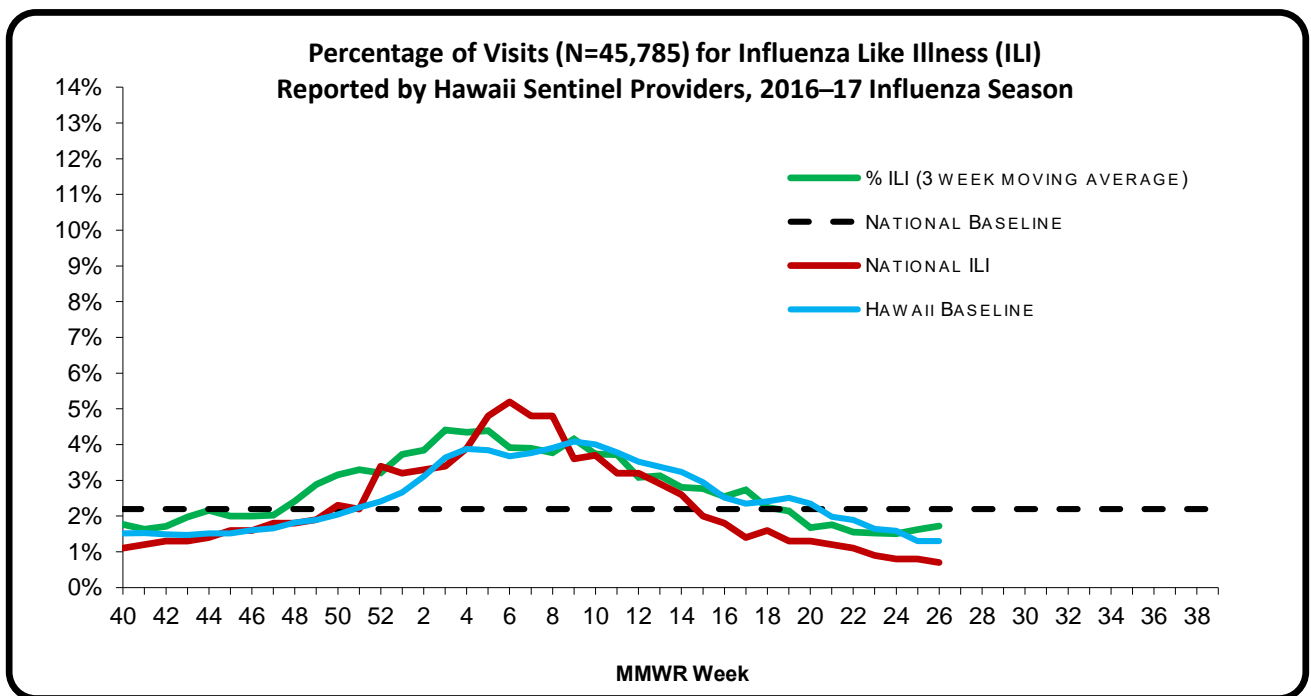
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- *1.8% (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 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 greater than the national ILI rate (0.7%) (i.e., outside the 95% confidence interval).*
- *ILI Cluster Activity: One new cluster in a long term care facility was 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

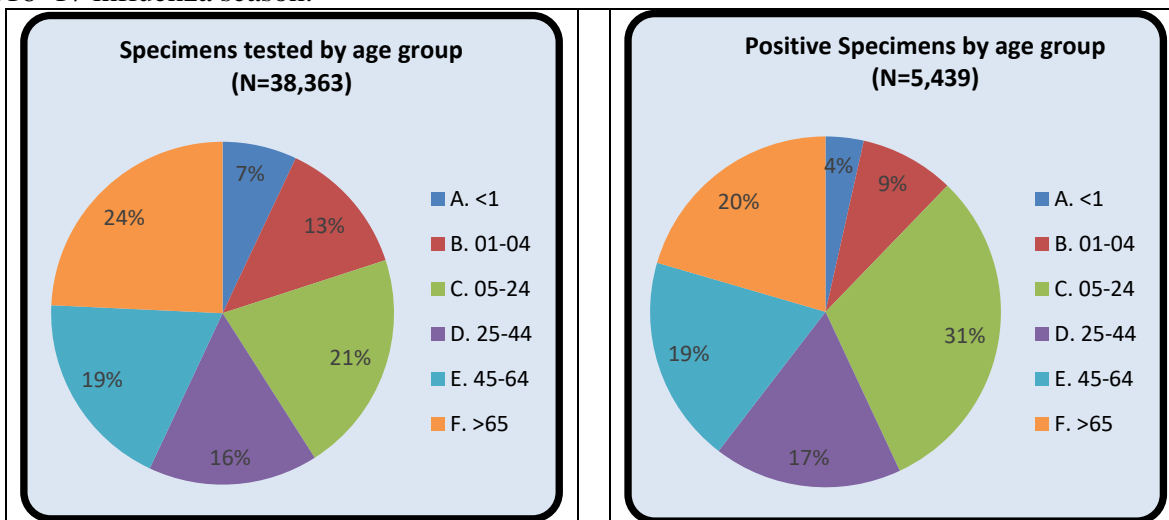
A. INFLUENZA:

- The following reflects laboratory findings for week 26 of the 2016-17 influenza season:
 - A total of 579 specimens have been tested statewide for influenza viruses (positive: 32 [5.5%]). (Season to date: 38,363 tested [14.2% positive])
 - 400 (69.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 179 (30.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 547 (94.5%) were negative.

Influenza type	Current week 26 (%)	Season to date (%)
Influenza A (H1) ⁶	0 (0.0)	14 (0.3)
Influenza A (H3)	0 (0.0)	194 (3.6)
Influenza A no subtyping	26 (81.3)	4,224 (77.7)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.2)
Influenza B no genotyping	6 (18.8)	984 (18.1)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

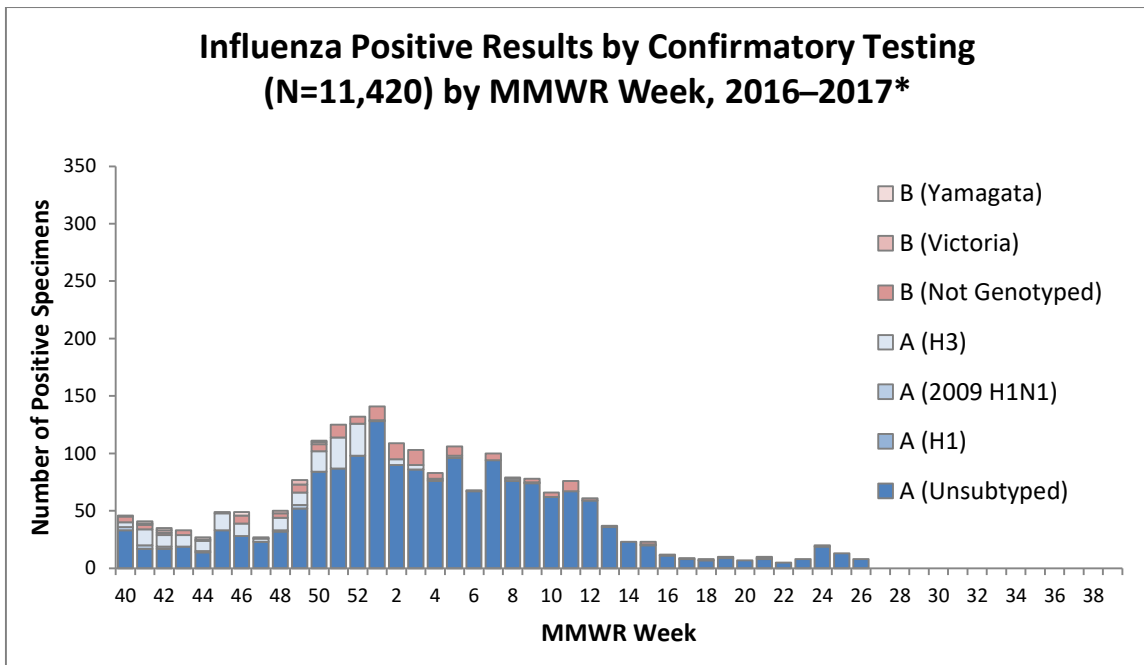
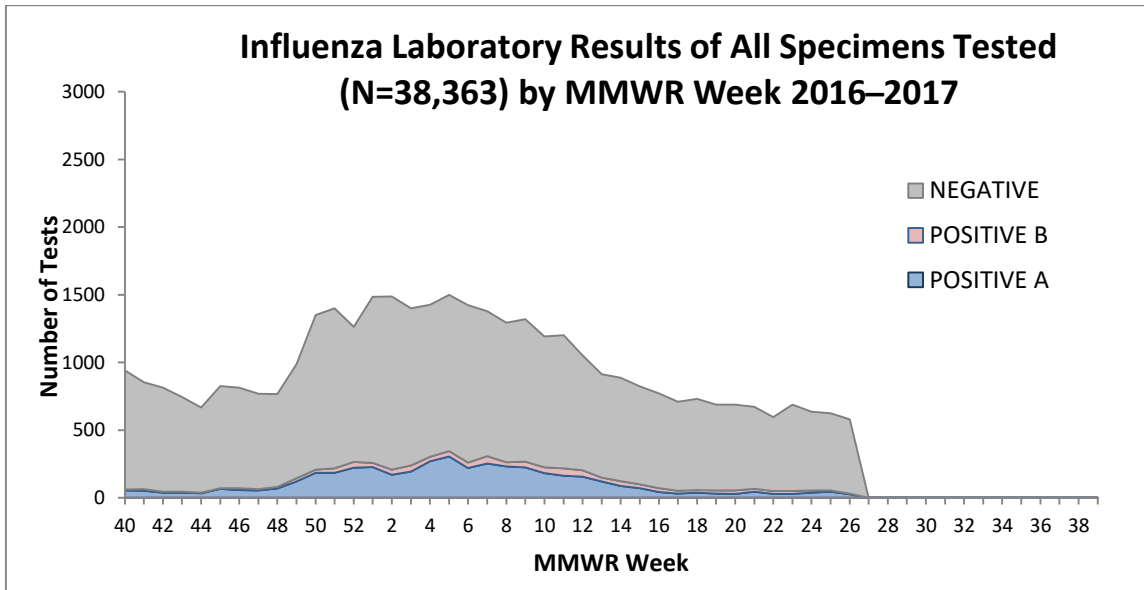


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



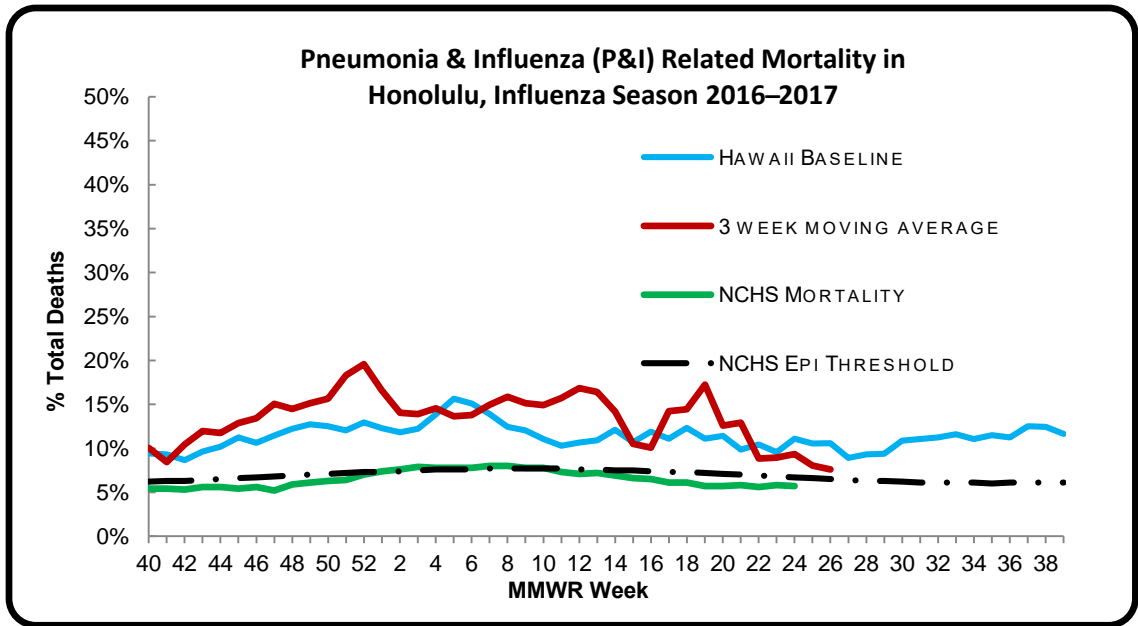
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 3.1% of all deaths that occurred in Honolulu during week 26 were related to pneumonia or influenza. For the current season (season to date: 13.3%), there have been 3,608 deaths from any cause, 480 of which were due to P&I.
- The P&I rate was lower than the historical baseline in Hawaii⁷ (i.e., outside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, zero influenza-associated pediatric deaths were reported to CDC during week 26. (Season total: 101).

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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 and should be given two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

A. 2016-2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016 – April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017-2018 INFLUENZA VACCINE:

The composition of the 2017-2018 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 2017-2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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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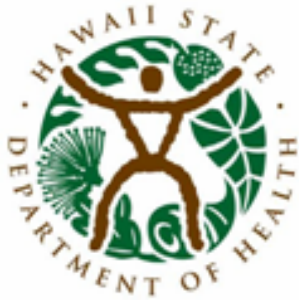
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25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
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36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
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52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 27: JULY 2, 2017–JULY 8, 2017

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.**

REPORT SNAPSHOT FOR WEEK 27

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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 have been 41 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	9.5%	Higher than the previous week. This number means that many, if not all, of the 90.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	14.1%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	9.9%	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	

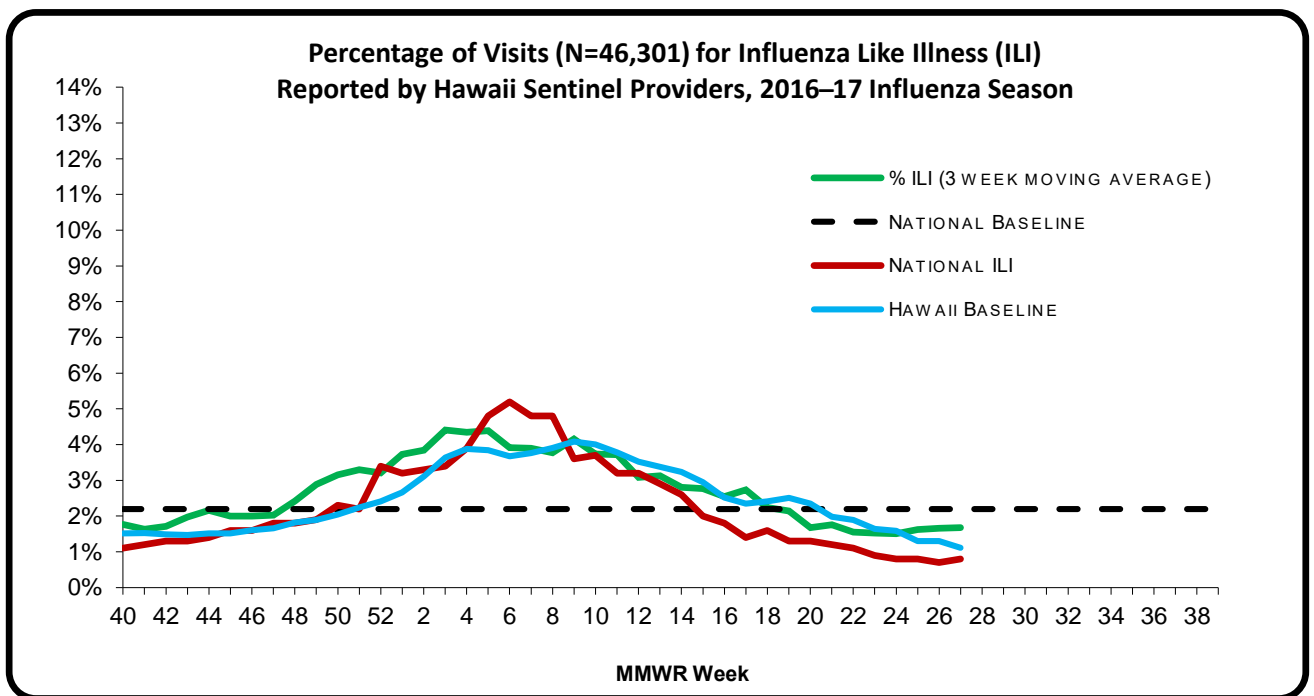
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **1.6%** (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 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 (0.8%) (i.e., inside the 95% confidence interval).
- **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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

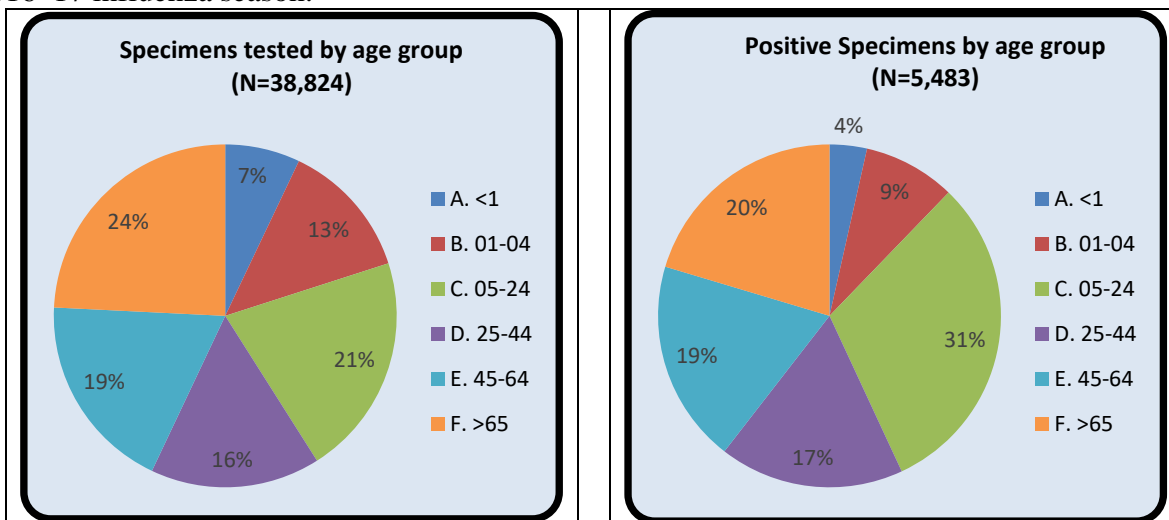
A. INFLUENZA:

- The following reflects laboratory findings for week 27 of the 2016-17 influenza season:
 - A total of **461** specimens have been tested statewide for influenza viruses (positive: **44 [9.5%]**). (Season to date: **38,824** tested [**14.1%** positive])
 - 344 (74.6%) were screened only by rapid antigen tests with no confirmatory testing
 - 117 (25.4%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 417 (90.5%) were negative.

<i>Influenza type</i>	<i>Current week 27 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.3)
<i>Influenza A (H3)</i>	0 (0.0)	194 (3.5)
<i>Influenza A no subtyping</i>	30 (68.2)	4,254 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	14 (31.8)	998 (18.2)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

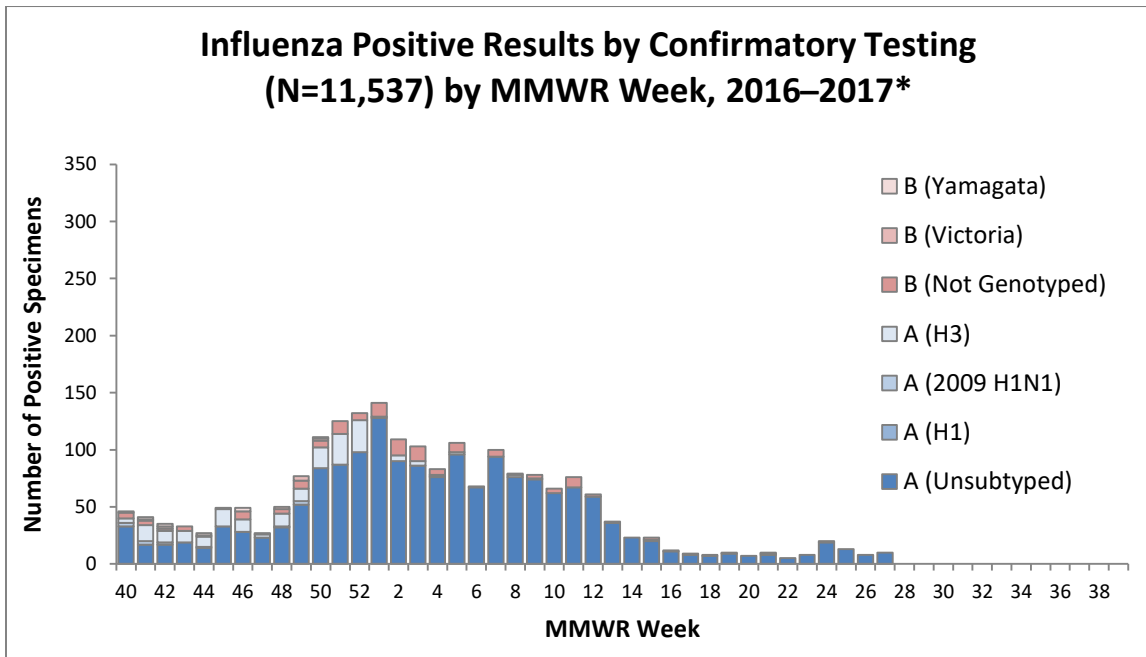
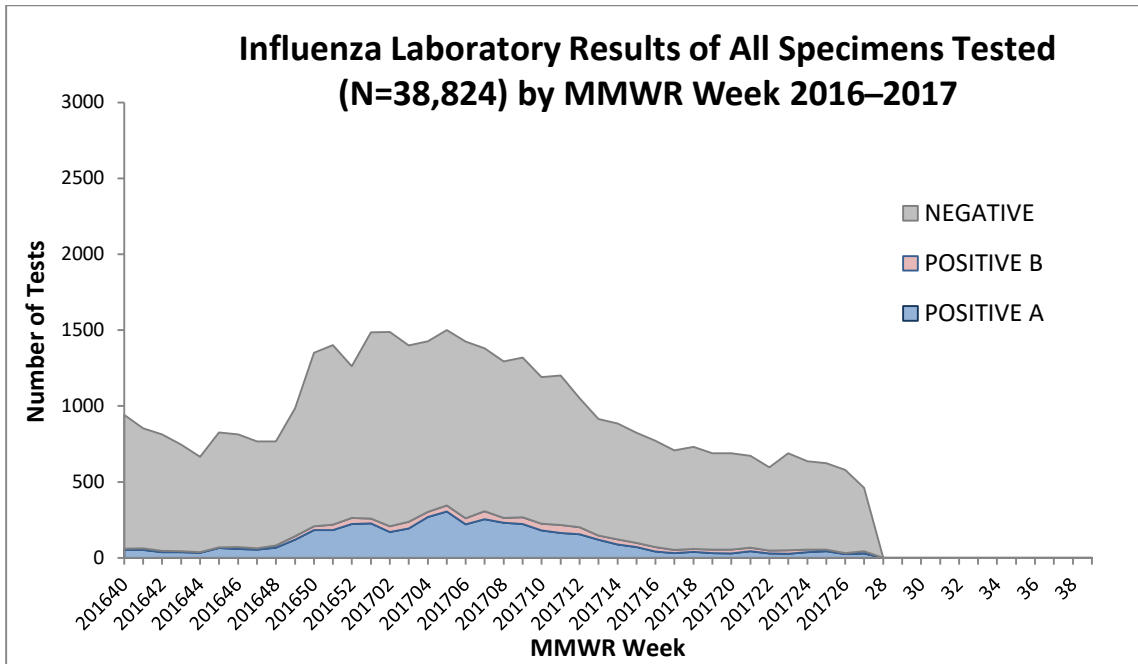


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



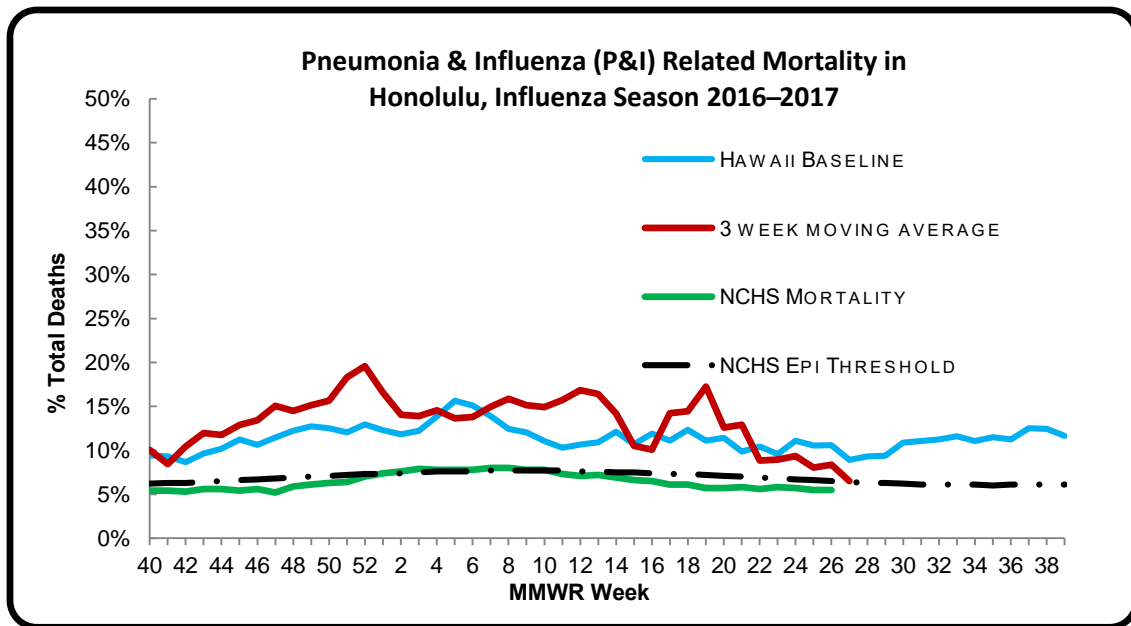
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *9.9% of all deaths that occurred in Honolulu during week 27 were related to pneumonia or influenza. For the current season (season to date: 13.2%), there have been 3,679 deaths from any cause, 487 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, zero influenza-associated pediatric deaths were reported to CDC during week 27. One death that was reported earlier this season was reclassified by the reporting jurisdiction. (Season total: 102).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14).

⁸ 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

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:

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 2016–2017 influenza season.*
- *Two human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, with China in its fifth epidemic, and 714 reported human infections as of June 8, 2017. 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 15, 2017**.

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. 2016-2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016 – April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017-2018 INFLUENZA VACCINE:

The composition of the 2017-2018 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 2017-2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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

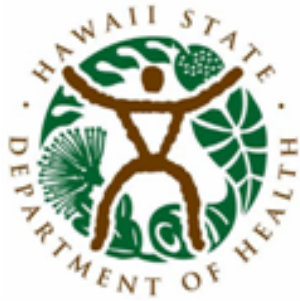
For more information regarding local and national influenza surveillance programs, visit the following sites.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
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49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 28: JULY 9, 2017–JULY 15, 2017

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.**

REPORT SNAPSHOT FOR WEEK 28

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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	0	There have been 41 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	6.0%	Lower than the previous week. This number means that many, if not all, of the 94.0% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	14.0%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	13.6%	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	2	

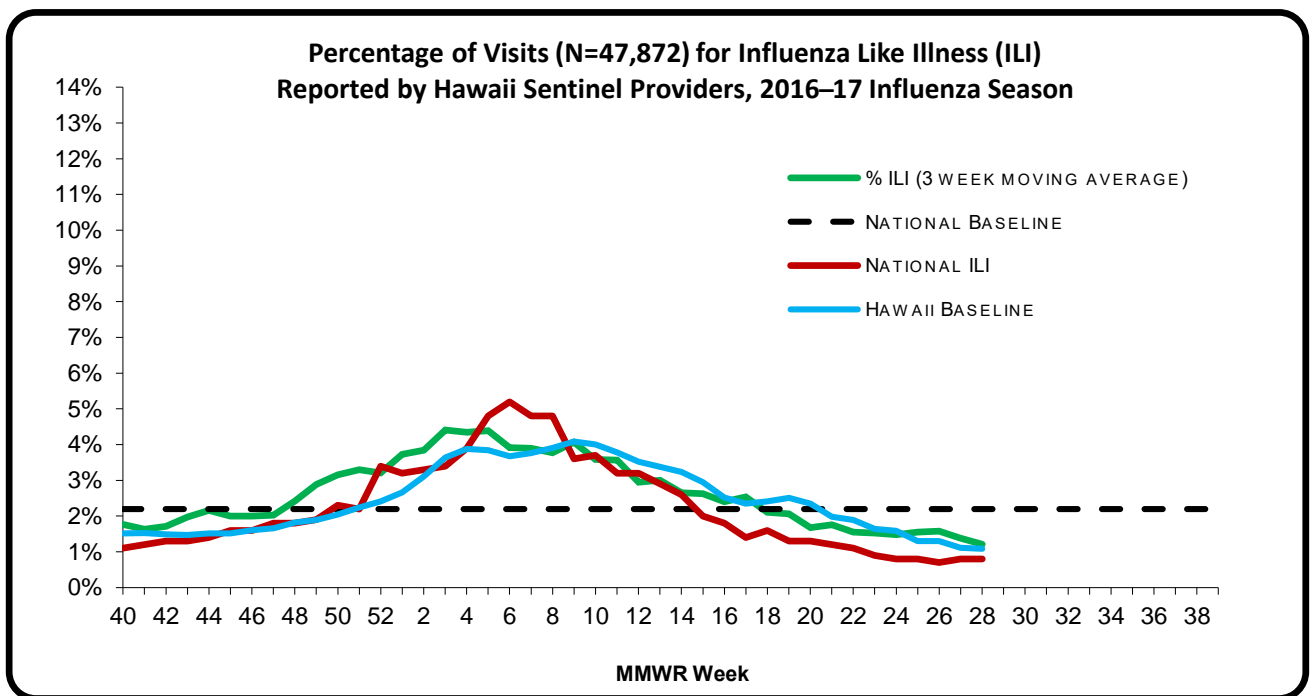
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **0.9%** (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 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 (0.8%) (i.e., inside the 95% confidence interval).
- **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 (2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015).

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.

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 criteria⁵ 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](#)).

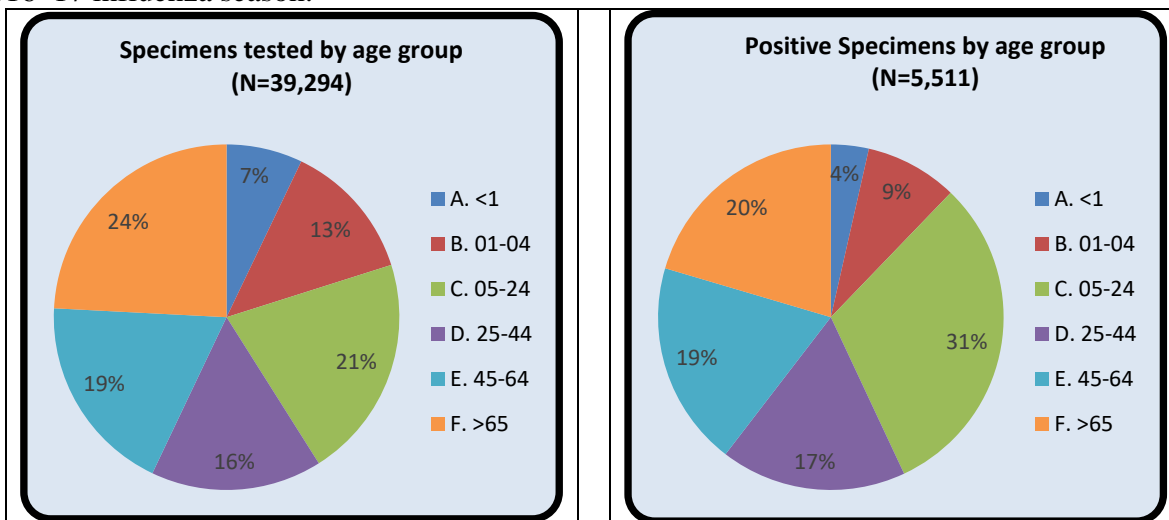
A. INFLUENZA:

- The following reflects laboratory findings for week 28 of the 2016-17 influenza season:
 - A total of **469** specimens have been tested statewide for influenza viruses (positive: **28 [6.0%]**). (Season to date: **39,294** tested [**14.0%** positive])
 - 330 (70.4%) were screened only by rapid antigen tests with no confirmatory testing
 - 139 (29.6%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 441 (94.0%) were negative.

<i>Influenza type</i>	<i>Current week 28 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.3)
<i>Influenza A (H3)</i>	0 (0.0)	194 (3.5)
<i>Influenza A no subtyping</i>	24 (85.7)	4,278 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	4 (14.3)	1002 (18.2)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

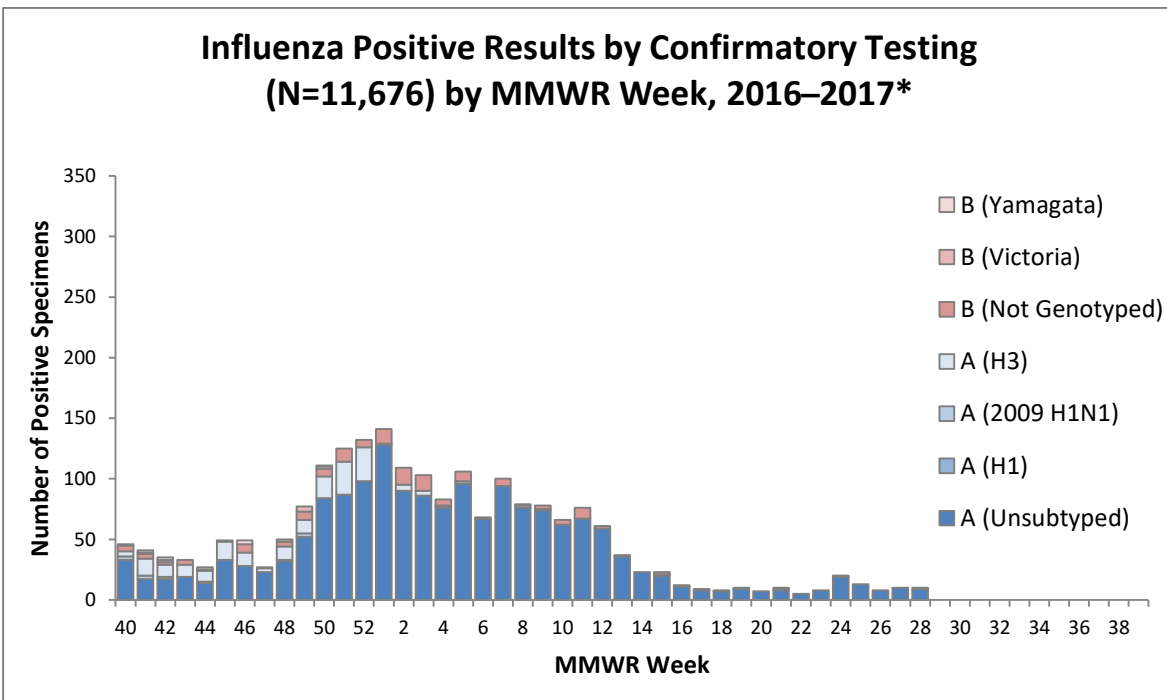
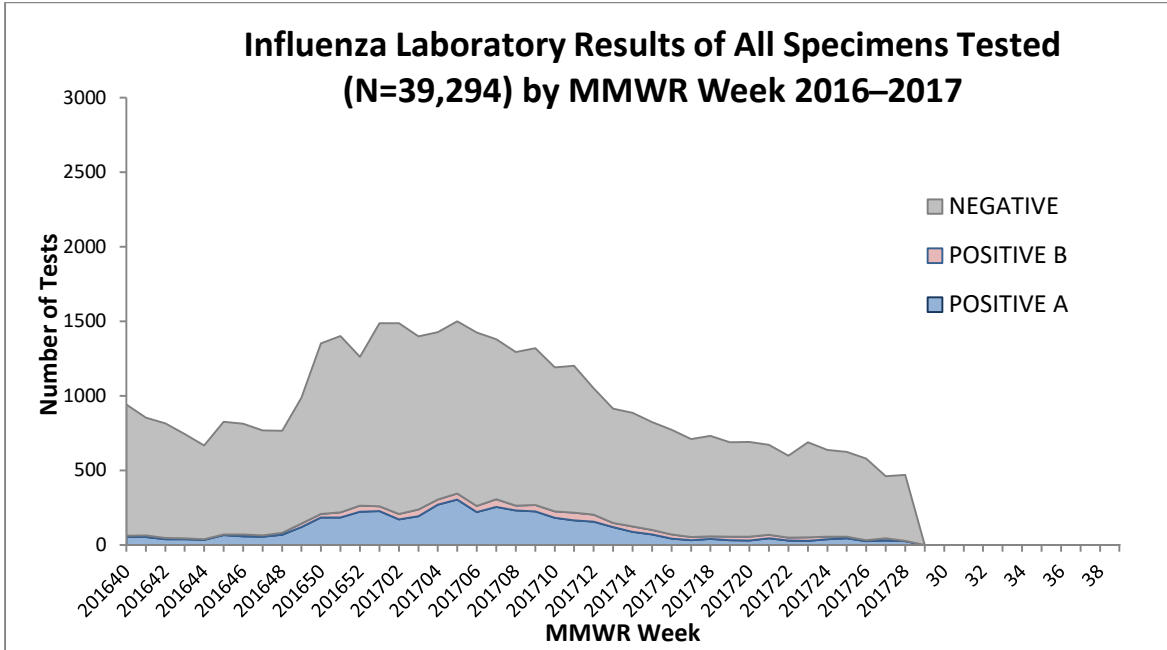


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



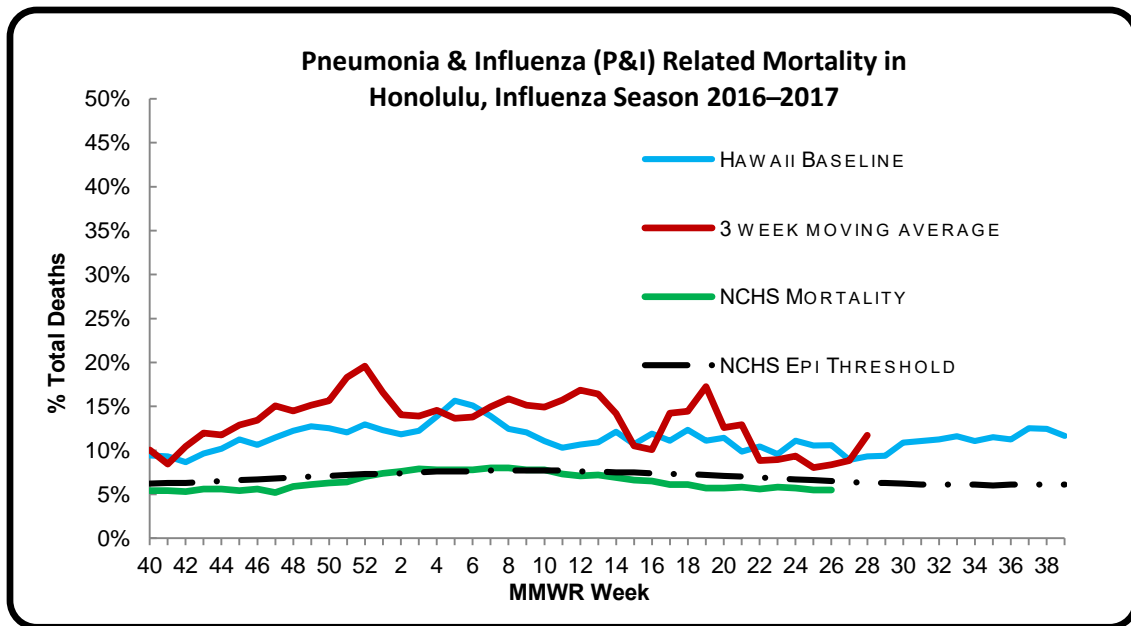
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 13.6% of all deaths that occurred in Honolulu during week 28 were related to pneumonia or influenza. For the current season (season to date: 13.2%), there have been 3,760 deaths from any cause, 498 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, two influenza-associated pediatric deaths were reported to CDC during week 28. One death was associated with an influenza A (H3) virus and occurred during week 21, and one death was associated with an influenza B virus and occurred during week 7. (Season total: 102).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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 2016–2017 influenza season.*
- *Two human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, with China in its fifth epidemic, and 714 reported human infections as of June 8, 2017. 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 15, 2017**.

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. 2016-2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016 – April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017-2018 INFLUENZA VACCINE:

The composition of the 2017-2018 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 2017-2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 29: JULY 16, 2017–JULY 22, 2017

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.**

REPORT SNAPSHOT FOR WEEK 29

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	0.9%	No change from 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 42 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	9.0%	Higher than the previous week. This number means that many, if not all, of the 91.0% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	14.0%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	6.0%	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	

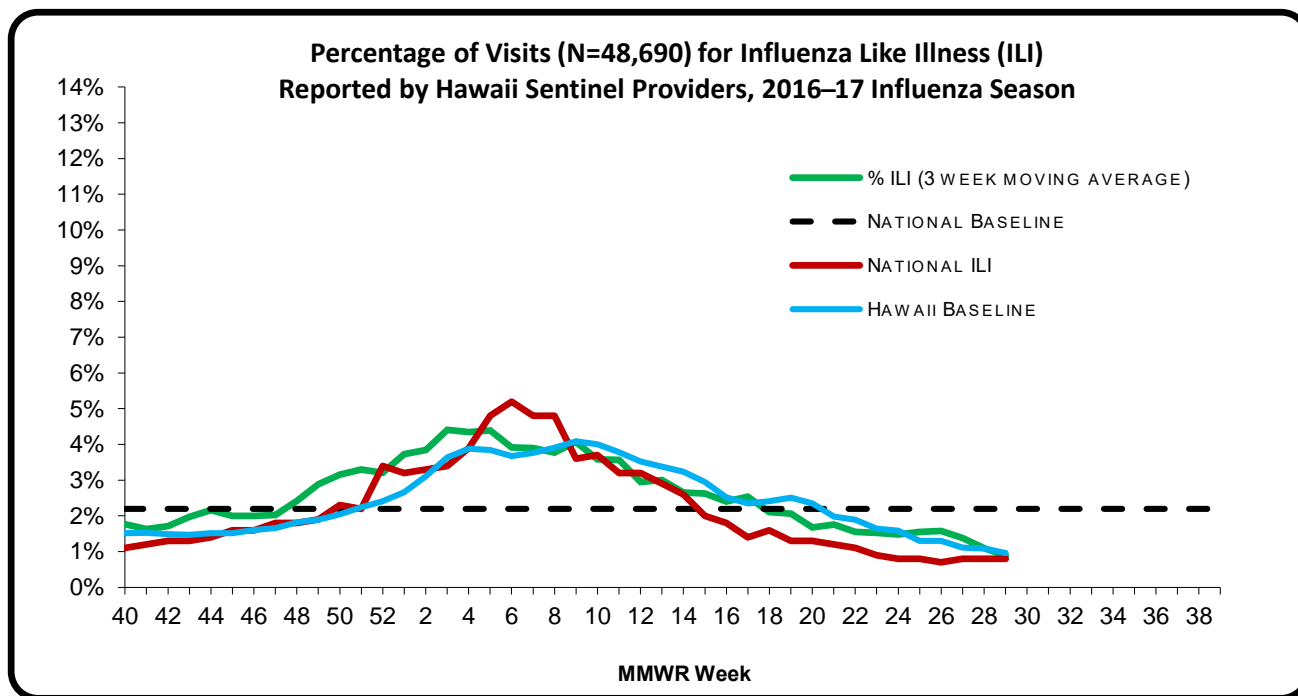
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **0.9%** (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 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).
- **ILI Cluster Activity:** One new cluster was reported to HDOH during week 29. This cluster occurred at a long term care facility 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

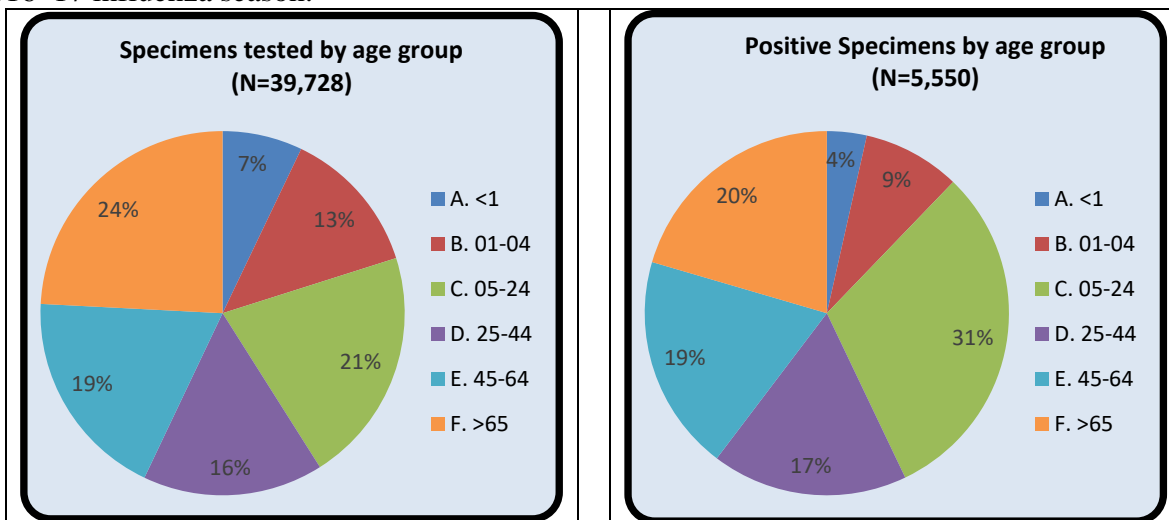
A. INFLUENZA:

- The following reflects laboratory findings for week 29 of the 2016-17 influenza season:
 - A total of **434** specimens have been tested statewide for influenza viruses (positive: **39 [9.0%]**). (Season to date: **39,728** tested [**14.0%** positive])
 - 314 (72.4%) were screened only by rapid antigen tests with no confirmatory testing
 - 120 (27.6%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 395 (91.0%) were negative.

<i>Influenza type</i>	<i>Current week 29 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.3)
<i>Influenza A (H3)</i>	0 (0.0)	194 (3.5)
<i>Influenza A no subtyping</i>	30 (76.9)	4,308 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	9 (23.1)	1011 (18.2)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

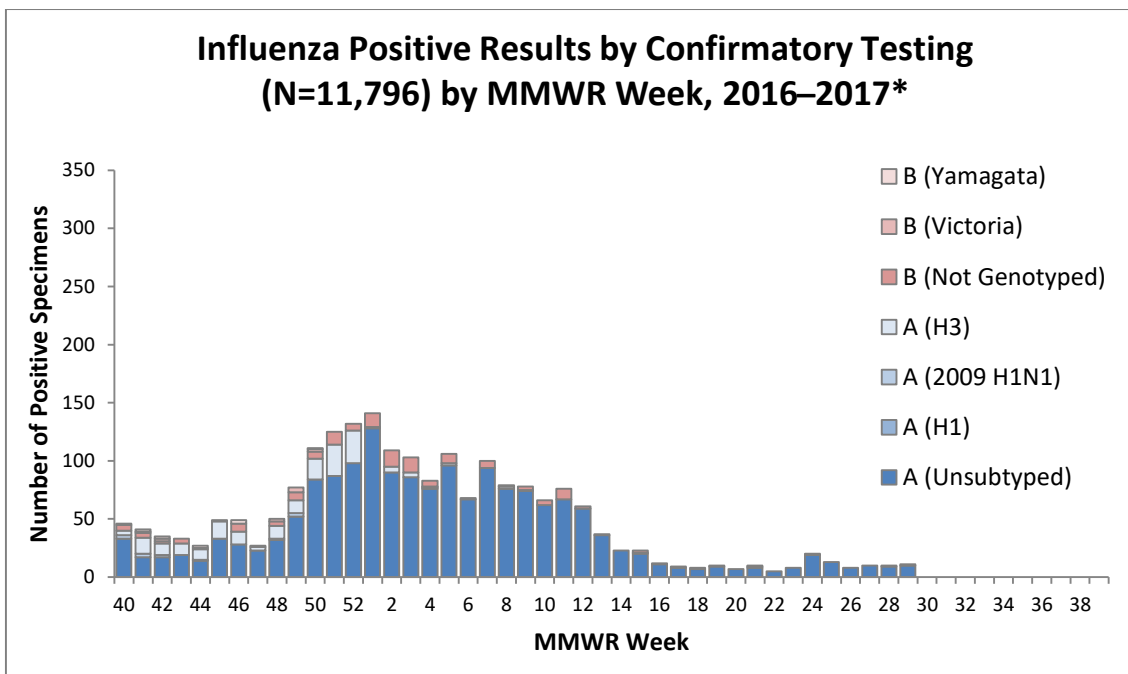
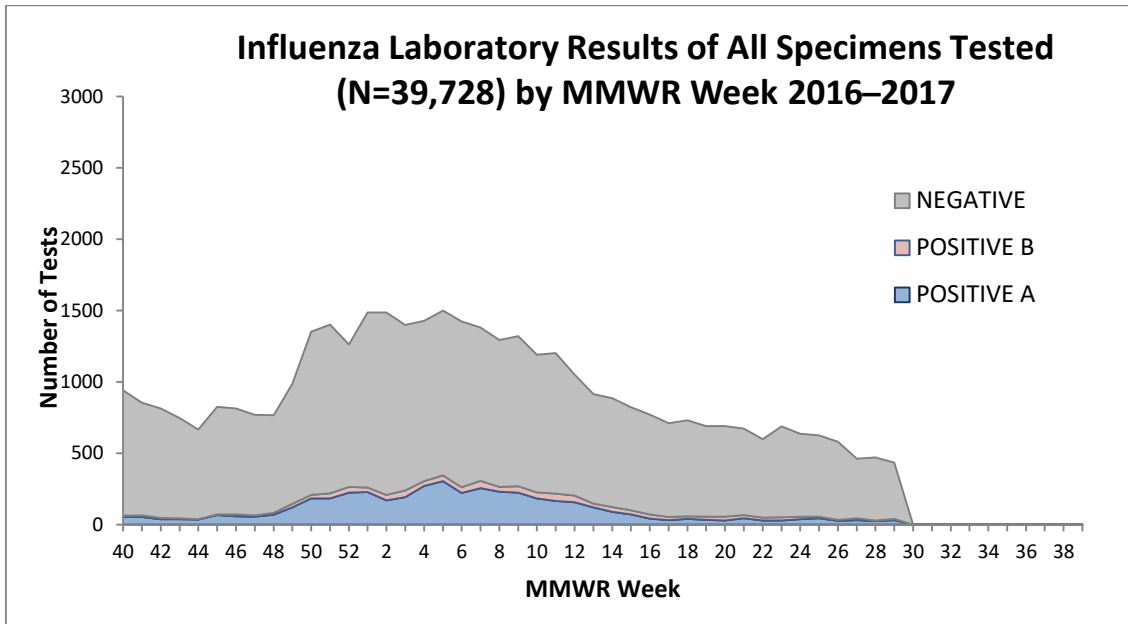


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



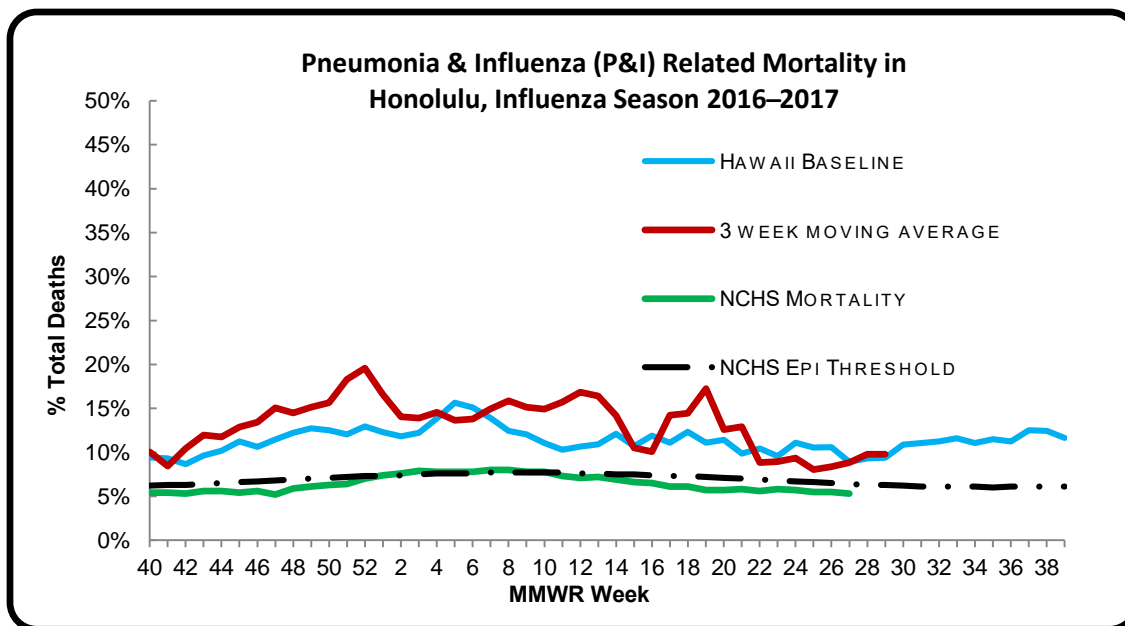
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **6.0%** of all deaths that occurred in Honolulu during week 29 were related to pneumonia or influenza. For the current season (season to date: **13.1%**), there have been 3,827 deaths from any cause, 502 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 29. The death was associated with an influenza A virus for which no subtyping was performed and occurred during week 7 (the week ending February 18, 2017). (Season total: 103).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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.

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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 2016–2017 influenza season.*
- *Thirteen human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
 - *Eleven human infections with novel influenza A viruses were detected in Ohio during week 29. All 11 persons were infected with influenza A H3N2v variant viruses and reported exposure to swine in a fair setting during the week preceding illness onset. None were hospitalized and all have fully recovered from their illness. No human-to-human transmission has been identified.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, with China in its fifth epidemic, and 714 reported human infections as of June 8, 2017. 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 15, 2017**.

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. 2016-2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016 – April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017-2018 INFLUENZA VACCINE:

The composition of the 2017-2018 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 2017-2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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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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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2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
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26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
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29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
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44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 30: JULY 23, 2017–JULY 29, 2017

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.**

REPORT SNAPSHOT FOR WEEK 30

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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 comparable to the national baseline.
Number of ILI clusters reported to HDOH	1	There have been 43 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	7.5%	Lower than the previous week. This number means that many, if not all, of the 92.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	13.9%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	14.5%	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	

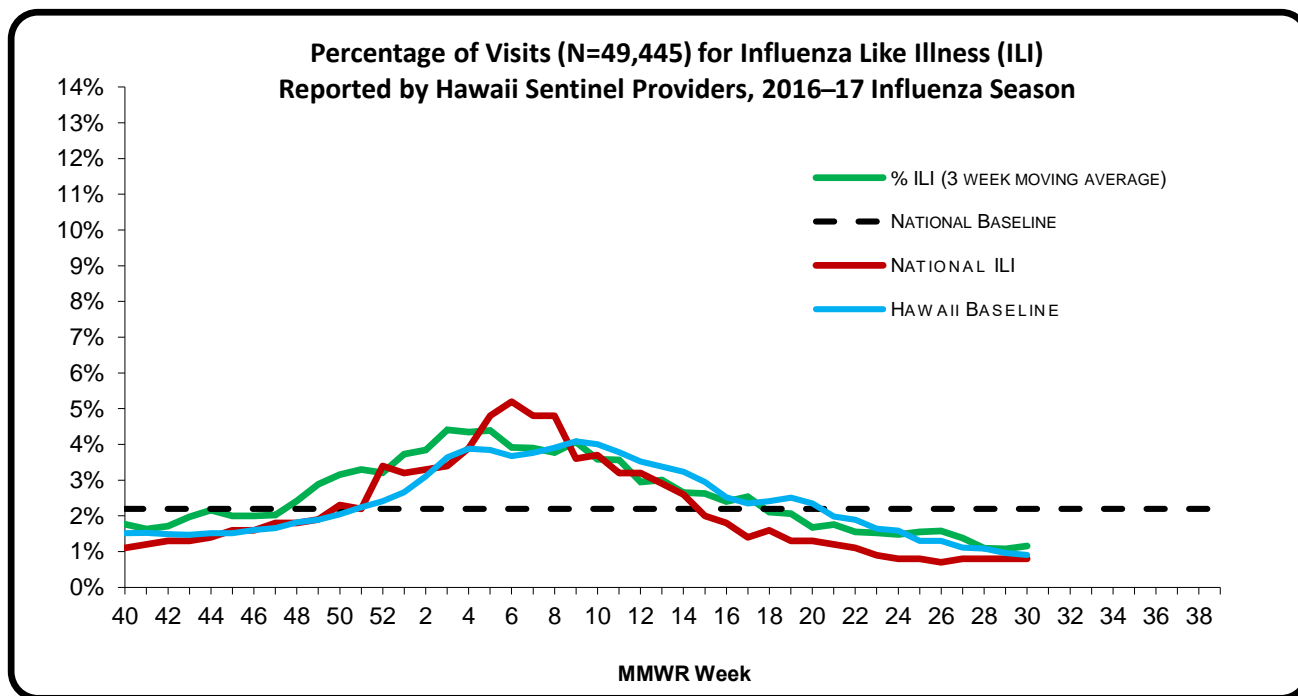
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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: **2.7%**) 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 (0.8%) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** One new cluster was reported to HDOH during week 30. This cluster occurred at a long term care facility 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

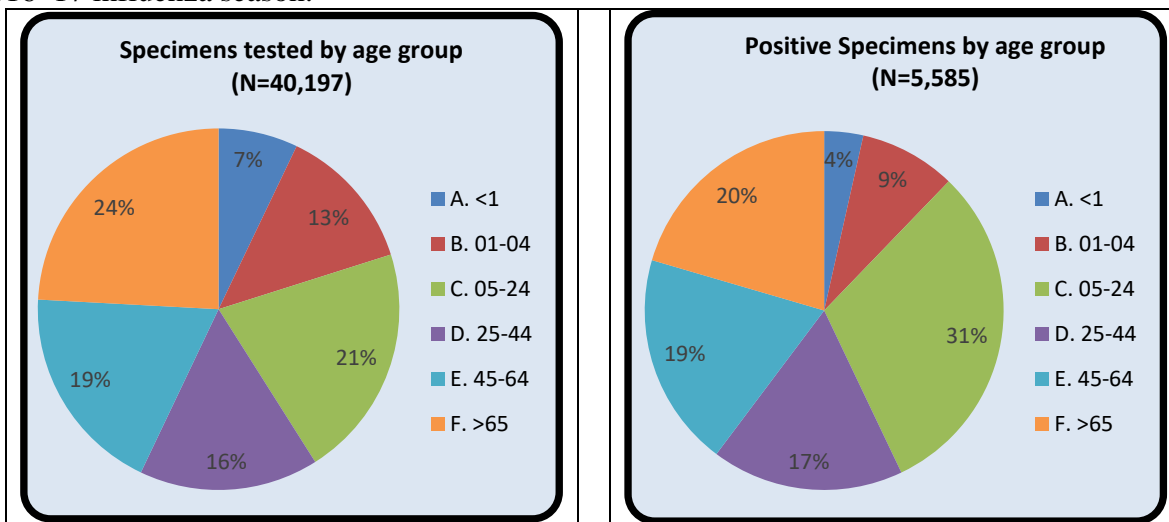
A. INFLUENZA:

- The following reflects laboratory findings for week 30 of the 2016–17 influenza season:
 - A total of **469** specimens have been tested statewide for influenza viruses (positive: **35 [7.5%]**). (Season to date: **40,197** tested [**13.9%** positive])
 - 344 (73.3%) were screened only by rapid antigen tests with no confirmatory testing
 - 125 (26.7%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 434 (92.5%) were negative.

<i>Influenza type</i>	<i>Current week 30 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.3)
<i>Influenza A (H3)</i>	0 (0.0)	194 (3.5)
<i>Influenza A no subtyping</i>	26 (74.3)	4,334 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	9 (25.7)	1020 (18.2)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

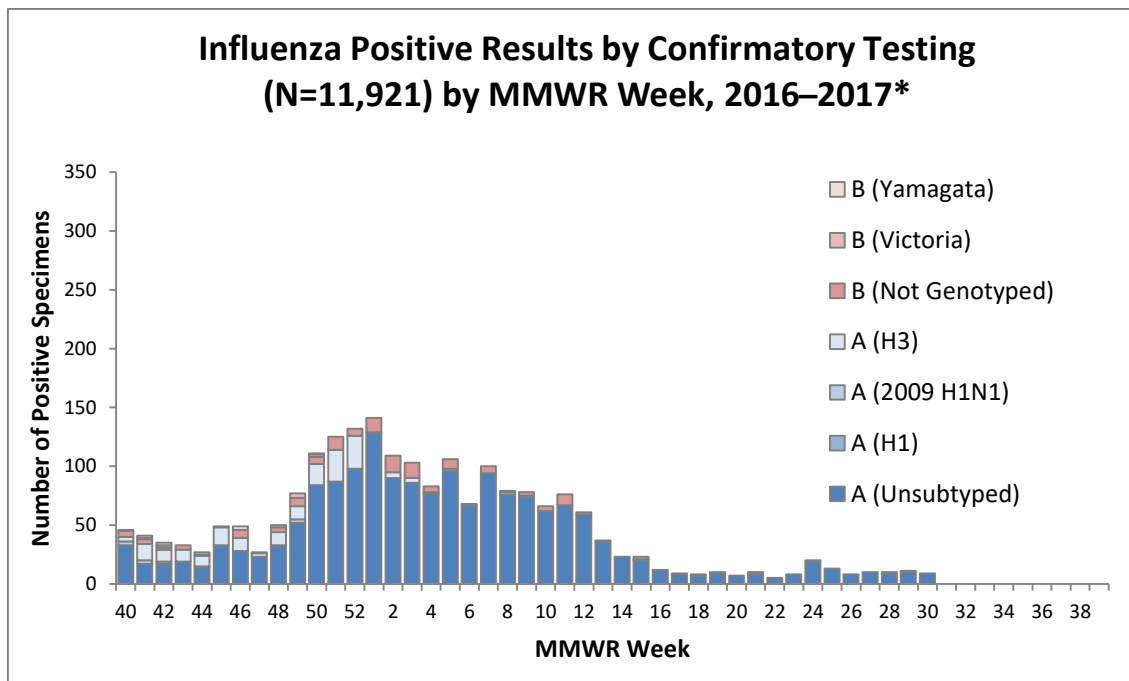
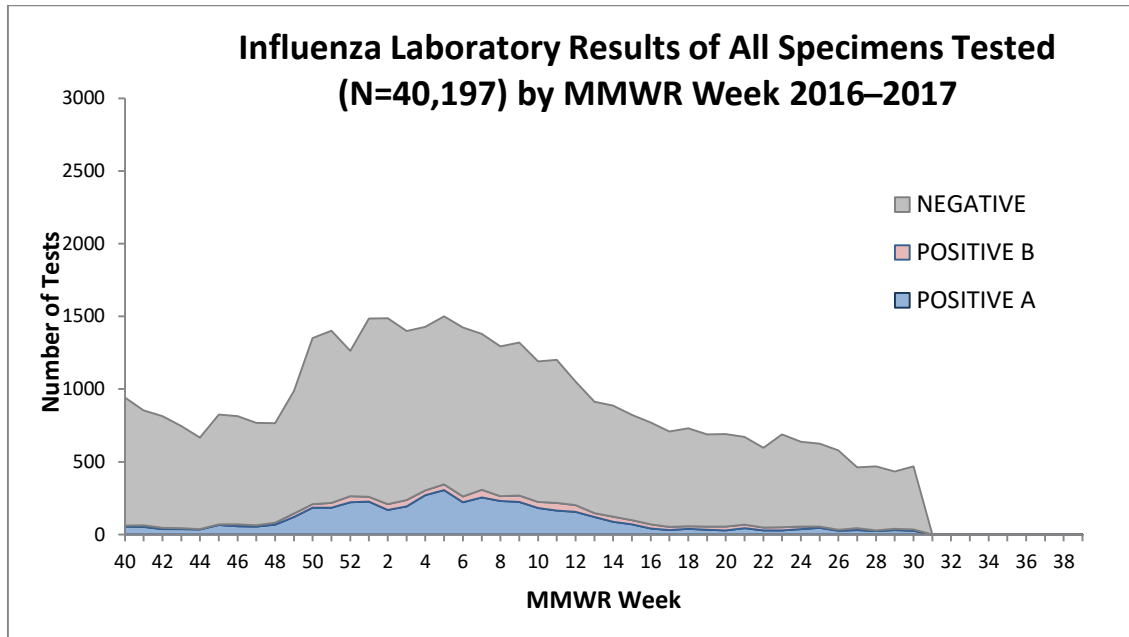


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



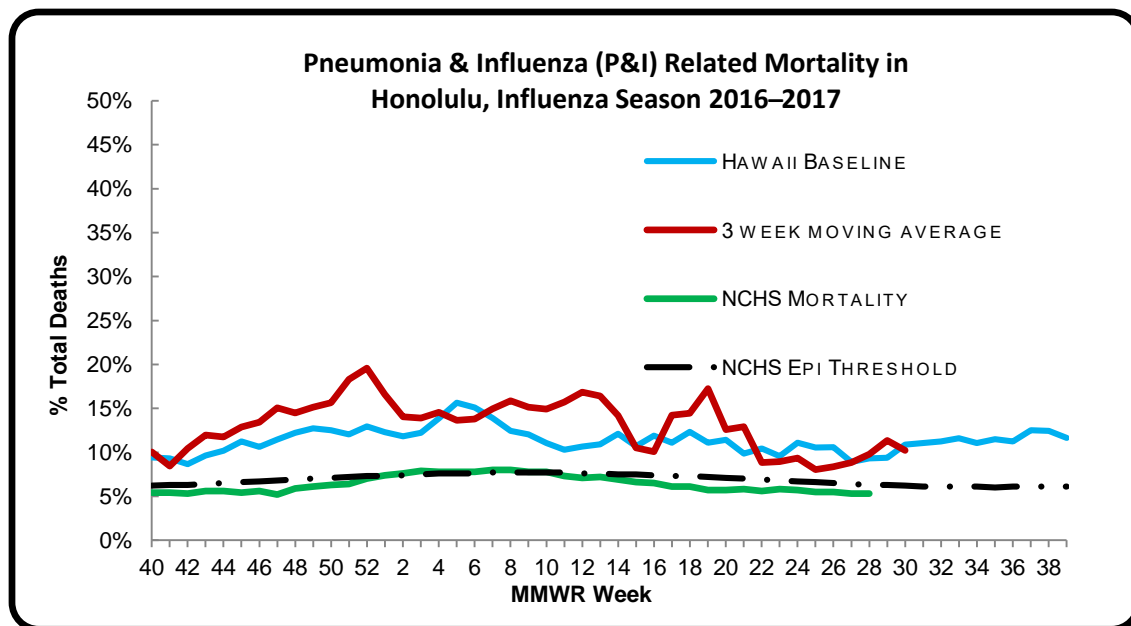
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *14.5% of all deaths that occurred in Honolulu during week 30 were related to pneumonia or influenza. For the current season (season to date: 13.1%), there have been 3,903 deaths from any cause, 513 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 30. The death was associated with an influenza B and occurred during week 12 (the week ending March 25, 2017). (Season total: 104).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

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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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 - *One additional human infection with a novel influenza A virus was detected in Ohio during week 30. The person was infected with an influenza A H1N2v virus and reported direct exposure to swine in a fair setting during the week preceding illness onset. This patient was younger than 18 years of age, was not hospitalized, and has fully recovered from their illness. No human-to-human transmission of this virus has been identified. This is the first human infection with an H1N2v virus identified in 2017.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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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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The composition of the 2017–2018 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 2017–2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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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2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
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17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 31: JULY 30, 2017–AUGUST 5, 2017

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.**

REPORT SNAPSHOT FOR WEEK 31

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.1%	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 43 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	7.6%	Higher than the previous week. This number means that many, if not all, of the 92.4% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	13.8%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	6.5%	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	

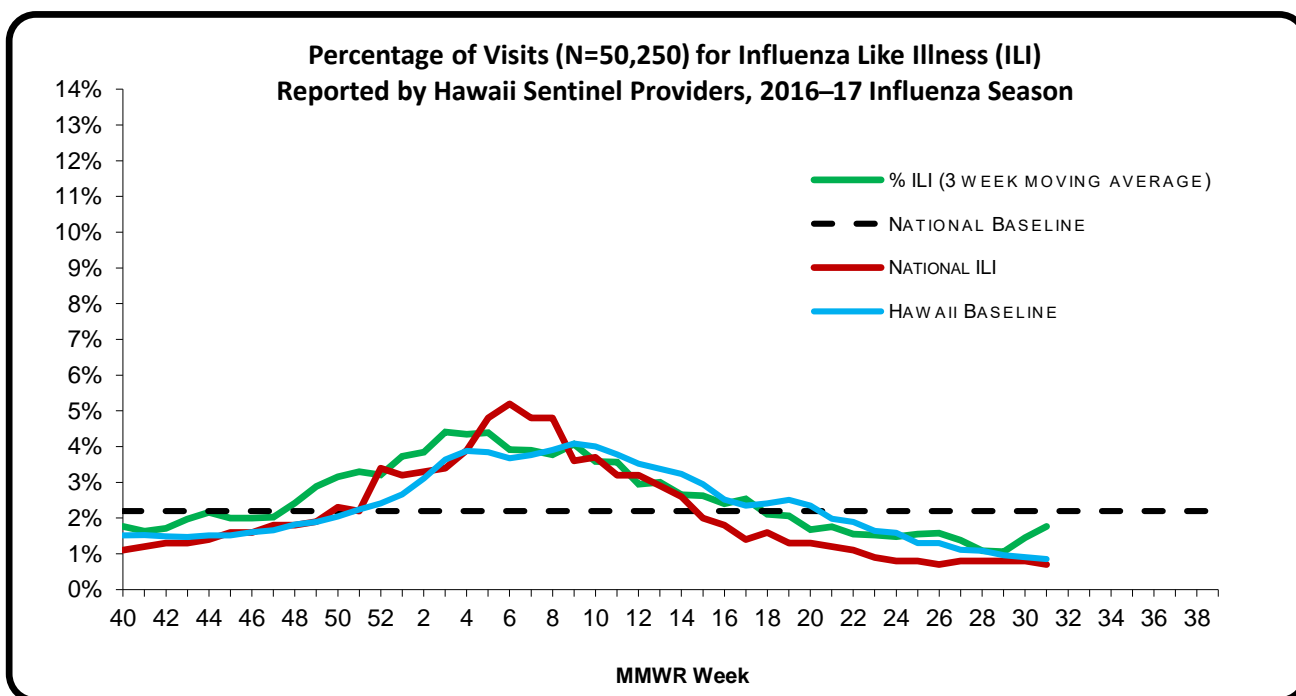
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **2.1%** (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 (0.7%) (i.e., outside the 95% confidence interval).
- **ILI Cluster Activity:** No new clusters were reported to HDOH during week 31.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

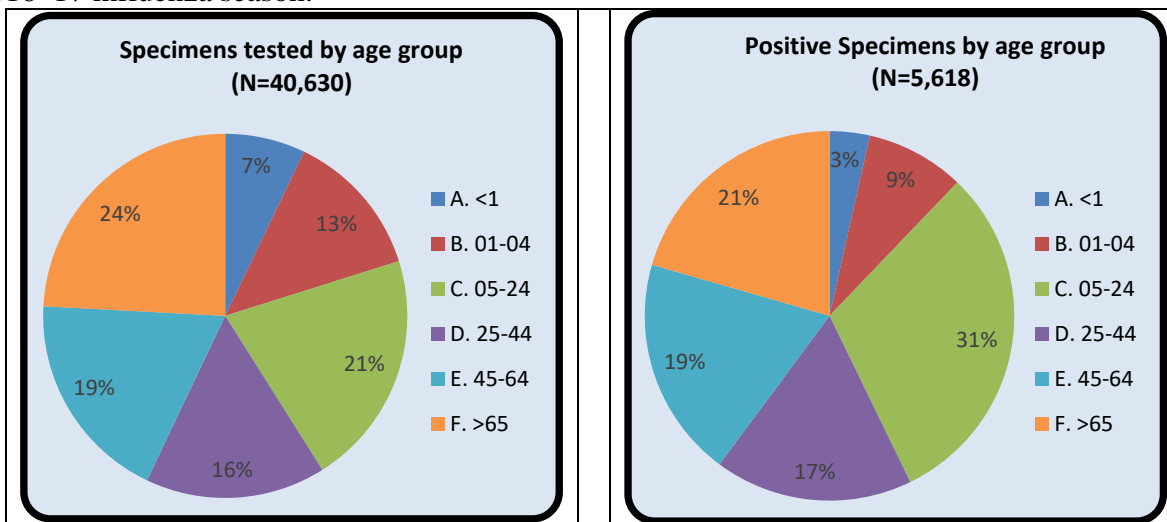
A. INFLUENZA:

- The following reflects laboratory findings for week 31 of the 2016–17 influenza season:
 - A total of **433** specimens have been tested statewide for influenza viruses (positive: **33 [7.6%]**). (Season to date: **40,630** tested [**13.8%** positive])
 - 311 (71.8%) were screened only by rapid antigen tests with no confirmatory testing
 - 122 (28.2%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 400 (92.4%) were negative.

<i>Influenza type</i>	<i>Current week 31 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.3)
<i>Influenza A (H3)</i>	0 (0.0)	194 (3.5)
<i>Influenza A no subtyping</i>	27 (81.8)	4,361 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	6 (18.2)	1026 (18.2)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

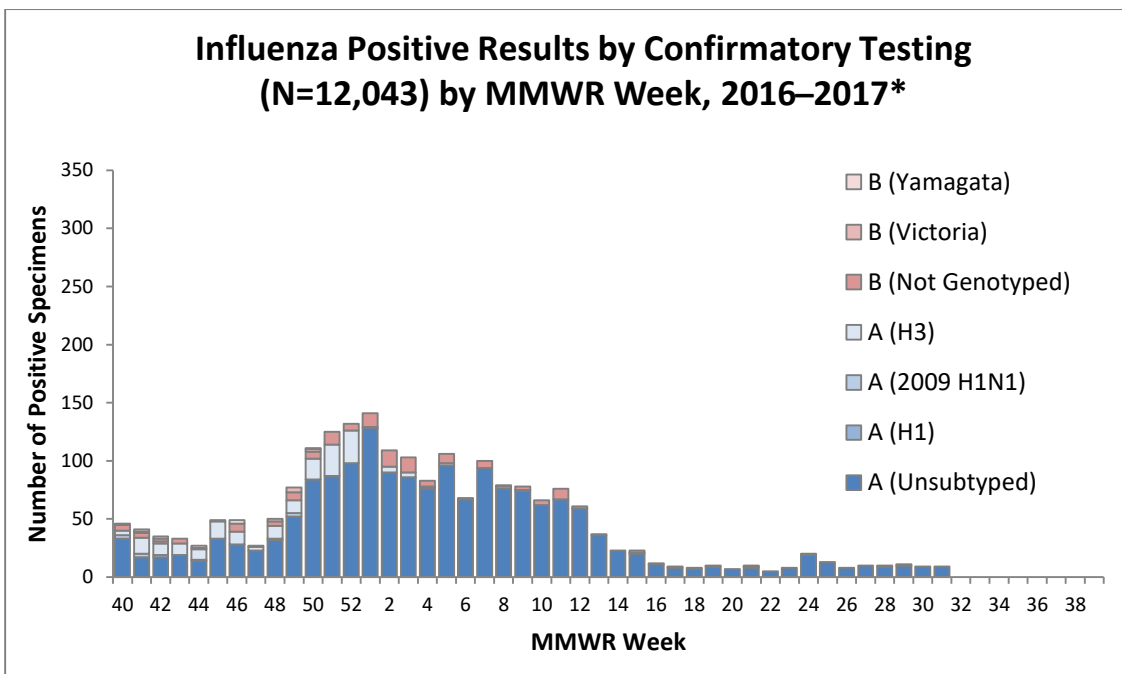
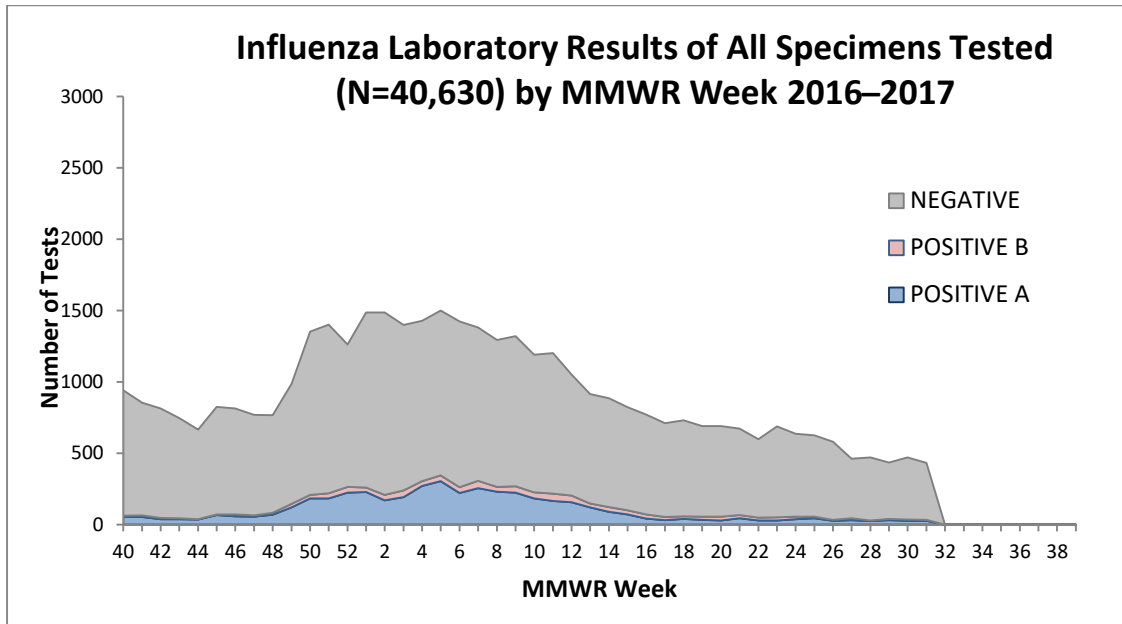


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



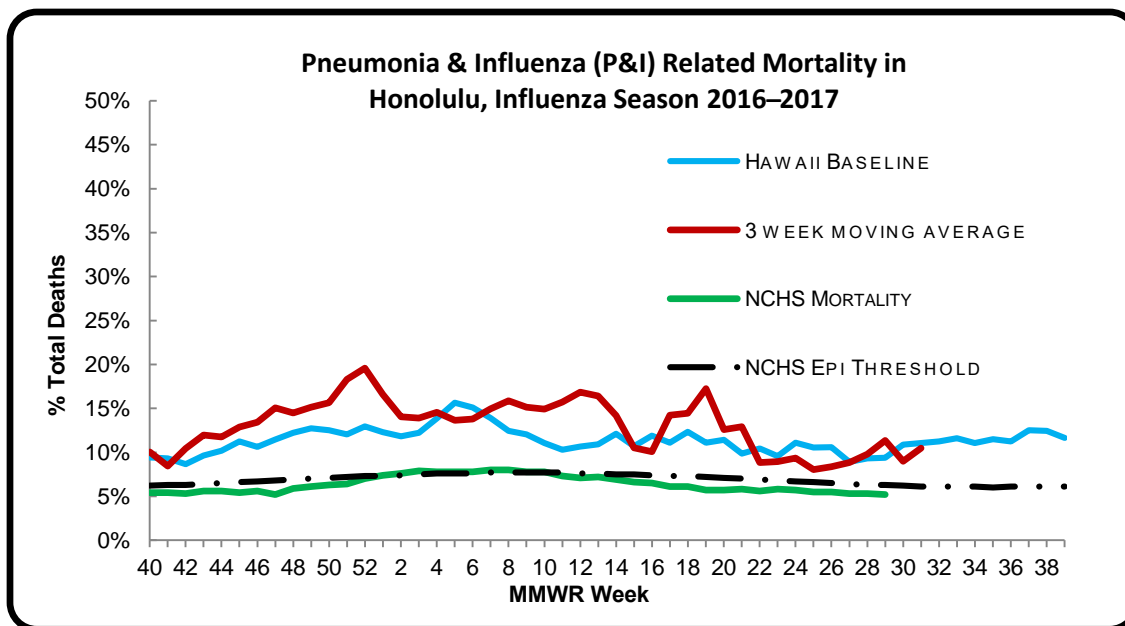
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *6.5% of all deaths that occurred in Honolulu during week 31 were related to pneumonia or influenza. For the current season (season to date: 13.0%), there have been 3,980 deaths from any cause, 518 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 31. (Season total: 104).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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:

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 2016–2017 influenza season.*
- *Seventeen human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
 - *Three additional human infections with a novel influenza A virus were detected in Ohio during week 31. All three persons were infected with an influenza A H3N2v virus and reported direct exposure to swine in a fair setting during the week preceding illness onset. The patients were younger than 18 years of age, were not hospitalized, and have fully recovered from their illness. No human-to-human transmission of this virus has been identified.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, with China in its fifth epidemic, and 1,557 laboratory-confirmed human infections as of July 25, 2017. 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 **July 25, 2017**.

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. 2016–2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016–April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017–2018 INFLUENZA VACCINE:

The composition of the 2017–2018 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 2017–2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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

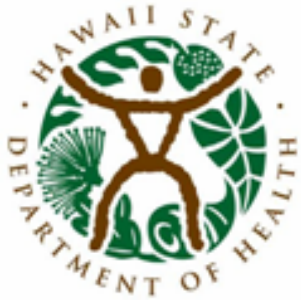
For more information regarding local and national influenza surveillance programs, visit the following sites.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 32: AUGUST 6, 2017–AUGUST 12, 2017

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.**

REPORT SNAPSHOT FOR WEEK 32

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.0%	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	2	There have been 45 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	9.8%	Higher than the previous week. This number means that many, if not all, of the 90.2% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	13.8%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	13.5%	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	

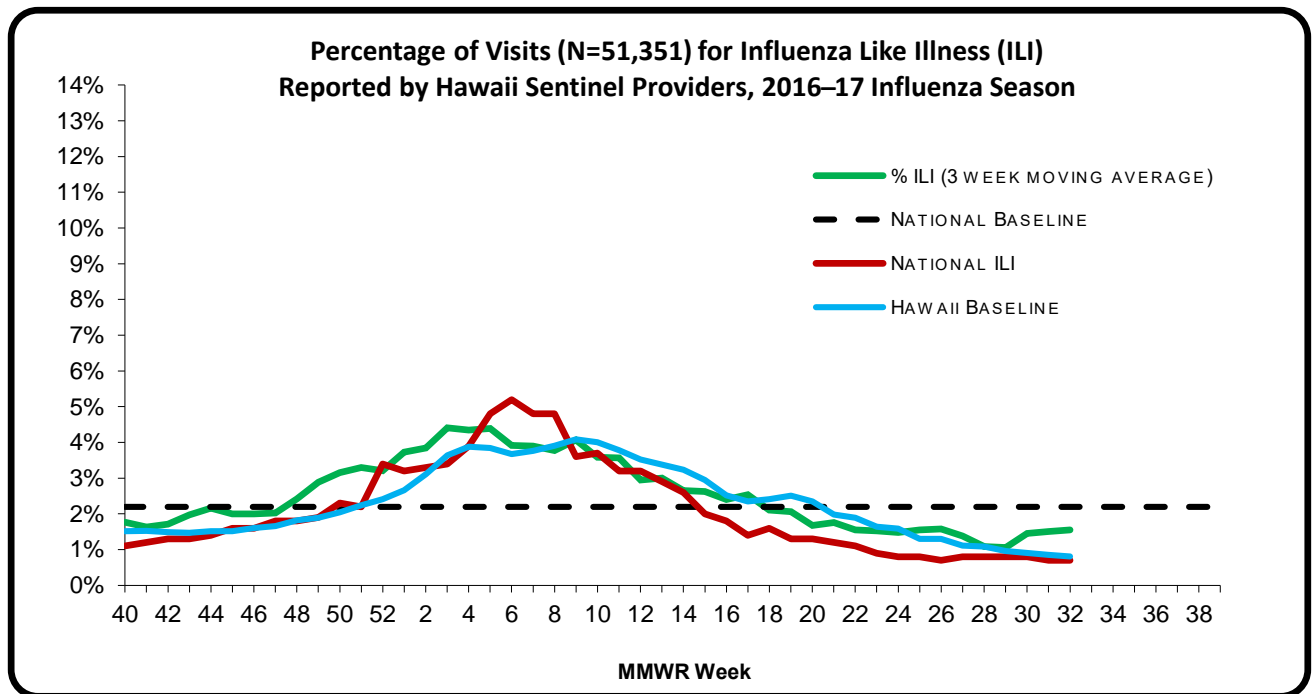
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **1.0%** (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 (0.7%) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** Two new clusters were reported to HDOH during week 32. These clusters occurred at long term care facilities on Oahu. These clusters had cases of influenza A and 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

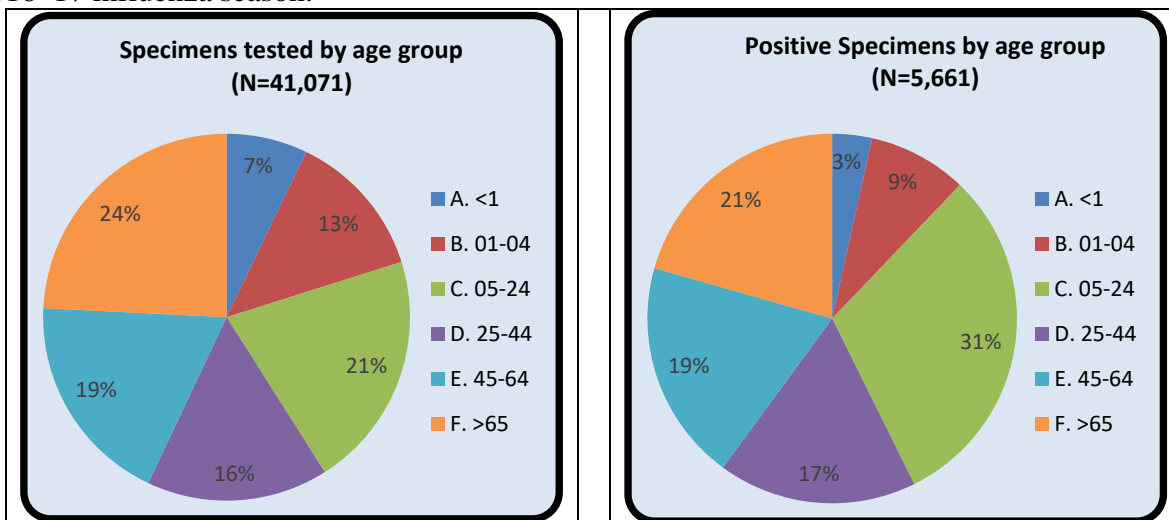
A. INFLUENZA:

- The following reflects laboratory findings for week 32 of the 2016–17 influenza season:
 - A total of **441** specimens have been tested statewide for influenza viruses (positive: **43 [9.8%]**). (Season to date: **41,071** tested [**13.8%** positive])
 - 322 (73.0%) were screened only by rapid antigen tests with no confirmatory testing
 - 119 (27.0%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 398 (90.2%) were negative.

<i>Influenza type</i>	<i>Current week 32 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.2)
<i>Influenza A (H3)</i>	0 (0.0)	194 (3.4)
<i>Influenza A no subtyping</i>	35 (81.4)	4,396 (77.7)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	8 (18.6)	1034 (18.3)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

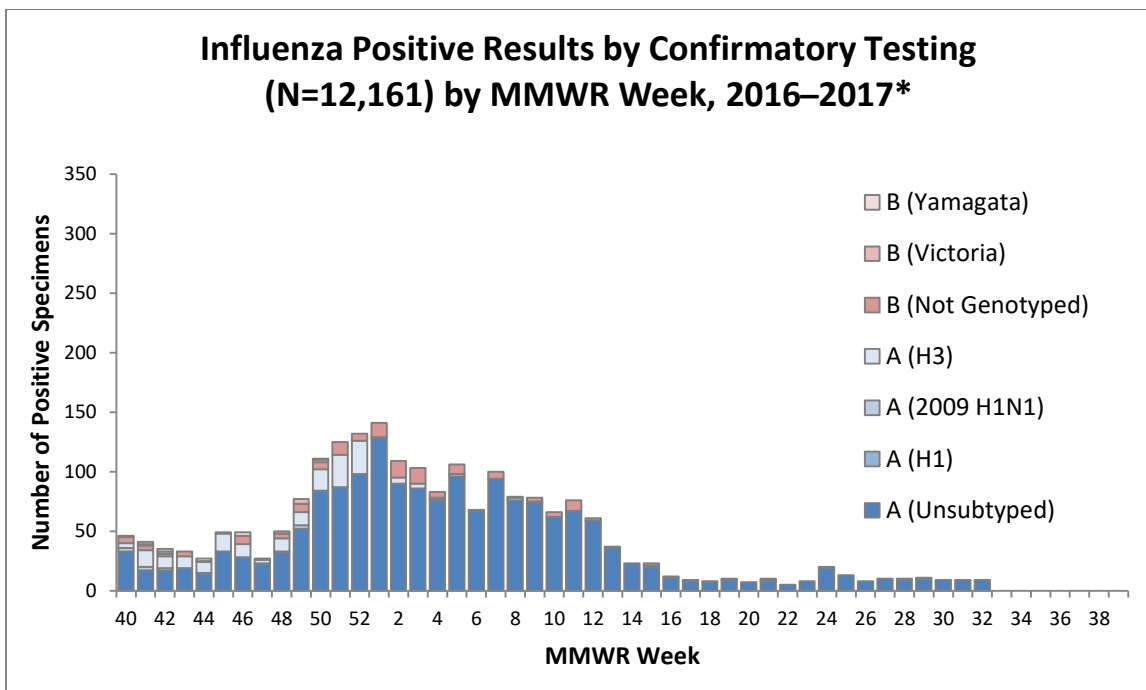
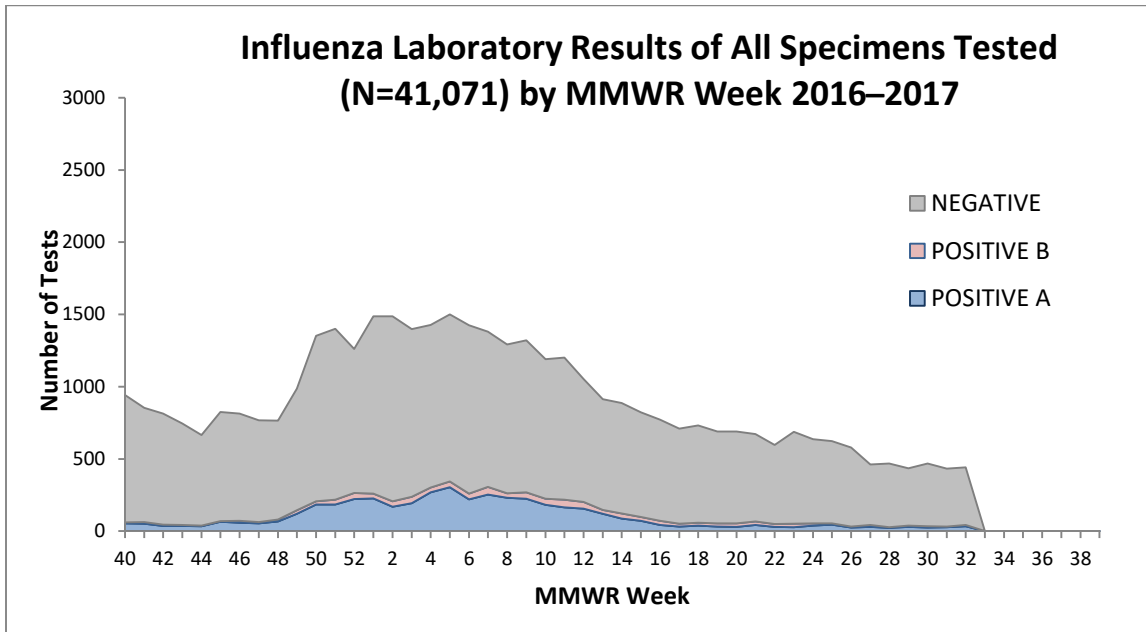


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



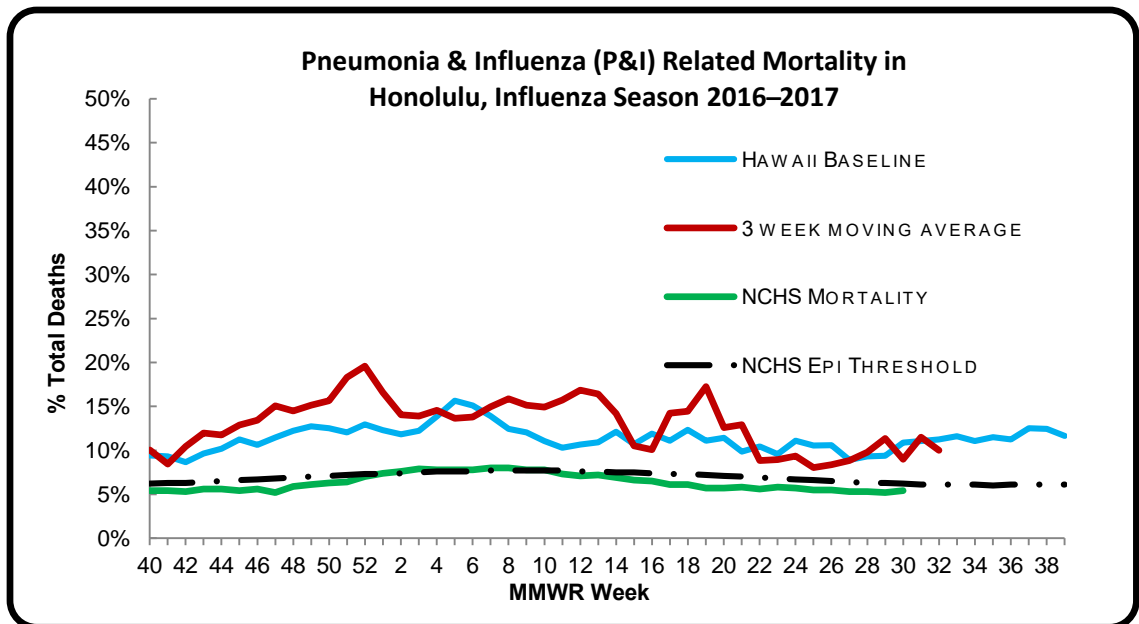
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **13.5%** of all deaths that occurred in Honolulu during week 32 were related to pneumonia or influenza. For the current season (season to date: **13.0%**), there have been 4,069 deaths from any cause, 530 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 32. (Season total: 104).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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:

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 2016–2017 influenza season.*
- *Twenty human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
 - *Three human infections with a novel influenza A virus were reported by three states (North Dakota [1], Ohio [1], and Pennsylvania [1]) during week 32. All three infections were with variant viruses. Viruses from two of the infections have been fully characterized as influenza A H3N2v viruses; the third infection has been characterized as an influenza A H3v virus at this time (further analysis is being performed at CDC to characterize the neuraminidase protein of this virus). All three patients reported exposure to swine in a fair setting during the week preceding illness onset. Two patients reported attendance at the same agricultural fair. The exposure to swine at the agricultural fair reported by the Pennsylvania resident occurred out of state. Two of the three patients were younger than 18 years of age and one patient was an adult aged greater than 64 years. Two of the three patients were hospitalized but all have fully recovered from their illness. No human-to-human transmission of these viruses has been identified.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, with China in its fifth epidemic, and 1,557 laboratory-confirmed human infections as of July 25, 2017. 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 **July 25, 2017**.

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. 2016–2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016–April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017–2018 INFLUENZA VACCINE:

The composition of the 2017–2018 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 2017–2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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

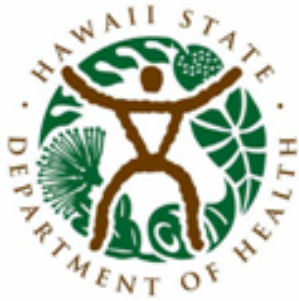
For more information regarding local and national influenza surveillance programs, visit the following sites.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 33: AUGUST 13, 2017–AUGUST 19, 2017

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.**

REPORT SNAPSHOT FOR WEEK 33

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	0.6%	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 45 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	8.7%	Lower than the previous week. This number means that many, if not all, of the 91.3% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	13.7%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	11.8%	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	

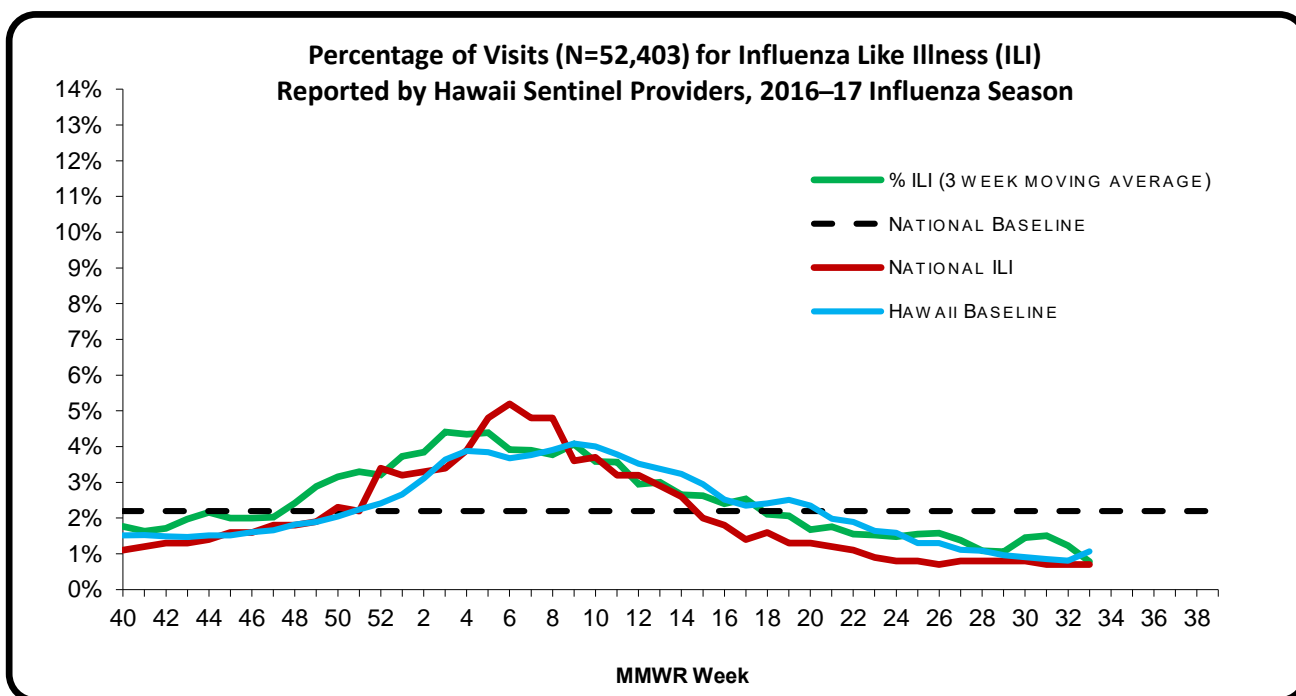
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For week 33 of the current influenza season:

- **0.6%** (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 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 (0.7%) (i.e., inside the 95% confidence interval).
- *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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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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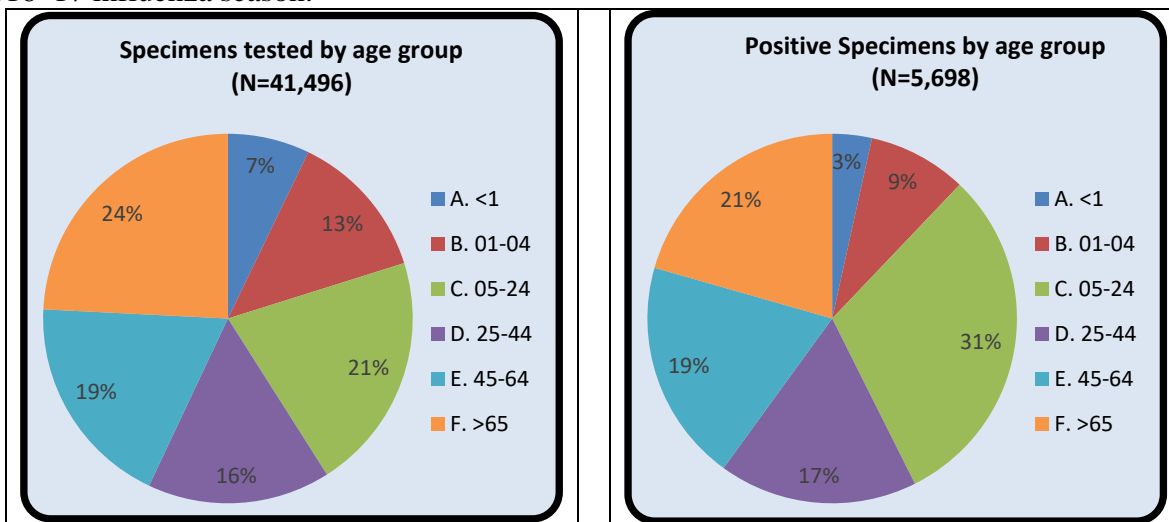
A. INFLUENZA:

- The following reflects laboratory findings for week 33 of the 2016–17 influenza season:
 - A total of 425 specimens have been tested statewide for influenza viruses (positive: 37 [8.7%]). (Season to date: 41,496 tested [13.7% positive])
 - 299 (70.4%) were screened only by rapid antigen tests with no confirmatory testing
 - 126 (29.6%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 388 (91.3%) were negative.

<i>Influenza type</i>	<i>Current week 33 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.2)
<i>Influenza A (H3)</i>	0 (0.0)	194 (3.4)
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<i>Influenza B no genotyping</i>	11 (29.7)	1,045 (18.3)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

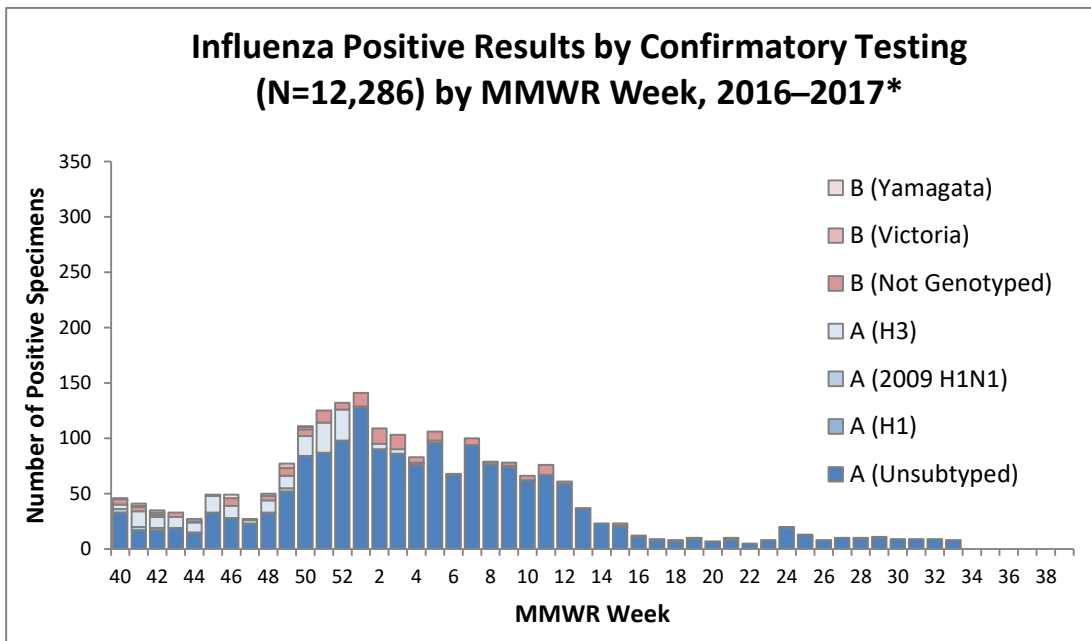
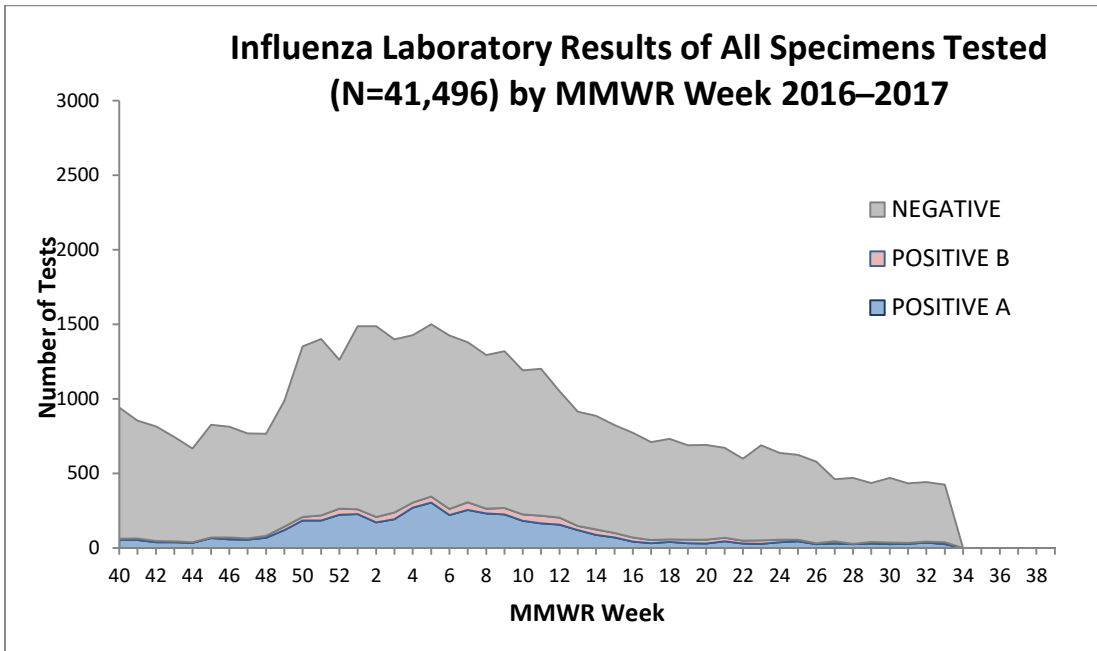


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



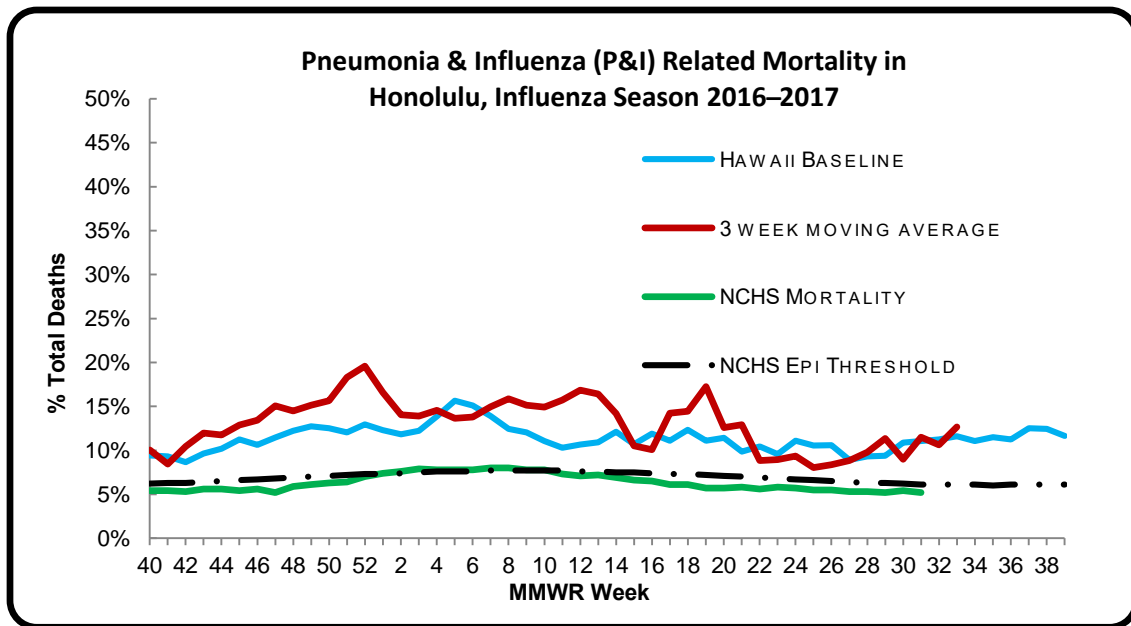
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *11.8% of all deaths that occurred in Honolulu during week 33 were related to pneumonia or influenza. For the current season (season to date: 13.0%), there have been 4,145 deaths from any cause, 539 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 33. (Season total: 104).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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 2016–2017 influenza season.*
- *Twenty human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season. No additional human infections with novel influenza A viruses were reported to CDC during week 33.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, with China in its fifth epidemic, and 1,557 laboratory-confirmed human infections as of July 25, 2017. 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 **July 25, 2017**.

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. 2016–2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016–April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017–2018 INFLUENZA VACCINE:

The composition of the 2017–2018 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 2017–2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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

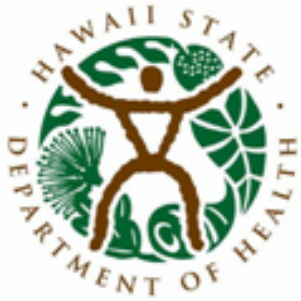
For more information regarding local and national influenza surveillance programs, visit the following sites.

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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 34: AUGUST 20, 2017–AUGUST 26, 2017

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.**

REPORT SNAPSHOT FOR WEEK 34

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	1.7%	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	0	There have been 45 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	9.9%	Higher than the previous week. This number means that many, if not all, of the 90.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	13.7%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	10.8%	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	

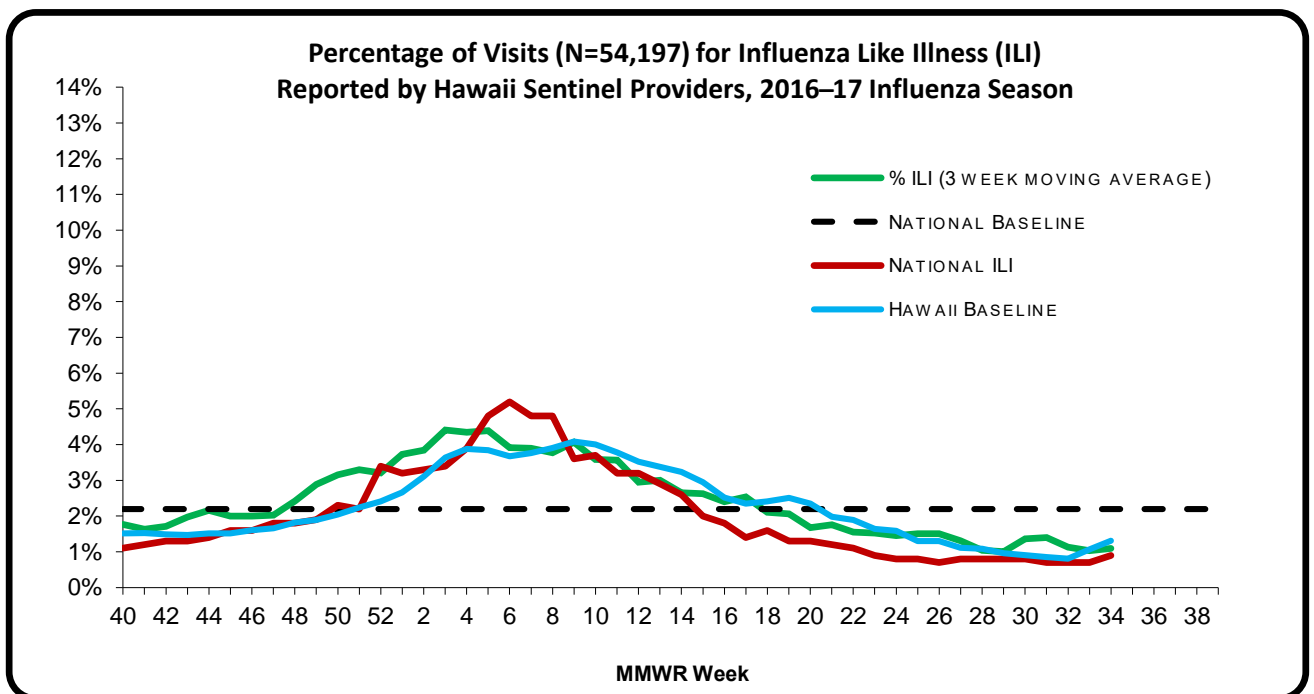
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- 1.7% (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 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).
- ILI Cluster Activity: No new clusters were reported to HDOH during week 34.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

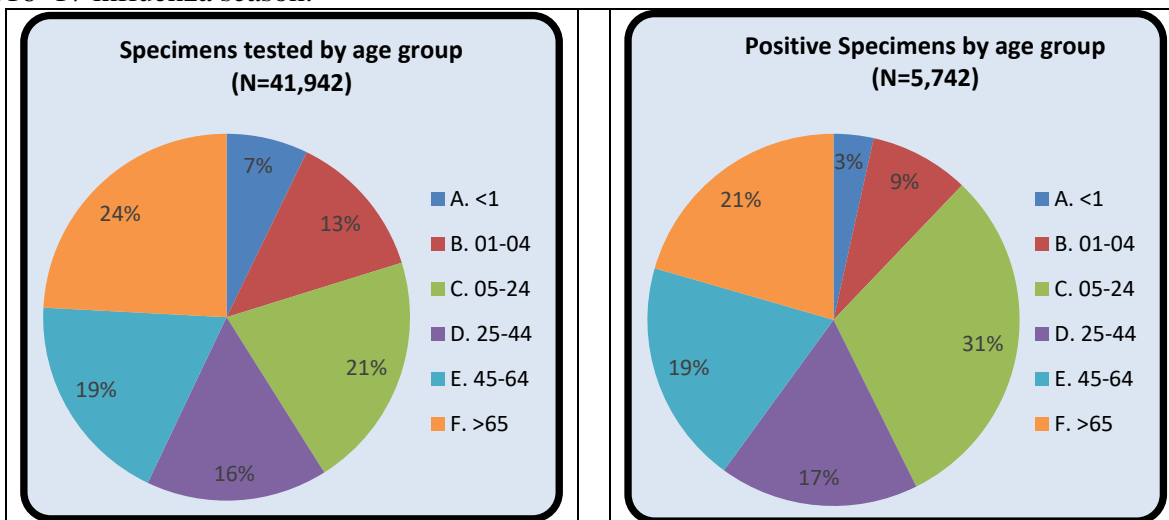
A. INFLUENZA:

- The following reflects laboratory findings for week 34 of the 2016–17 influenza season:
 - A total of **446** specimens have been tested statewide for influenza viruses (positive: **44 [9.9%]**). (Season to date: **41,942** tested [**13.7%** positive])
 - 313 (70.2%) were screened only by rapid antigen tests with no confirmatory testing
 - 133 (29.8%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 402 (90.1%) were negative.

<i>Influenza type</i>	<i>Current week 34 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.2)
<i>Influenza A (H3)</i>	0 (0.0)	194 (3.4)
<i>Influenza A no subtyping</i>	34 (77.3)	4,456 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	10 (22.7)	1,055 (18.4)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

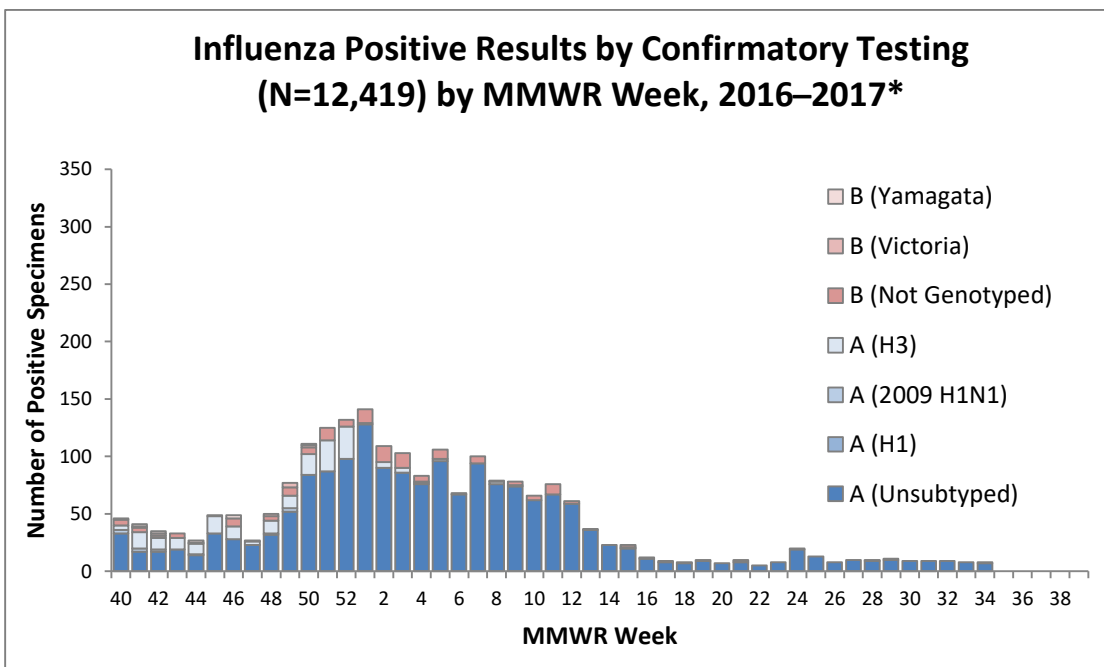
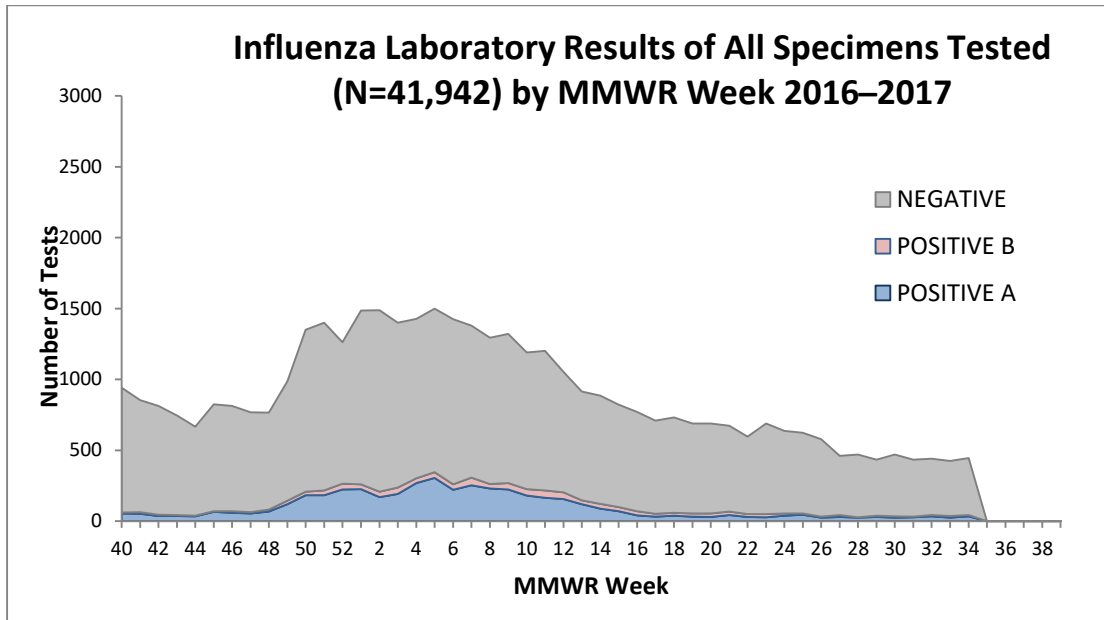


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



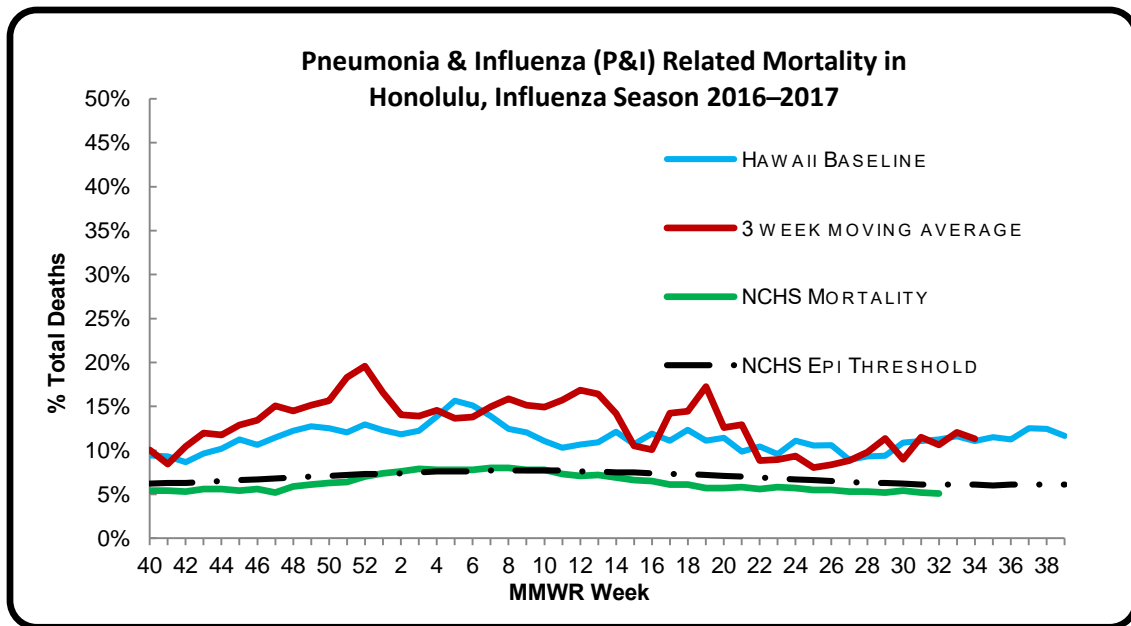
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III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *10.8% of all deaths that occurred in Honolulu during week 34 were related to pneumonia or influenza. For the current season (season to date: 13.0%), there have been 4,238 deaths from any cause, 549 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 34. (Season total: 104).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14).

⁸ 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

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:

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 2016–2017 influenza season.*
- *To date, a total of 21 human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
 - *One additional human infection with a novel influenza A virus was reported by Ohio during week 34. The person was infected with an influenza A H1N2v virus and reported exposure to swine in a fair setting during the week preceding illness onset. This patient was younger than 18 years of age, was not hospitalized, and has fully recovered from their illness. No human-to-human transmission of this virus has been identified.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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A. 2016–2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016–April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

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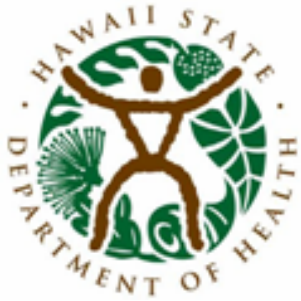
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53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 35: AUGUST 27, 2017–SEPTEMBER 2, 2017

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.**

REPORT SNAPSHOT FOR WEEK 35

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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	2	There have been 47 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	9.9%	No change from the previous week. This number means that many, if not all, of the 90.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	13.6%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	8.0%	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	

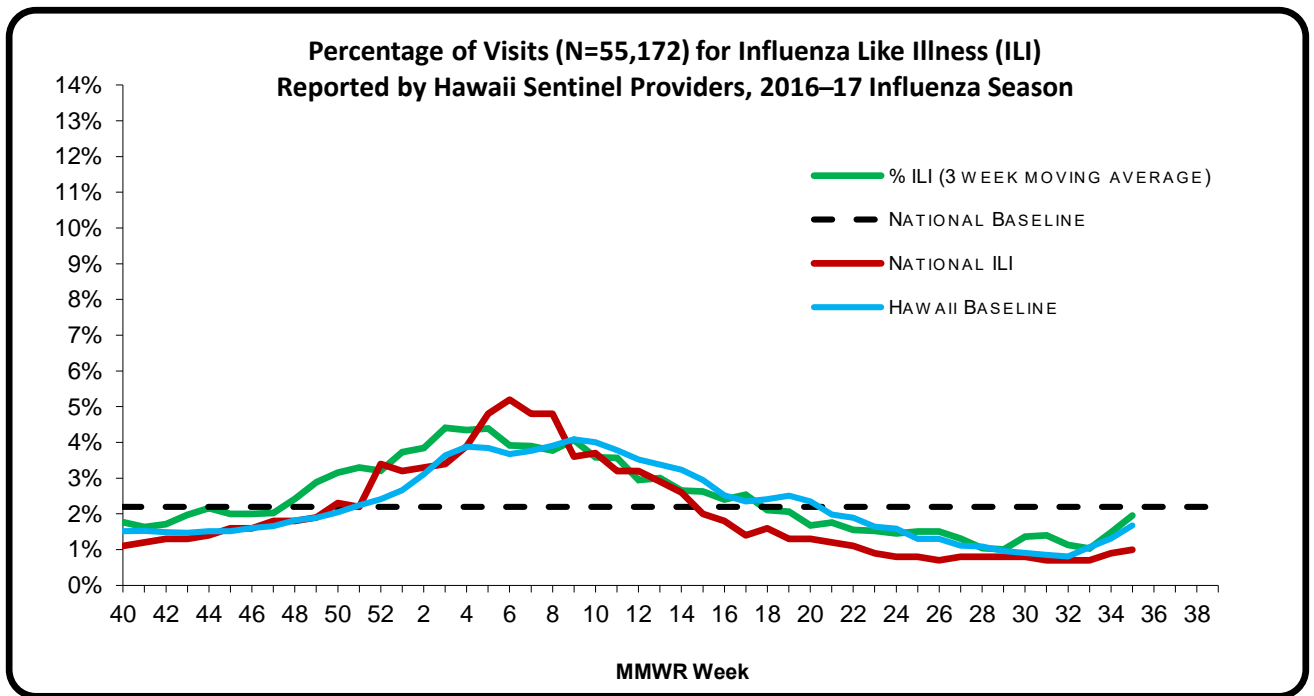
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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: 2.6%) 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 (1.0%) (i.e., outside the 95% confidence interval).
- ILI Cluster Activity: Two new clusters were reported to HDOH during week 35. These two clusters occurred at a school and a preschool. Confirmatory tests for these clusters are pending..



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

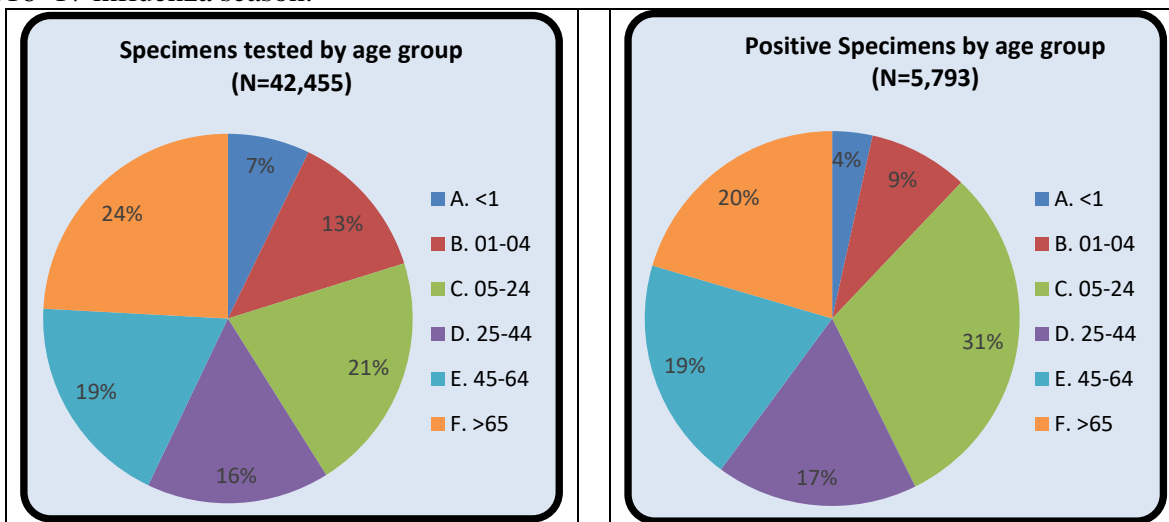
A. INFLUENZA:

- The following reflects laboratory findings for week 35 of the 2016–17 influenza season:
 - A total of **513** specimens have been tested statewide for influenza viruses (positive: **51 [9.9%]**). (Season to date: **42,455** tested [**13.6%** positive])
 - 354 (69.0%) were screened only by rapid antigen tests with no confirmatory testing
 - 159 (31.0%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 462 (90.1%) were negative.

<i>Influenza type</i>	<i>Current week 35 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.2)
<i>Influenza A (H3)</i>	1 (2.0)	195 (3.4)
<i>Influenza A no subtyping</i>	41 (80.4)	4,497 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	9 (17.6)	1,064 (18.4)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

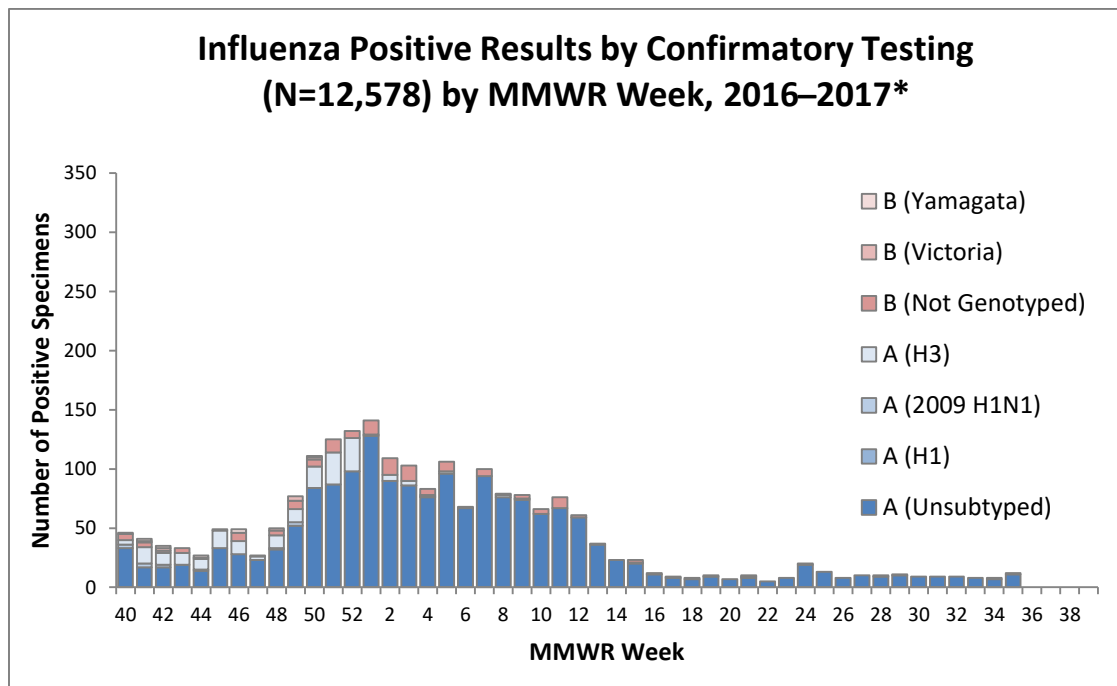
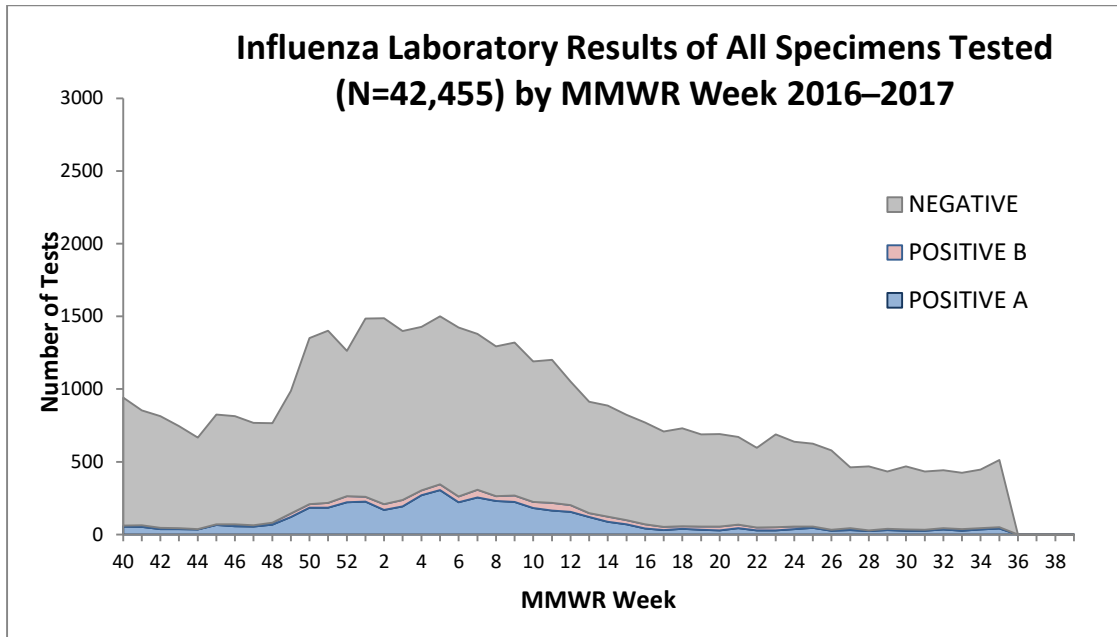


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



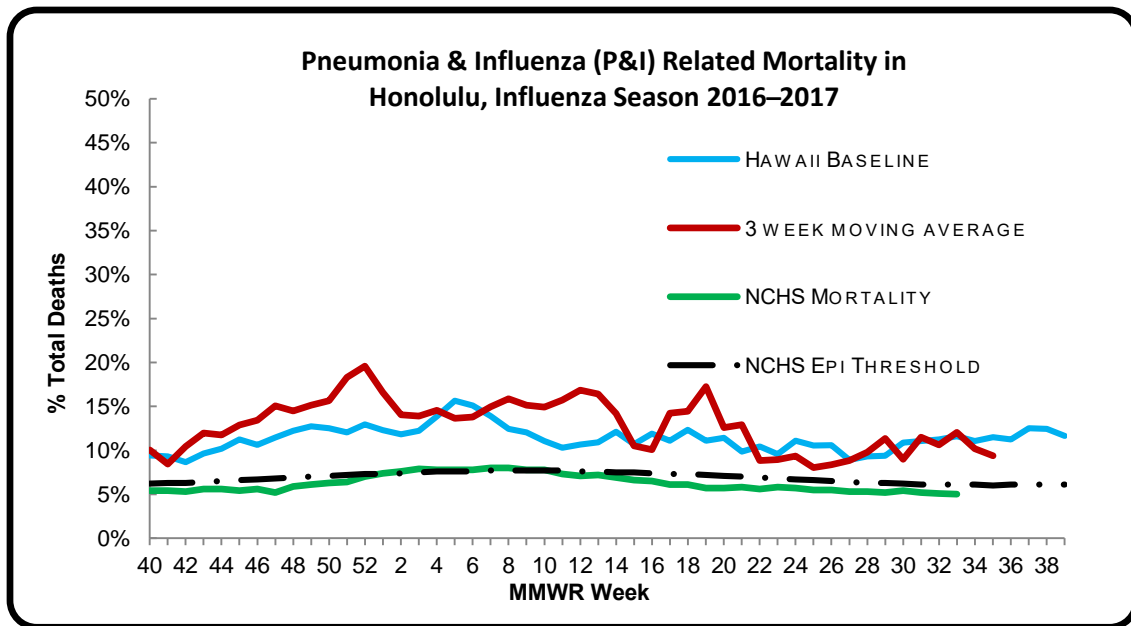
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 8.0% of all deaths that occurred in Honolulu during week 35 were related to pneumonia or influenza. For the current season (season to date: 12.8%), there have been 4,338 deaths from any cause, 557 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 35. The death was associated with an influenza A (H3) virus and occurred during week 33 (the week ending August 19, 2017). (Season total: 105).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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 2016–2017 influenza season.*
- *To date, a total of 21 human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season. No additional human infections with novel influenza A viruses were reported to CDC during week 35.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
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27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
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47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 35: AUGUST 27, 2017–SEPTEMBER 2, 2017

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.**

REPORT SNAPSHOT FOR WEEK 35

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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	2	There have been 47 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	9.9%	No change from the previous week. This number means that many, if not all, of the 90.1% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	13.6%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	8.0%	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	

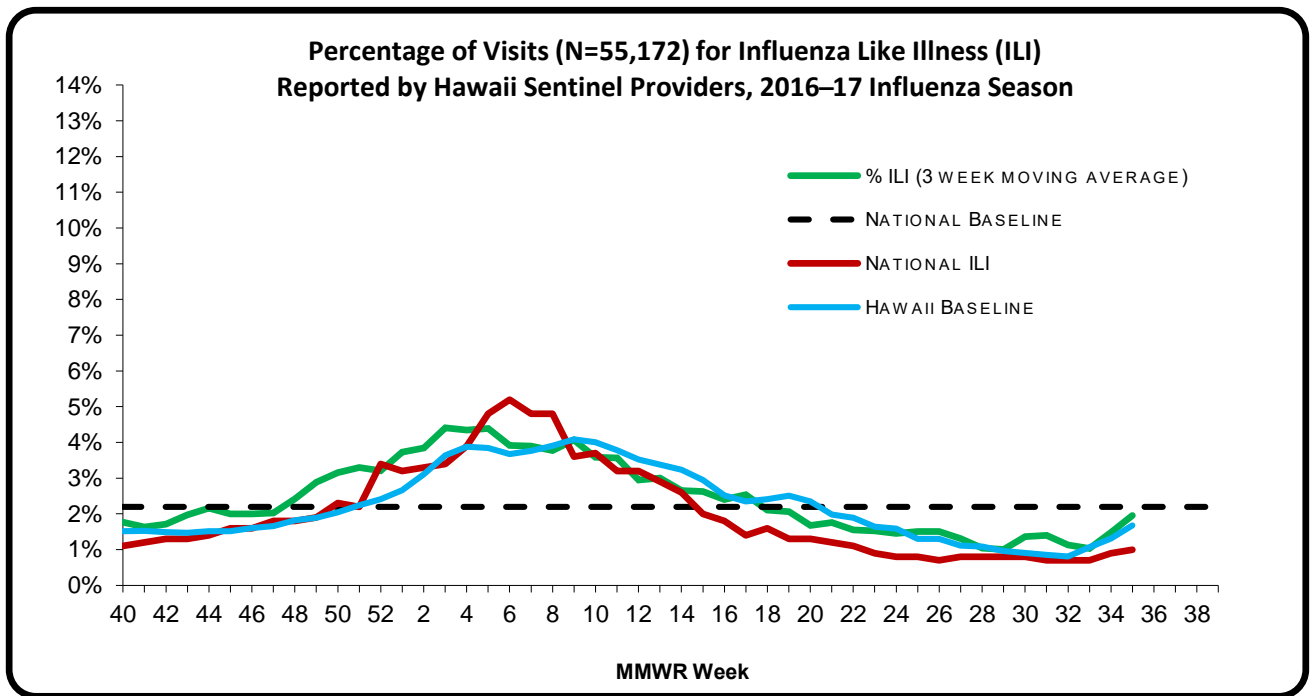
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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: 2.6%) 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 (1.0%) (i.e., outside the 95% confidence interval).
- ILI Cluster Activity: Two new clusters were reported to HDOH during week 35. These two clusters occurred at a school and a preschool. Confirmatory tests for these clusters are pending.



² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

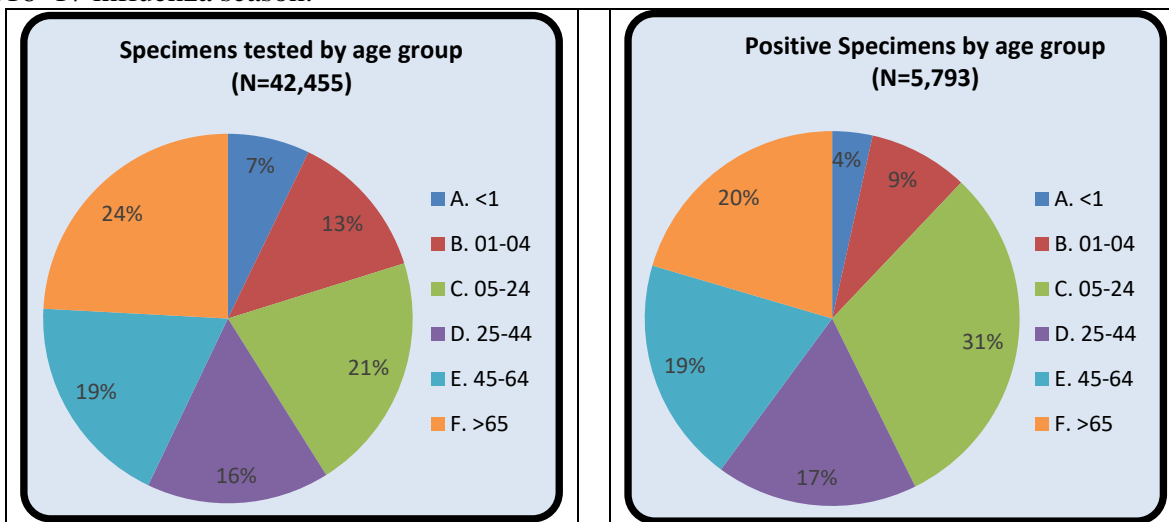
A. INFLUENZA:

- The following reflects laboratory findings for week 35 of the 2016–17 influenza season:
 - A total of **513** specimens have been tested statewide for influenza viruses (positive: **51 [9.9%]**). (Season to date: **42,455** tested [**13.6%** positive])
 - 354 (69.0%) were screened only by rapid antigen tests with no confirmatory testing
 - 159 (31.0%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 462 (90.1%) were negative.

<i>Influenza type</i>	<i>Current week 35 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.2)
<i>Influenza A (H3)</i>	1 (2.0)	195 (3.4)
<i>Influenza A no subtyping</i>	41 (80.4)	4,497 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	9 (17.6)	1,064 (18.4)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

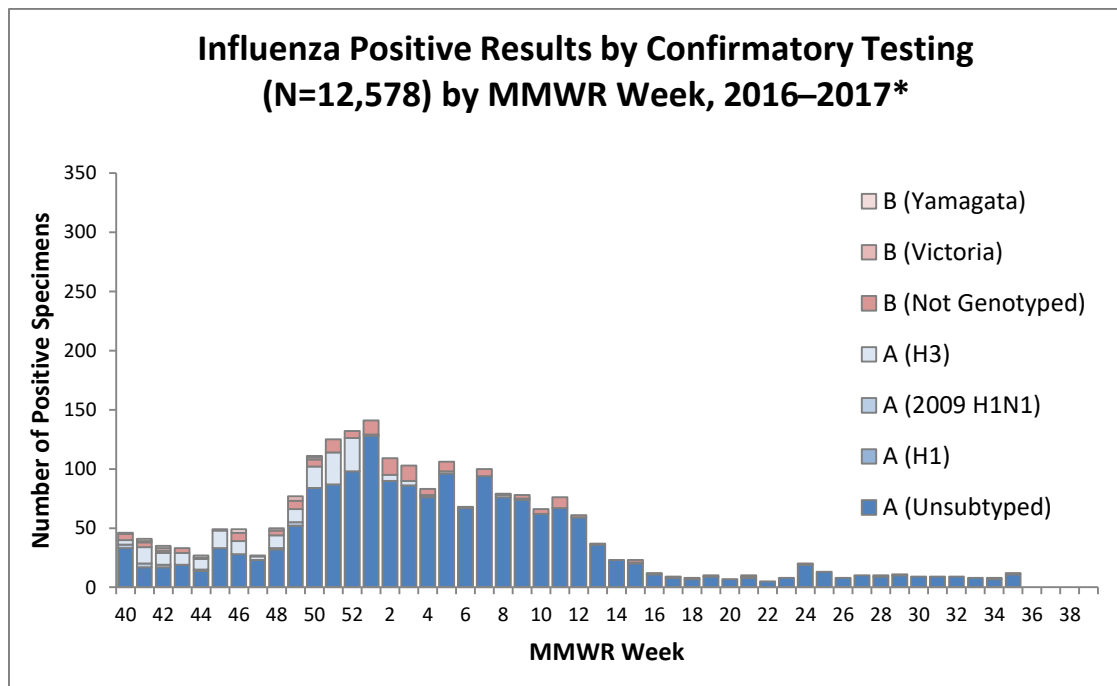
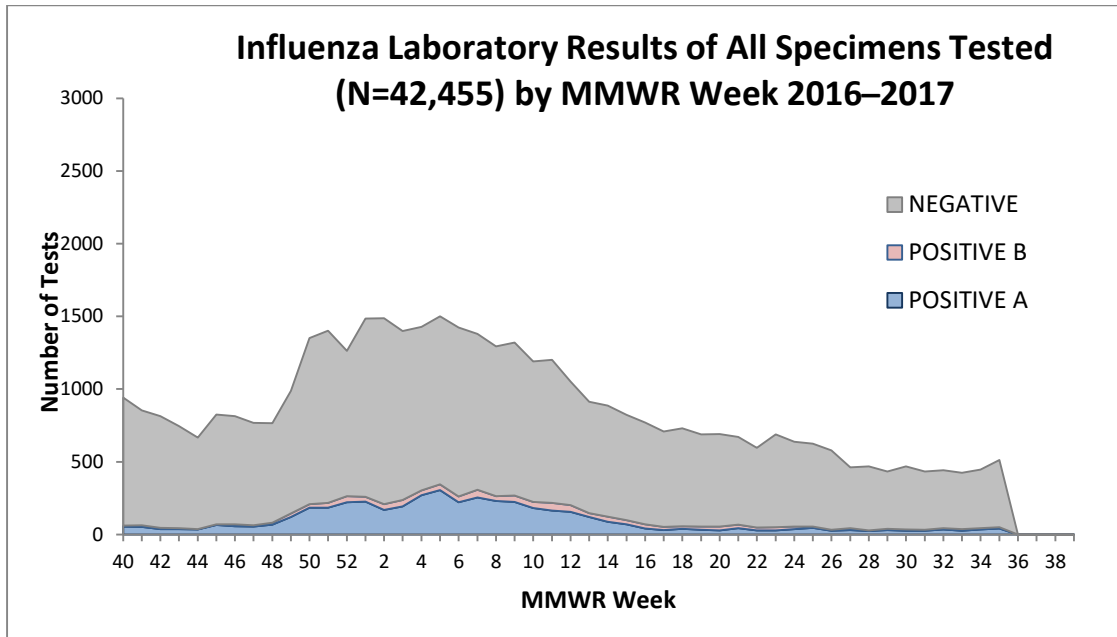


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



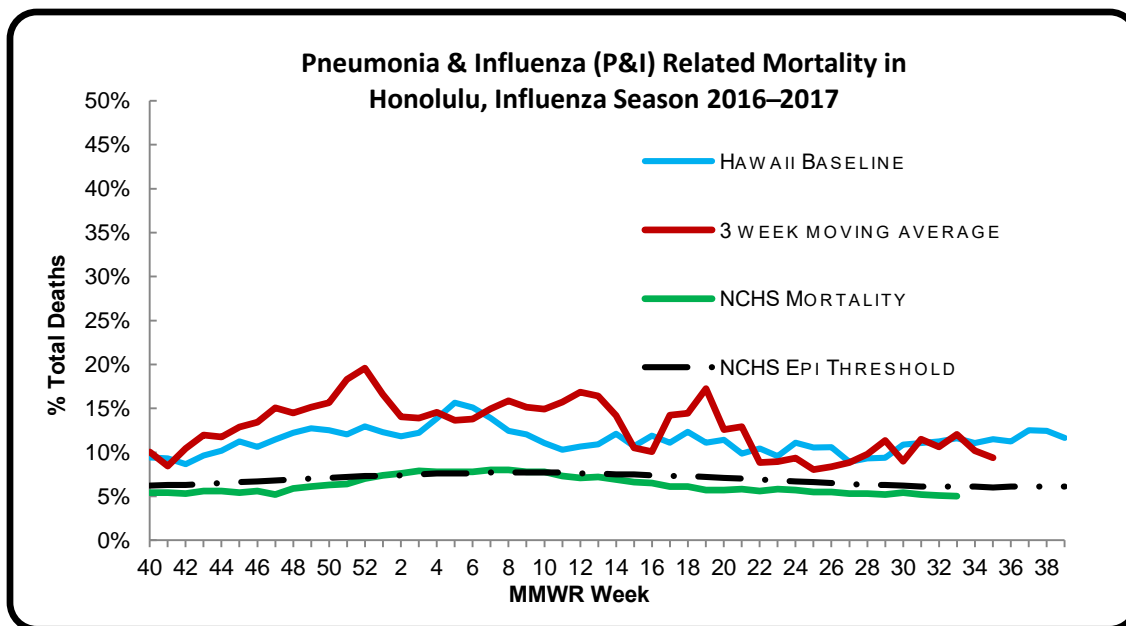
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 8.0% of all deaths that occurred in Honolulu during week 35 were related to pneumonia or influenza. For the current season (season to date: 12.8%), there have been 4,338 deaths from any cause, 557 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 35. The death was associated with an influenza A (H3) virus and occurred during week 33 (the week ending August 19, 2017). (Season total: 105).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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 2016–2017 influenza season.*
- *To date, a total of 21 human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season. No additional human infections with novel influenza A viruses were reported to CDC during week 35.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, with China in its fifth epidemic, and 1,557 laboratory-confirmed human infections as of July 25, 2017. 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 **July 25, 2017**.

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. 2016–2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016–April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017–2018 INFLUENZA VACCINE:

The composition of the 2017–2018 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 2017–2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
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15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
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22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
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36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
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39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
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43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
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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 3, 2017–SEPTEMBER 9, 2017

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.**

REPORT SNAPSHOT FOR WEEK 36

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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. 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 have been 48 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	6.8%	Lower than the previous week. This number means that many, if not all, of the 93.2% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	13.6%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	13.1%	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	

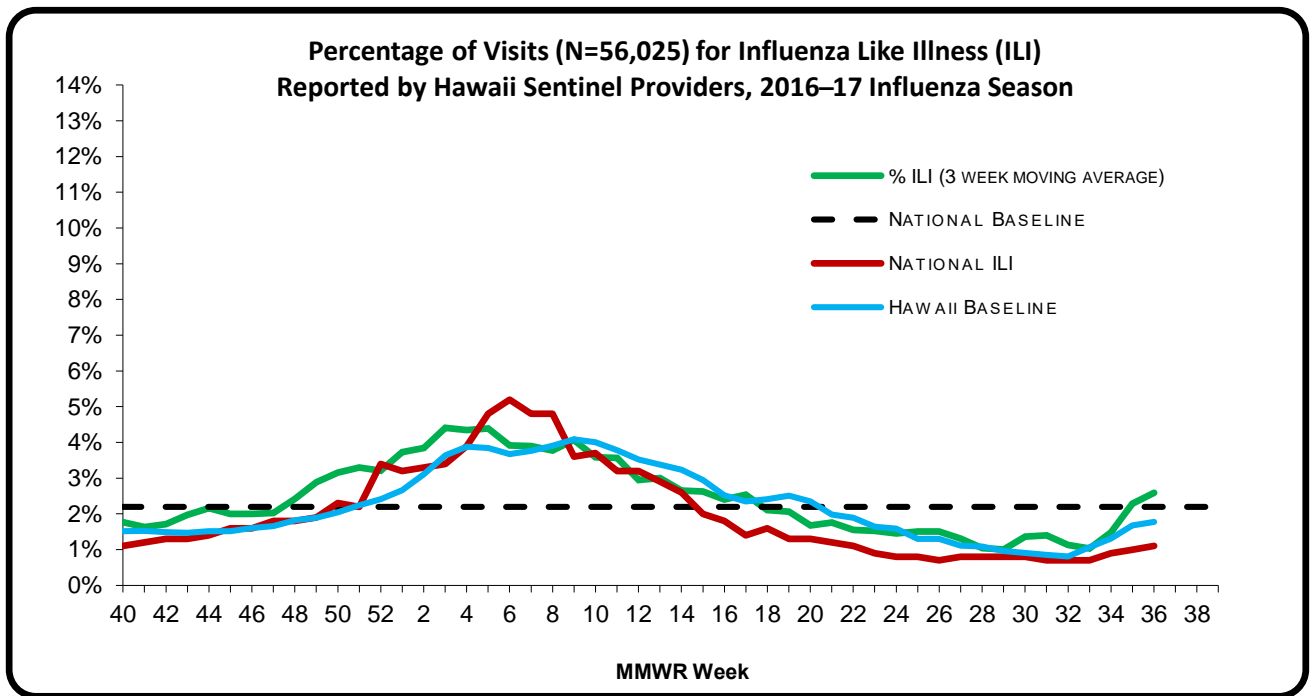
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **2.9%** (season to date: **2.6%**) 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 (1.1%) (i.e., outside the 95% confidence interval).
- **ILI Cluster Activity:** One new cluster was reported to HDOH during week 36. 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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

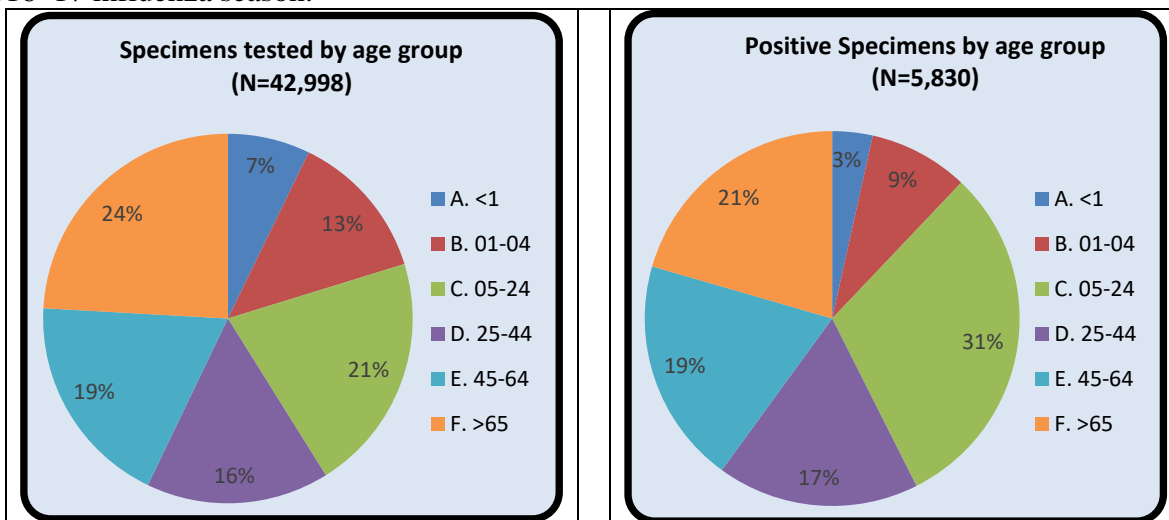
A. INFLUENZA:

- The following reflects laboratory findings for week 36 of the 2016–17 influenza season:
 - A total of **543** specimens have been tested statewide for influenza viruses (positive: **37 [6.8%]**). (Season to date: **42,998** tested [**13.6%** positive])
 - 392 (72.2%) were screened only by rapid antigen tests with no confirmatory testing
 - 151 (27.8%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 506 (93.2%) were negative.

<i>Influenza type</i>	<i>Current week 36 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.2)
<i>Influenza A (H3)</i>	0 (0.0)	195 (3.4)
<i>Influenza A no subtyping</i>	28 (75.7)	4,525 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	9 (24.3)	1,073 (18.4)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

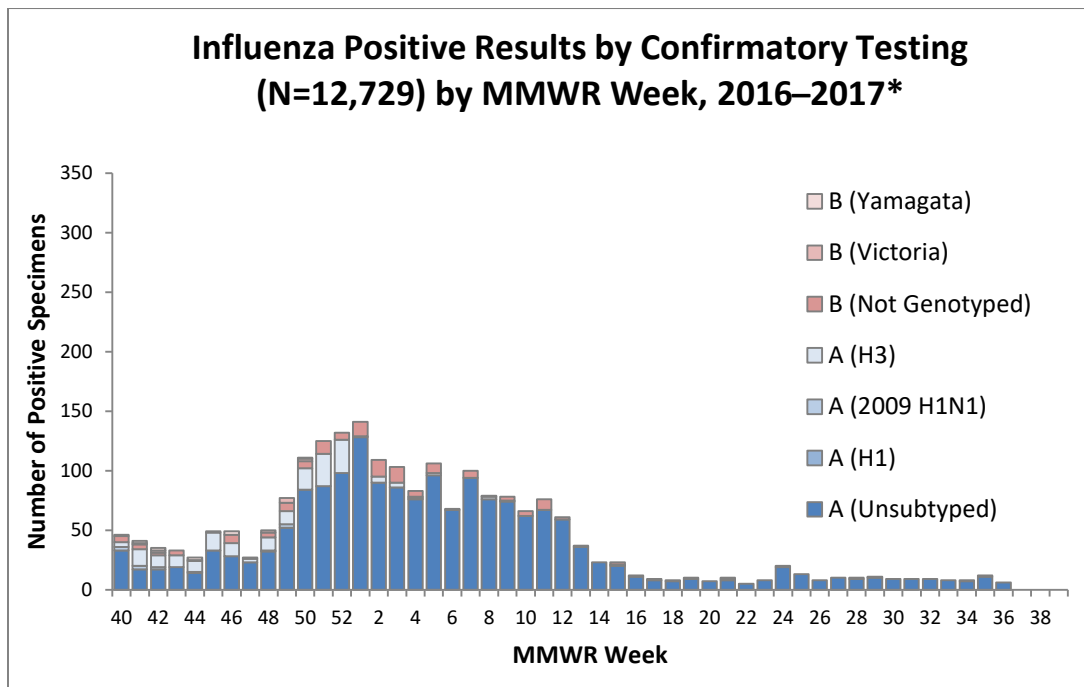
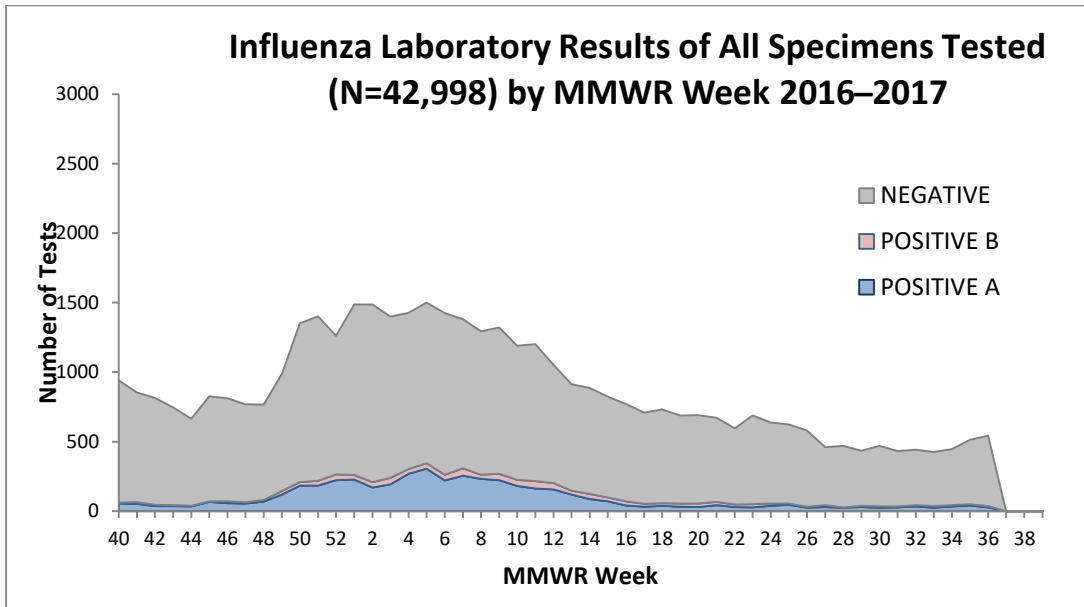


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



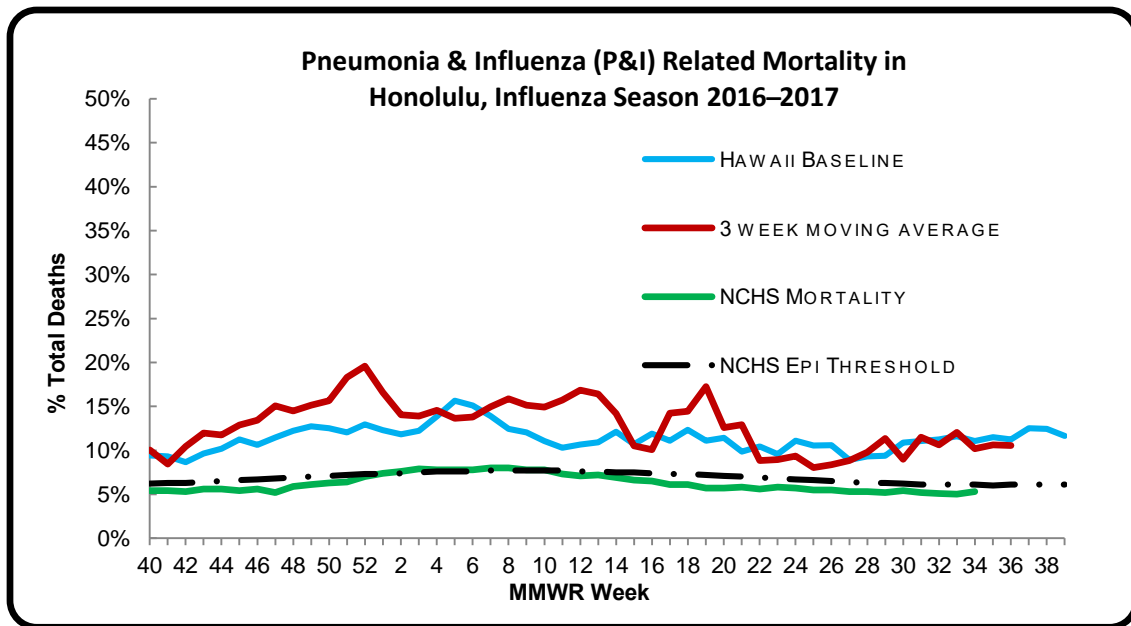
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- 13.1% of all deaths that occurred in Honolulu during week 36 were related to pneumonia or influenza. For the current season (season to date: 12.8%), there have been 4,399 deaths from any cause, 565 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC’s National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 36. This death was associated with an influenza A (H1N1)pdm09 virus and occurred during week 35 (the week ending September 2, 2017). (Season total: 106).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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

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:

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 2016–2017 influenza season.*
- *To date, a total of 21 human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season. No additional human infections with novel influenza A viruses were reported to CDC during week 36.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, with China in its fifth epidemic, and 1,557 laboratory-confirmed human infections as of July 25, 2017. 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 **July 25, 2017**.

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. 2016–2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016–April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017–2018 INFLUENZA VACCINE:

The composition of the 2017–2018 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 2017–2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 38: SEPTEMBER 17, 2017–SEPTEMBER 23, 2017

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.**

REPORT SNAPSHOT FOR WEEK 38

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

Surveillance for Influenza-like Illness (ILI)		
Metric	Value	Comment
Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers	2.0%	No change from 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 49 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	9.5%	No change from the previous week. This number means that many, if not all, of the 90.5% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	13.5%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	12.2%	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	

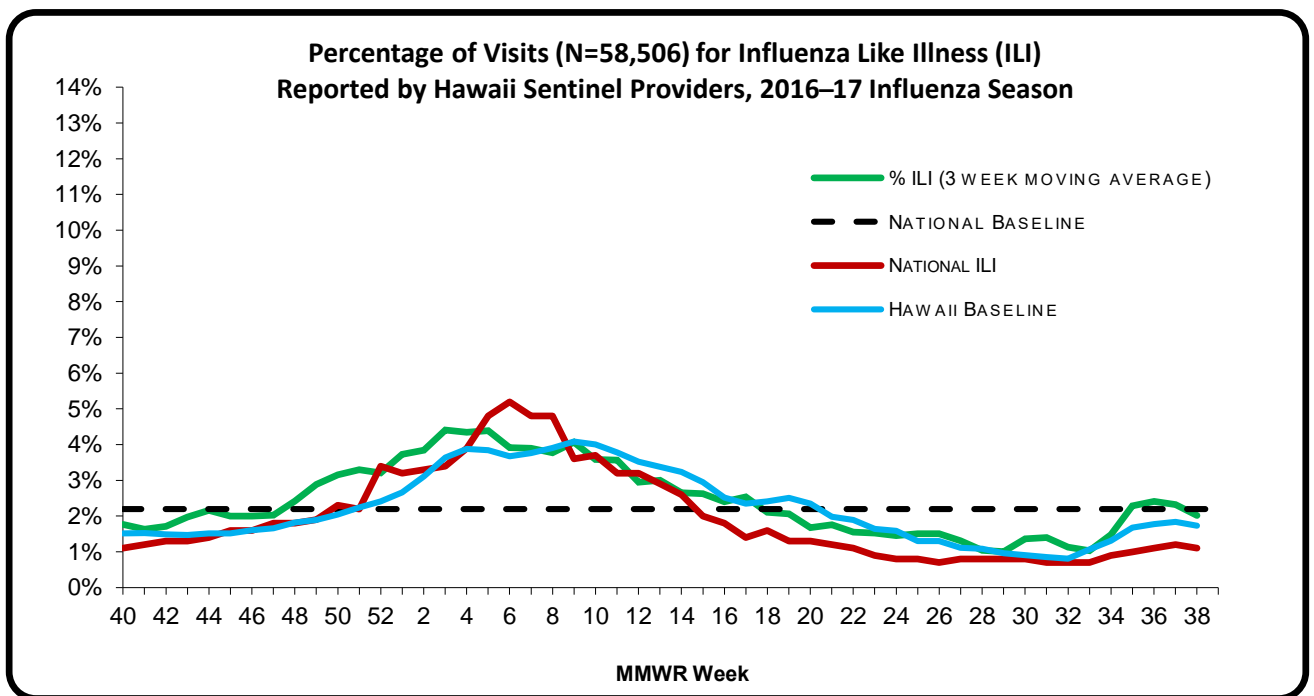
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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 38 of the current influenza season:

- **2.0%** (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 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 (1.1%) (i.e., outside the 95% confidence interval).
- **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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

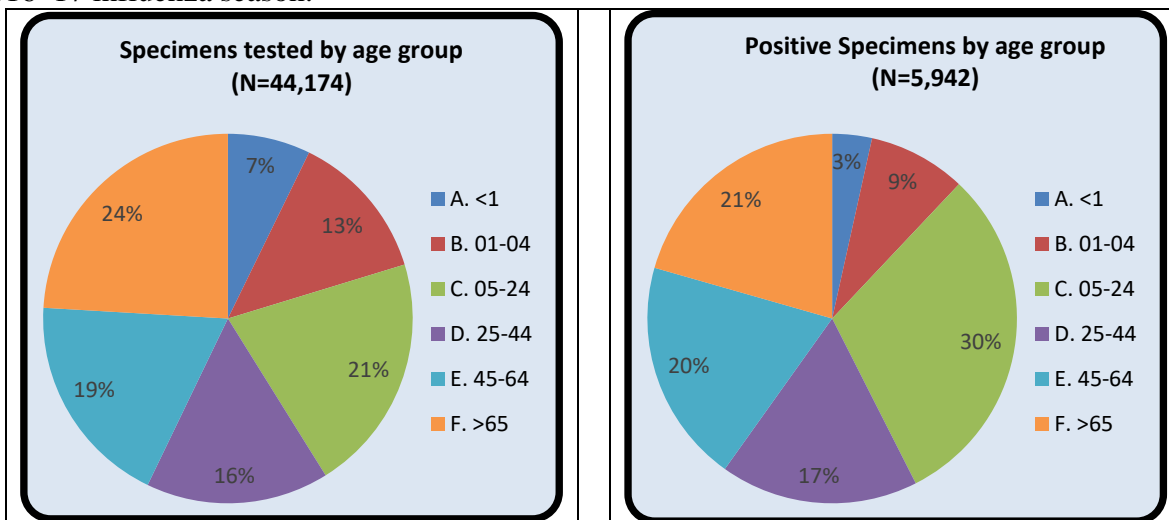
A. INFLUENZA:

- The following reflects laboratory findings for week 38 of the 2016–17 influenza season:
 - A total of **621** specimens have been tested statewide for influenza viruses (positive: **59 [9.5%]**). (Season to date: **44,174** tested [**13.5%** positive])
 - 436 (70.2%) were screened only by rapid antigen tests with no confirmatory testing
 - 185 (29.8%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 562 (90.5%) were negative.

<i>Influenza type</i>	<i>Current week 38 (%)</i>	<i>Season to date (%)</i>
<i>Influenza A (H1)⁶</i>	0 (0.0)	14 (0.2)
<i>Influenza A (H3)</i>	0 (0.0)	195 (3.3)
<i>Influenza A no subtyping</i>	39 (66.1)	4,608 (77.6)
<i>Influenza B (Yamagata)</i>	0 (0.0)	11 (0.2)
<i>Influenza B (Victoria)</i>	0 (0.0)	12 (0.2)
<i>Influenza B no genotyping</i>	20 (33.9)	1,102 (18.5)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

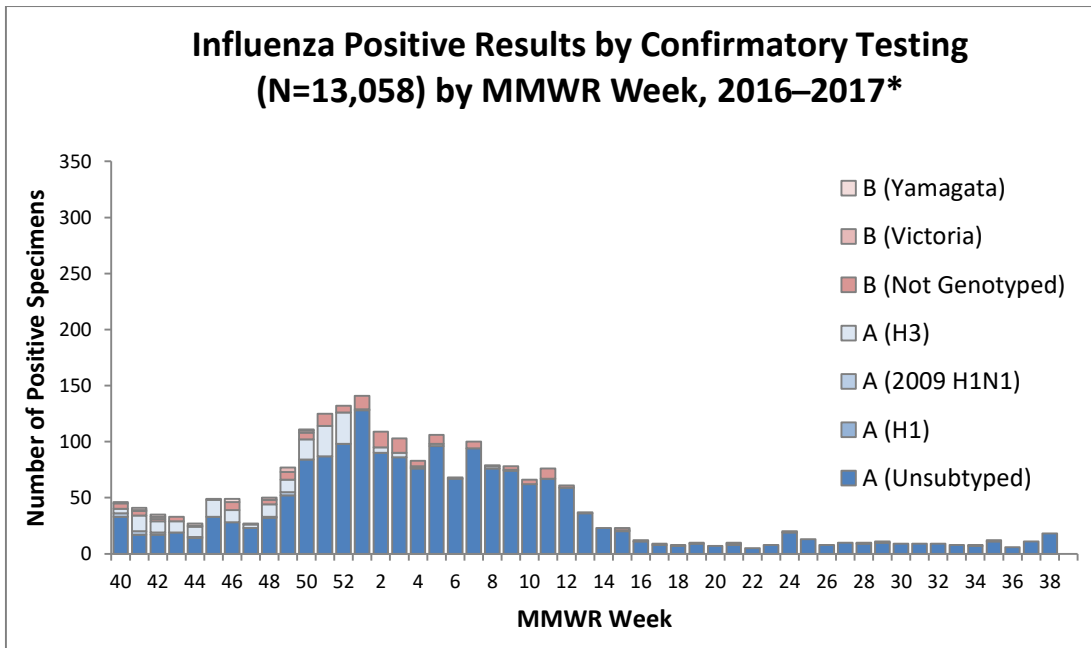
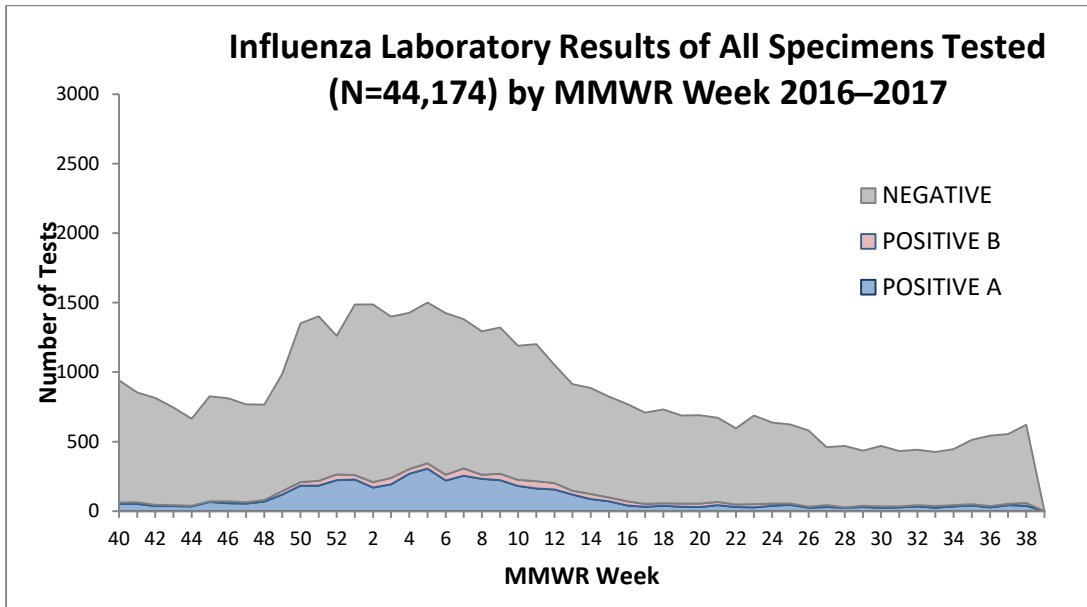


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks’ post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



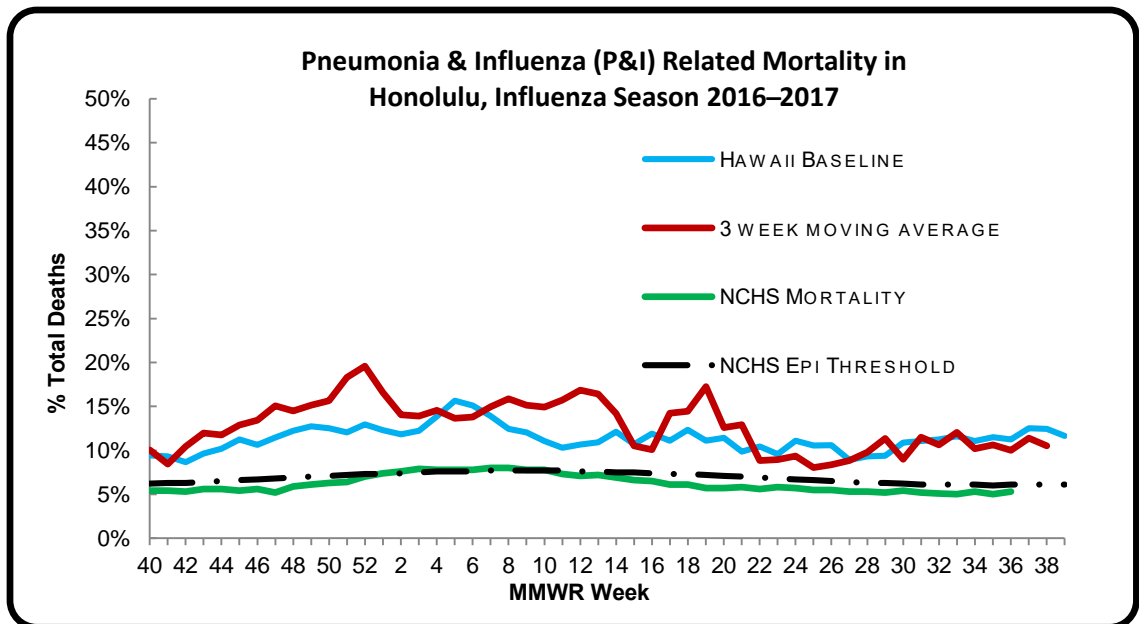
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- *12.2% of all deaths that occurred in Honolulu during week 38 were related to pneumonia or influenza. For the current season (season to date: 12.8%), there have been 4,560 deaths from any cause, 582 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).*
- *The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 38. (Season total: 106).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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:

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 2016–2017 influenza season.*
- *To date, a total of 53 human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
 - *Thirty-two human infections with novel influenza A viruses were reported by two states (Delaware [1] and Maryland [31]). Fourteen of these viruses have been fully characterized and are influenza A (H3N2v) viruses; the remaining 18 viruses have tested presumptive positive for H3v at the Maryland public health laboratory and further confirmatory testing is being performed by CDC to characterize these viruses. All 32 patients reported exposure to swine at one of three agricultural fairs during the week preceding illness onset. Swine influenza A(H3N2) viruses were identified from respiratory samples collected from pigs at two of the three fairs. The exposure to swine at the agricultural fair reported by the Delaware resident occurred at one of the agricultural fairs in Maryland. Thirty of the 32 patients were children younger than 18 years and two patients were adults aged greater than 50 years. One of the 32 patients was hospitalized but is improving. All other patients are recovering or have fully recovered from their illness. No human-to-human transmission of these viruses has been identified.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, with China in its fifth epidemic, and 1,557 laboratory-confirmed human infections as of July 25, 2017. 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 **July 25, 2017**.

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. 2016–2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016–April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017–2018 INFLUENZA VACCINE:

The composition of the 2017–2018 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 2017–2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					



HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 39: SEPTEMBER 24, 2017–SEPTEMBER 30, 2017

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.**

REPORT SNAPSHOT FOR WEEK 39

The 2016–17 influenza season began during week 40¹ (2016) and will end on week 39 (2017)

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 have been 49 clusters this season.

Laboratory Surveillance		
Percent of all respiratory specimens positive for influenza this week	9.3%	Lower than the previous week. This number means that many, if not all, of the 90.7% who tested negative for influenza had illness from another respiratory etiology.
Percent of all respiratory specimens positive for influenza this season to date	13.4%	

Surveillance for Severe Outcomes		
Pneumonia and influenza (P&I) mortality rate	9.0%	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	

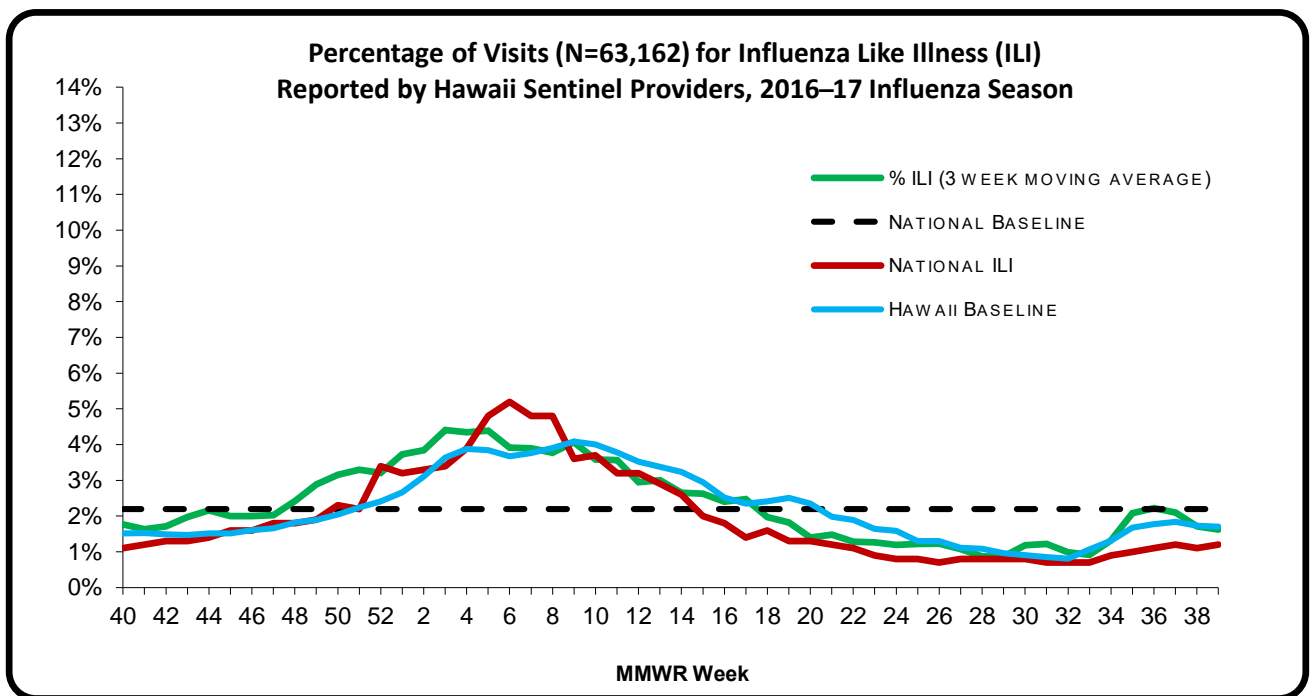
¹ MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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:

- **1.6%** (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 comparable to the national ILI rate (1.2%) (i.e., inside the 95% confidence interval).
- **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 (2010–2011, 2011–2012, 2012–2013, 2013–2014, 2014–2015).

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.

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 criteria⁵ 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](#)).

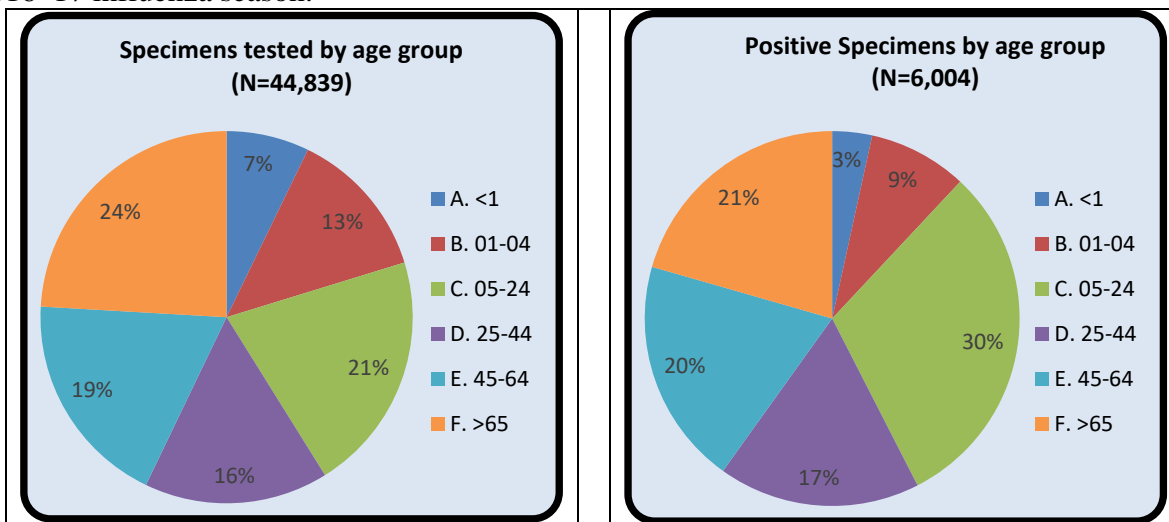
A. INFLUENZA:

- The following reflects laboratory findings for week 39 of the 2016–17 influenza season:
 - A total of 665 specimens have been tested statewide for influenza viruses (positive: 62 [9.3%]). (Season to date: 44,839 tested [13.4% positive])
 - 466 (70.1%) were screened only by rapid antigen tests with no confirmatory testing
 - 199 (29.9%) underwent confirmatory testing (either RT-PCR or viral culture)
 - 603 (90.7%) were negative.

Influenza type	Current week 39 (%)	Season to date (%)
Influenza A (H1) ⁶	2 (3.2)	16 (0.2)
Influenza A (H3)	0 (0.0)	195 (3.3)
Influenza A no subtyping	46 (74.2)	4,654 (77.5)
Influenza B (Yamagata)	0 (0.0)	11 (0.2)
Influenza B (Victoria)	0 (0.0)	12 (0.2)
Influenza B no genotyping	14 (22.6)	1,116 (18.6)

1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2016–17 influenza season.

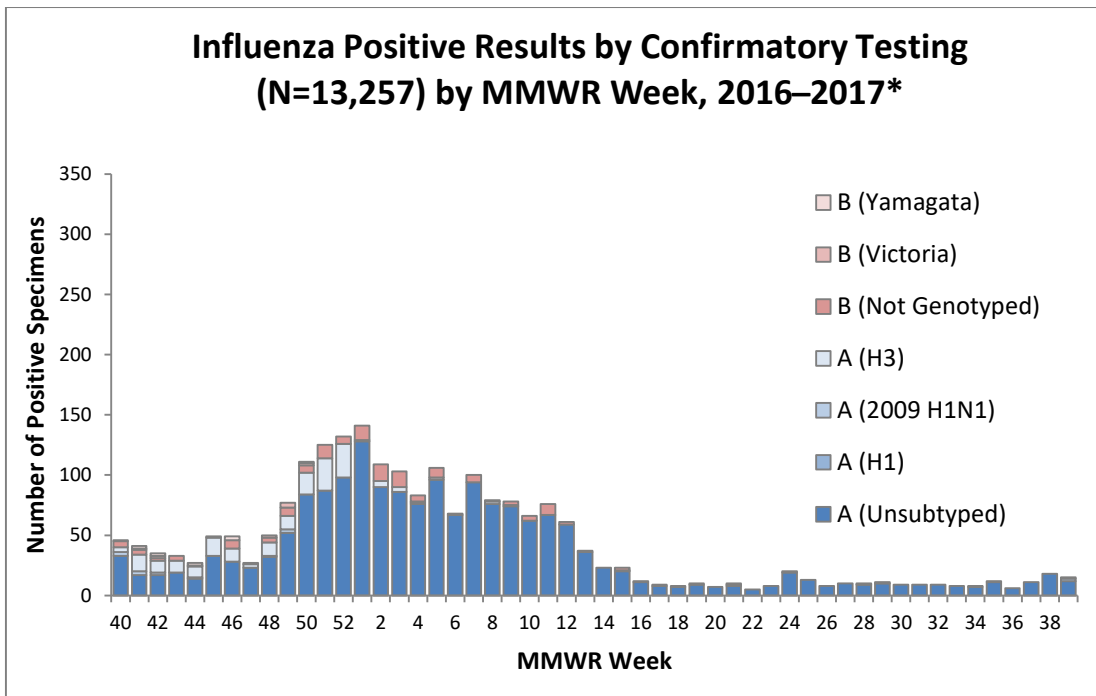
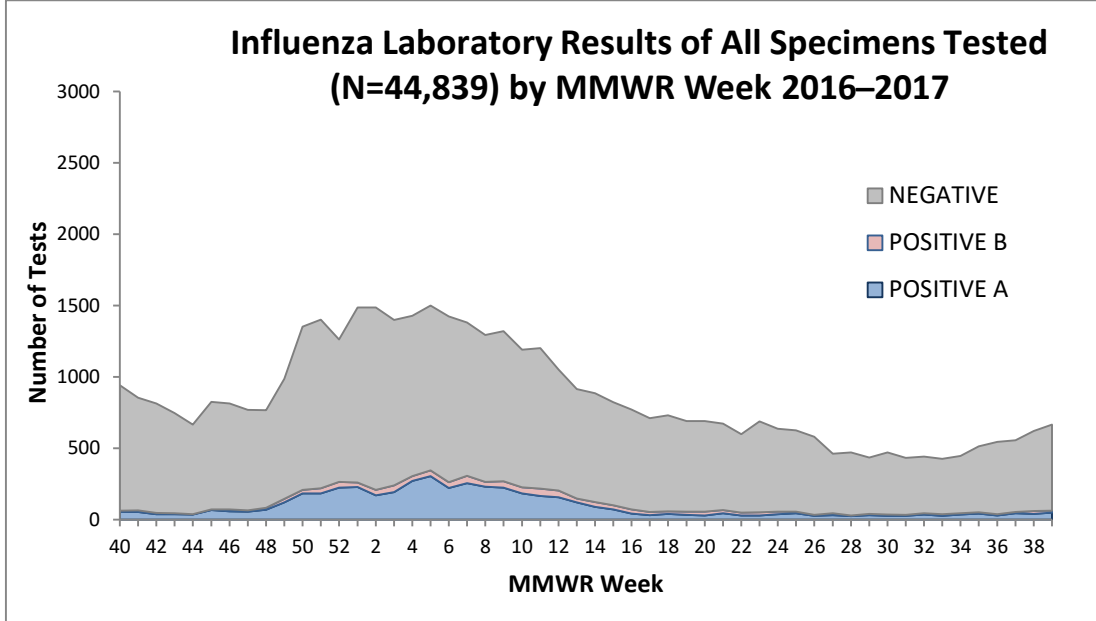


⁵ Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

⁶ 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 2016–2017 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).



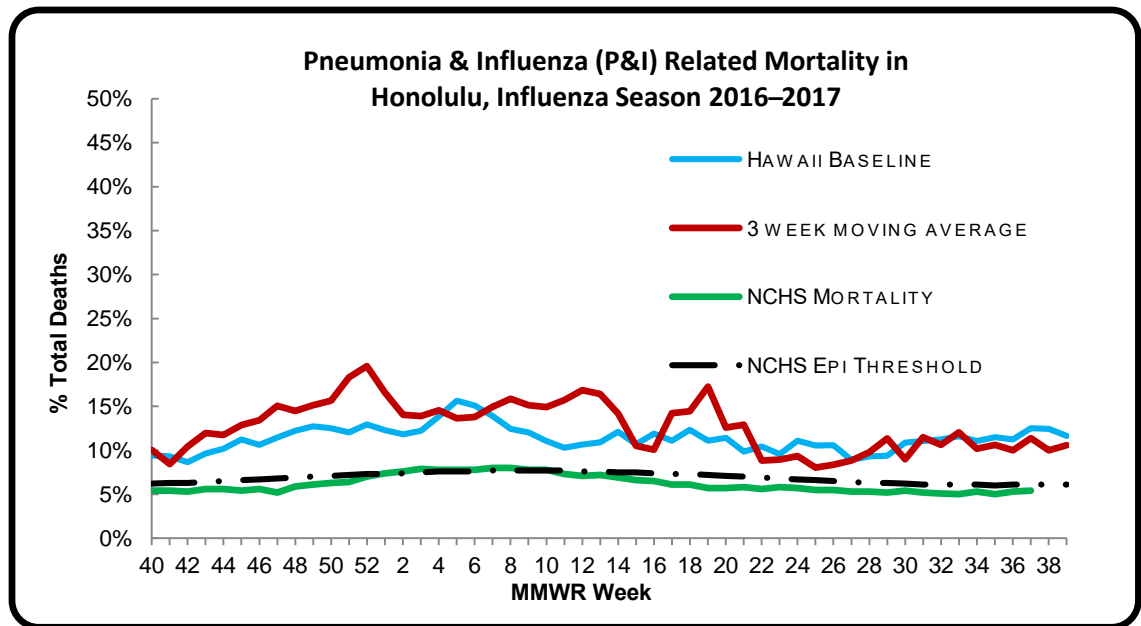
* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

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

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. 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:

- **9.0%** of all deaths that occurred in Honolulu during week 39 were related to pneumonia or influenza. For the current season (season to date: **12.7%**), there have been 4,638 deaths from any cause, 589 of which were due to P&I.
- The P&I rate was comparable to the historical baseline in Hawaii⁷ (i.e., inside the 95% confidence interval).
- The CDC's National Center for Health Statistics (NCHS) P&I mortality⁸ will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁹:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2016–2017 season.
- Nationally, one influenza-associated pediatric death was reported to CDC during week 39. This death was associated with an influenza A virus for which no subtyping was performed and occurred during week 23 (the week end June 10, 2017). (Season total: 107).

⁷ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–2010, 2010–2011, 2011–2012, 2012–2013, and 2013–14.).

⁸ 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.

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:

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 2016–2017 influenza season.*
- *To date, a total of 61 human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2016–2017 influenza season.*
 - *An additional 8 human infections associated with the outbreak of influenza A H3N2v virus infection in Maryland were reported to CDC. In addition, Michigan reported a single H3N2v case, unrelated to the ongoing investigation in Maryland. Six of these viruses have been confirmed as H3N2v viruses; the remaining three viruses have tested presumptive positive for H3N2v at the Maryland public health laboratory; further testing is being performed by CDC to characterize these viruses. All nine patients reported exposure to swine at one of two agricultural fairs during the week preceding illness onset. Swine influenza A(H3N2) viruses were identified from respiratory samples collected from pigs at one of the fairs. Eight of the nine patients were children younger than 18 years and one patient was an adult aged greater than 50 years. One of the nine patients was hospitalized and all patients are recovering or have fully recovered from their illness. No human-to-human transmission of these viruses has been identified.*
- *One human infection with novel influenza A H1N1v virus has been reported to WHO from the Netherlands during the 2016–2017 influenza season. Additionally, a report of a human infection with novel influenza A H1N1v virus in Italy from October 2016 was published in the journal Eurosurveillance.*
- *One human infection with novel influenza A H3N2v virus has been reported to WHO from Canada during the 2016–2017 influenza season.*

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, with China in its fifth epidemic, and 1,564 laboratory-confirmed human infections as of September 27, 2017. 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, 2017**. Since the last update, one new laboratory-confirmed human case of influenza A(H5N1) virus infection was reported to WHO from Indonesia. The patient was a child who reportedly had exposure to poultry at his house and later passed away. One new laboratory-confirmed human case of A(H9N2) virus infection was reported to WHO from China. The patient was a child who had mild illness, received outpatient care and had no apparent exposure history to live poultry. During this reporting period, 7 laboratory-confirmed human cases of influenza A(H7N9) virus infection were reported to WHO from China. Of the 7 cases, there were at least two fatalities. Reported exposures include contact with live poultry markets and live poultry farming.

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. 2016–2017 INFLUENZA VACCINE EFFECTIVENESS:

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016–April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

B. COMPOSITION OF THE 2017–2018 INFLUENZA VACCINE:

The composition of the 2017–2018 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 2017–2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-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	2013	2014	2015	2016	2017
1	1/5/2013	1/4/2014	1/10/2015	1/9/2016	1/7/2017
2	1/12/2013	1/11/2014	1/17/2015	1/16/2016	1/14/2017
3	1/19/2013	1/18/2014	1/24/2015	1/23/2016	1/21/2017
4	1/26/2013	1/25/2014	1/31/2015	1/30/2016	1/28/2017
5	2/2/2013	2/1/2014	2/7/2015	2/6/2016	2/4/2017
6	2/9/2013	2/8/2014	2/14/2015	2/13/2016	2/11/2017
7	2/16/2013	2/15/2014	2/21/2015	2/20/2016	2/18/2017
8	2/23/2013	2/22/2014	2/28/2015	2/27/2016	2/25/2017
9	3/2/2013	3/1/2014	3/7/2015	3/5/2016	3/4/2017
10	3/9/2013	3/8/2014	3/14/2015	3/12/2016	3/11/2017
11	3/16/2013	3/15/2014	3/21/2015	3/19/2016	3/18/2017
12	3/23/2013	3/22/2014	3/28/2015	3/26/2016	3/25/2017
13	3/30/2013	3/29/2014	4/4/2015	4/2/2016	4/1/2017
14	4/6/2013	4/5/2014	4/11/2015	4/9/2016	4/8/2017
15	4/13/2013	4/12/2014	4/18/2015	4/16/2016	4/15/2017
16	4/20/2013	4/19/2014	4/25/2015	4/23/2016	4/22/2017
17	4/27/2013	4/26/2014	5/2/2015	4/30/2016	4/29/2017
18	5/4/2013	5/3/2014	5/9/2015	5/7/2016	5/6/2017
19	5/11/2013	5/10/2014	5/16/2015	5/14/2016	5/13/2017
20	5/18/2013	5/17/2014	5/23/2015	5/21/2016	5/20/2017
21	5/25/2013	5/24/2014	5/30/2015	5/28/2016	5/27/2017
22	6/1/2013	5/31/2014	6/6/2015	6/4/2016	6/3/2017
23	6/8/2013	6/7/2014	6/13/2015	6/11/2016	6/10/2017
24	6/15/2013	6/14/2014	6/20/2015	6/18/2016	6/17/2017
25	6/22/2013	6/21/2014	6/27/2015	6/25/2016	6/24/2017
26	6/29/2013	6/28/2014	7/4/2015	7/2/2016	7/1/2017
27	7/6/2013	7/5/2014	7/11/2015	7/9/2016	7/8/2017
28	7/13/2013	7/12/2014	7/18/2015	7/16/2016	7/15/2017
29	7/20/2013	7/19/2014	7/25/2015	7/23/2016	7/22/2017
30	7/27/2013	7/26/2014	8/1/2015	7/30/2016	7/29/2017
31	8/3/2013	8/2/2014	8/8/2015	8/6/2016	8/5/2017
32	8/10/2013	8/9/2014	8/15/2015	8/13/2016	8/12/2017
33	8/17/2013	8/16/2014	8/22/2015	8/20/2016	8/19/2017
34	8/24/2013	8/23/2014	8/29/2015	8/27/2016	8/26/2017
35	8/31/2013	8/30/2014	9/5/2015	9/3/2016	9/2/2017
36	9/7/2013	9/6/2014	9/12/2015	9/10/2016	9/9/2017
37	9/14/2013	9/13/2014	9/19/2015	9/17/2016	9/16/2017
38	9/21/2013	9/20/2014	9/26/2015	9/24/2016	9/23/2017
39	9/28/2013	9/27/2014	10/3/2015	10/1/2016	9/30/2017
40	10/5/2013	10/4/2014	10/10/2015	10/8/2016	10/7/2017
41	10/12/2013	10/11/2014	10/17/2015	10/15/2016	10/14/2017
42	10/19/2013	10/18/2014	10/24/2015	10/22/2016	10/21/2017
43	10/26/2013	10/25/2014	10/31/2015	10/29/2016	10/28/2017
44	11/2/2013	11/1/2014	11/7/2015	11/5/2016	11/4/2017
45	11/9/2013	11/8/2014	11/14/2015	11/12/2016	11/11/2017
46	11/16/2013	11/15/2014	11/21/2015	11/19/2016	11/18/2017
47	11/23/2013	11/22/2014	11/28/2015	11/26/2016	11/25/2017
48	11/30/2013	11/29/2014	12/5/2015	12/3/2016	12/2/2017
49	12/7/2013	12/6/2014	12/12/2015	12/10/2016	12/9/2017
50	12/14/2013	12/13/2014	12/19/2015	12/17/2016	12/16/2017
51	12/21/2013	12/20/2014	12/26/2015	12/24/2016	12/23/2017
52	12/28/2013	12/27/2014	1/2/2016	12/31/2016	12/30/2017
53					