

HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

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

WEEK 17: APRIL 20 – APRIL 26, 2014

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 2013–14 influenza season began during week 40¹ (2013) and will end on week 39 (2014).**
- Vaccine composition for 2013–2014 influenza season:
 - **Trivalent:** *A/California/7/2009 (H1N1)pdm09-like virus; A/Victoria/361/2011 (H3N2)-like virus; B/Massachusetts /2/2012-like virus*
 - **Quadrivalent:** *A/California/7/2009 (H1N1)pdm09-like virus; A/Victoria/361/2011 (H3N2)-like virus; B/Massachusetts /2/2012-like virus; B/Brisbane/60/2008-like virus*
- Hawaii’s influenza-like illness (ILI) surveillance found that ILI outpatient visits during week 17 (2.5%) was lower than week 16 (3.4%). They were comparable to the national baseline ILI level (2.0%) and higher than the national ILI rate (1.5%) during the same week.
- Out of the 25,165 total samples submitted to participating laboratories for testing this season, 2,723 (10.8%) samples were positive for influenza by any testing method (RT-PCR, rapid antigen, culture).
- Hawaii’s pneumonia and influenza (P&I) mortality rate of 9.7% (season average to date: 11.9%) was comparable to the historical baseline for Hawaii, comparable to the 122-cities average (6.8%), and comparable to the epidemic threshold (7.1%). For the current season, 280 of the 2,361 deaths from any cause were due to pneumonia and/or influenza.
- ILI Cluster Activity: One new cluster was reported to HDOH during week 17. This cluster was on Oahu in a long-term care center and involved 5 cases with ILI, without any confirmed influenza cases. There have been a total of 14 clusters this season.
- Nationwide, two new influenza-associated pediatric deaths were reported to CDC during week 17 (season total: 91). One death was associated with influenza A (H3) virus (during week 15) and one was associated with influenza A virus for which no subtyping was performed (during week 16).

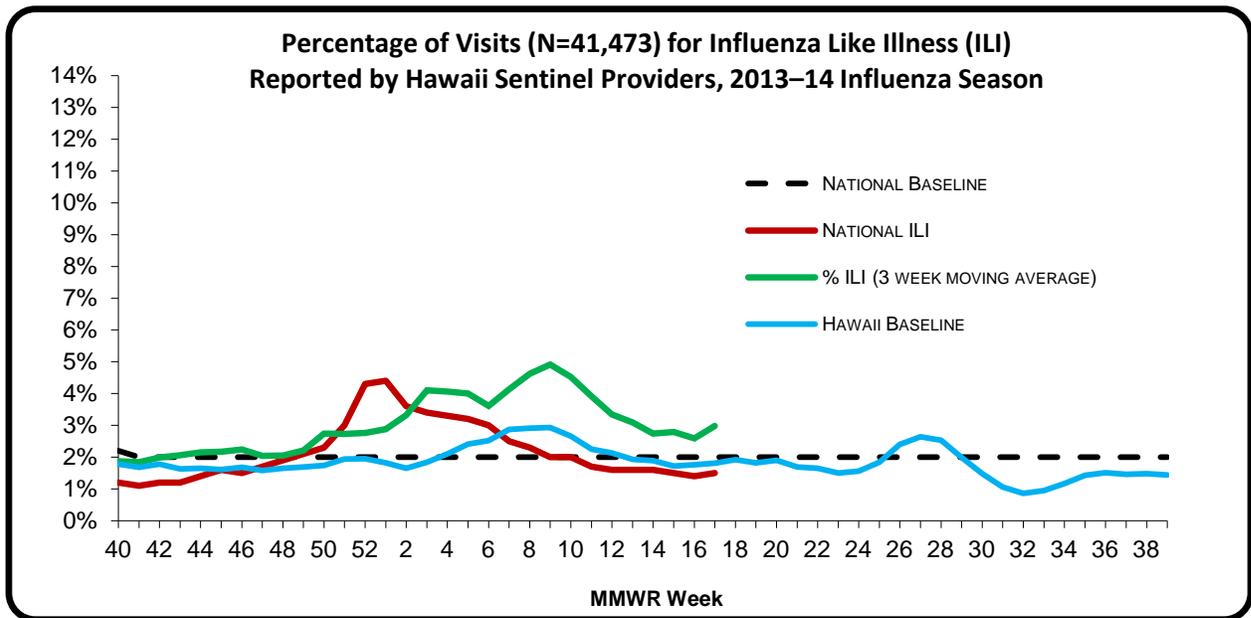
¹ MMWR stands for “Morbidity and Mortality Weekly Report,” conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

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 average: 3.0%) of the outpatient visits recorded by Hawaii sentinel providers was 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 (2.0%)⁴ (i.e., inside the 95% confidence interval), and higher than the national ILI rate (1.5%) (i.e., outside the 95% confidence interval).
- ILI Cluster Activity: One new cluster was reported to HDOH during week 17. This cluster was on Oahu in a long-term care center and involved 5 cases with ILI, without any confirmed influenza cases. There have been a total of 14 clusters this season.



Please note that a reporting outlier has been identified and is currently being investigated. The weekly surveillance report will not include those data pending further examination.

² The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2008–09, 2009–10, 2010–2011, 2011–2012, and 2012–2013).

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.

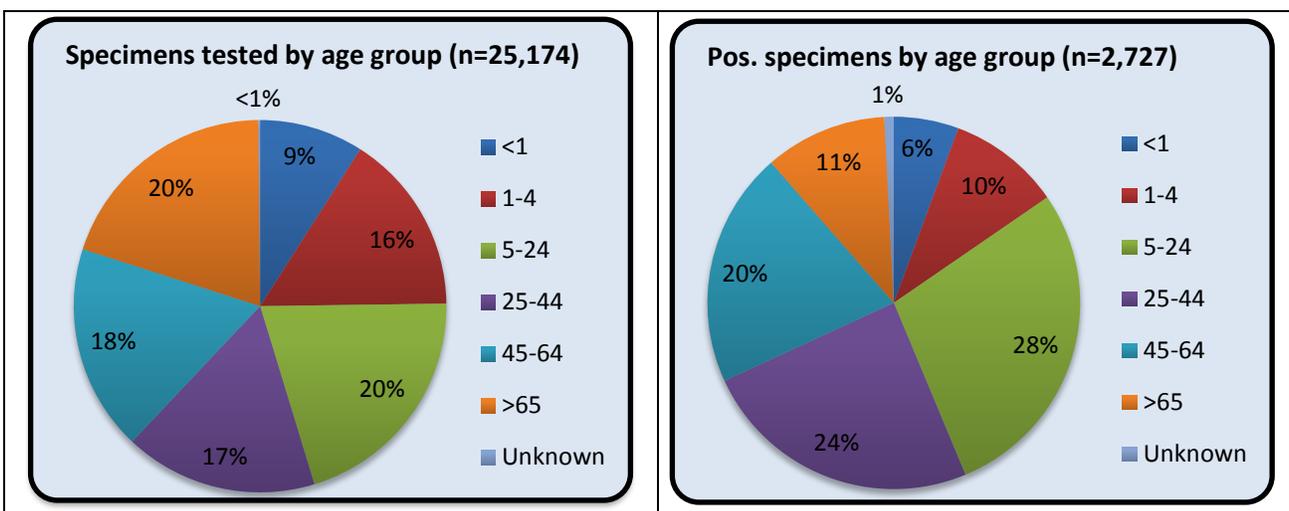
II. LABORATORY SURVEILLANCE: State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii’s major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria⁵ 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 since the beginning of the 2013–14 flu season:

- A total of **25,174** specimens has been tested statewide for influenza viruses (positive: **2,727 [10.8%]**).
 - 15,706 (62.4%) were screened only by rapid antigen tests with no confirmatory testing
 - 9,468 (37.6%) underwent some type of confirmatory testing (either RT-PCR or viral culture)
 - 22,447 (89.2%) were negative.
- 2,431 (9.7%) cases of influenza A and 296 (1.2%) cases of influenza B were detected using any method
 - Influenza A cases included:
 - 1,465 (60.3%) influenza A (un-subtyped)
 - 749 (30.8%) 2009 H1N1
 - 217 (8.9%) influenza A (H3)
 - 0 (0%) other seasonal influenza A (H1)

1. AGE DISTRIBUTION

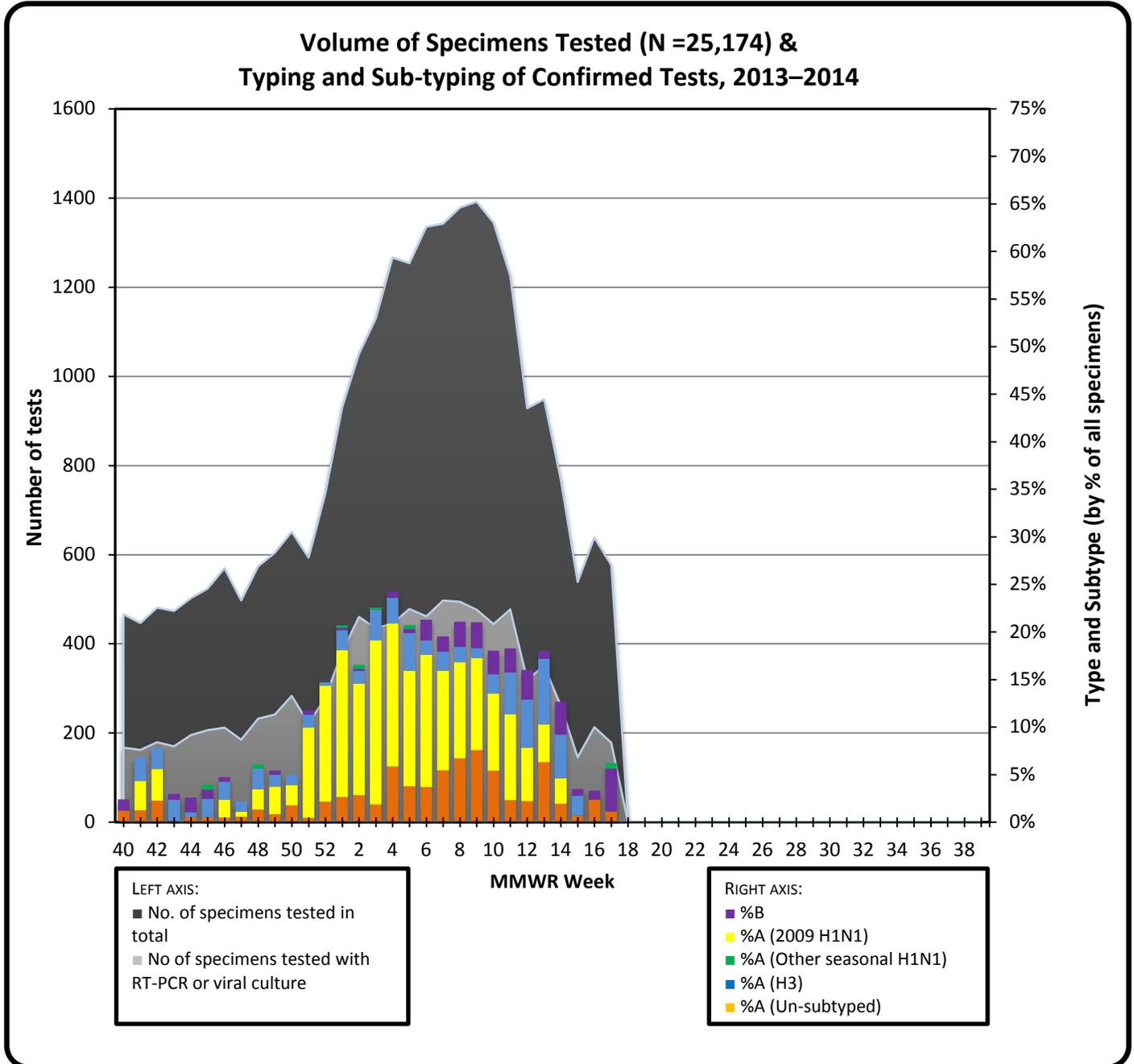
The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2013–14 influenza season. Of the 10.8% of specimens that tested positive for influenza, the 5–24 and 25–44 age groups represented more than half.



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

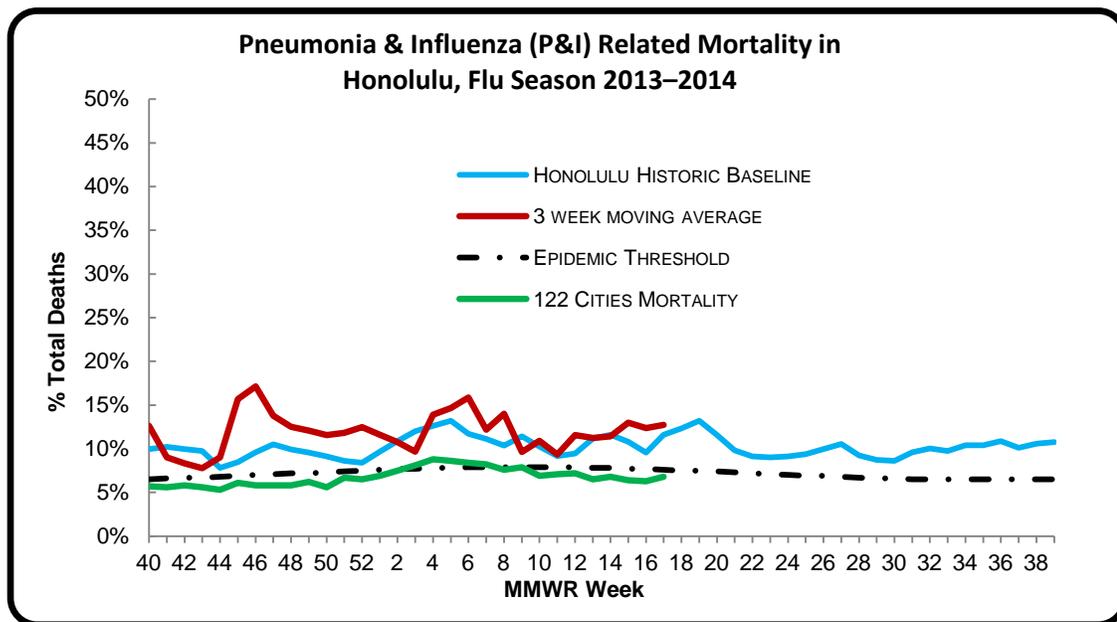
The chart below shows the total volume of specimens tested for influenza by MMWR week during the 2013–2014 influenza season as well as the type and subtype of specimens tested. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



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:

- **9.7%** (season average: **11.9%**) of all deaths that occurred in Honolulu were related to pneumonia or influenza. For the current season, there have been 2,361 deaths from any cause, 280 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 was comparable to the national 122-city P&I mortality⁷ (6.8%) (i.e., inside the 95% confidence interval), and comparable to the epidemic threshold (7.1%) (i.e., inside the 95% confidence interval).



INFLUENZA-ASSOCIATED PEDIATRIC DEATHS⁸:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2013–2014 season.
- Nationwide, two new influenza-associated pediatric deaths were reported to CDC during week 17 (season total: 91). One death was associated with influenza A (H3) virus (during week 15) and one was associated with influenza A virus for which no subtyping was performed (during week 16).

⁶ The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2009–09, 2009–2010, 2010–2011, 2011–2012, and 2012–2013).

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 at this time. More information regarding H3N2v viruses may be found on the CDC website ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2013–2014 influenza season.*
- *A total of 1 H3N2v or H1N1v infection has been reported nationally for the 2013–2014 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. One well-known avian influenza sub-type is H5N1 virus, which circulates globally among poultry. The WHO, CDC, and other public health agencies have also been monitoring a new avian 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. For information specific to H7N9, refer to the CDC ([here](#)) or the WHO ([here](#)) websites. The most recent WHO risk assessment on H7N9 was released on **February 28, 2014** ([here](#)); and updated H7N9 background/summary was updated on **January 31, 2014** ([here](#)). WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza and posts current avian influenza case counts ([here](#)), which were last updated on **March 24, 2014**. Since the previous update, there were six new laboratory-confirmed human cases of influenza A (H5N1) virus. Four of these occurred in Cambodia, all in children, with three having a fatal outcome. Poultry die-offs had been reported in the neighborhoods of all four cases prior to onset. Two cases occurred in Egypt; both had exposure to sick and dead poultry.

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: http://www.cdc.gov/flu/about/disease/index.htm National ILI and P&I Data: http://www.cdc.gov/flu/weekly/fluactivitysurv.htm Vaccine Virus Selection: http://www.cdc.gov/flu/about/season/vaccine-selection.htm
Flu.gov	General Influenza Information: flu.gov
HDOH Flu and Pneumonia	General Influenza: http://health.hawaii.gov/docd/flu-hawaii/general-info/ Surveillance: http://health.hawaii.gov/docd/flu-hawaii/surveillance/ To find out more information or join the sentinel physician program, email: matthew.pflaum@doh.hawaii.gov
World Health Organization	General Global and Local Influenza: http://www.who.int/topics/influenza/en/ Avian Influenza: http://www.who.int/influenza/human_animal_interface/avian_influenza/en/

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	2011	2012	2013	2014	2015
1	1/8/2011	1/7/2012	1/5/2013	1/4/2014	1/10/2015
2	1/15/2011	1/14/2012	1/12/2013	1/11/2014	1/17/2015
3	1/22/2011	1/21/2012	1/19/2013	1/18/2014	1/24/2015
4	1/29/2011	1/28/2012	1/26/2013	1/25/2014	1/31/2015
5	2/5/2011	2/4/2012	2/2/2013	2/1/2014	2/7/2015
6	2/12/2011	2/11/2012	2/9/2013	2/8/2014	2/14/2015
7	2/19/2011	2/18/2012	2/16/2013	2/15/2014	2/21/2015
8	2/26/2011	2/25/2012	2/23/2013	2/22/2014	2/28/2015
9	3/5/2011	3/3/2012	3/2/2013	3/1/2014	3/7/2015
10	3/12/2011	3/10/2012	3/9/2013	3/8/2014	3/14/2015
11	3/19/2011	3/17/2012	3/16/2013	3/15/2014	3/21/2015
12	3/26/2011	3/24/2012	3/23/2013	3/22/2014	3/28/2015
13	4/2/2011	3/31/2012	3/30/2013	3/29/2014	4/4/2015
14	4/9/2011	4/7/2012	4/6/2013	4/5/2014	4/11/2015
15	4/16/2011	4/14/2012	4/13/2013	4/12/2014	4/18/2015
16	4/23/2011	4/21/2012	4/20/2013	4/19/2014	4/25/2015
17	4/30/2011	4/28/2012	4/27/2013	4/26/2014	5/2/2015
18	5/7/2011	5/5/2012	5/4/2013	5/3/2014	5/9/2015
19	5/14/2011	5/12/2012	5/11/2013	5/10/2014	5/16/2015
20	5/21/2011	5/19/2012	5/18/2013	5/17/2014	5/23/2015
21	5/28/2011	5/26/2012	5/25/2013	5/24/2014	5/30/2015
22	6/4/2011	6/2/2012	6/1/2013	5/31/2014	6/6/2015
23	6/11/2011	6/9/2012	6/8/2013	6/7/2014	6/13/2015
24	6/18/2011	6/16/2012	6/15/2013	6/14/2014	6/20/2015
25	6/25/2011	6/23/2012	6/22/2013	6/21/2014	6/27/2015
26	7/2/2011	6/30/2012	6/29/2013	6/28/2014	7/4/2015
27	7/9/2011	7/7/2012	7/6/2013	7/5/2014	7/11/2015
28	7/16/2011	7/14/2012	7/13/2013	7/12/2014	7/18/2015
29	7/23/2011	7/21/2012	7/20/2013	7/19/2014	7/25/2015
30	7/30/2011	7/28/2012	7/27/2013	7/26/2014	8/1/2015
31	8/6/2011	8/4/2012	8/3/2013	8/2/2014	8/8/2015
32	8/13/2011	8/11/2012	8/10/2013	8/9/2014	8/15/2015
33	8/20/2011	8/18/2012	8/17/2013	8/16/2014	8/22/2015
34	8/27/2011	8/25/2012	8/24/2013	8/23/2014	8/29/2015
35	9/3/2011	9/1/2012	8/31/2013	8/30/2014	9/5/2015
36	9/10/2011	9/8/2012	9/7/2013	9/6/2014	9/12/2015
37	9/17/2011	9/15/2012	9/14/2013	9/13/2014	9/19/2015
38	9/24/2011	9/22/2012	9/21/2013	9/20/2014	9/26/2015
39	10/1/2011	9/29/2012	9/28/2013	9/27/2014	10/3/2015
40	10/8/2011	10/6/2012	10/5/2013	10/4/2014	10/10/2015
41	10/15/2011	10/13/2012	10/12/2013	10/11/2014	10/17/2015
42	10/22/2011	10/20/2012	10/19/2013	10/18/2014	10/24/2015
43	10/29/2011	10/27/2012	10/26/2013	10/25/2014	10/31/2015
44	11/5/2011	11/3/2012	11/2/2013	11/1/2014	11/7/2015
45	11/12/2011	11/10/2012	11/9/2013	11/8/2014	11/14/2015
46	11/19/2011	11/17/2012	11/16/2013	11/15/2014	11/21/2015
47	11/26/2011	11/24/2012	11/23/2013	11/22/2014	11/28/2015
48	12/3/2011	12/1/2012	11/30/2013	11/29/2014	12/5/2015
49	12/10/2011	12/8/2012	12/7/2013	12/6/2014	12/12/2015

50	12/17/2011	12/15/2012	12/14/2013	12/13/2014	12/19/2015
51	12/24/2011	12/22/2012	12/21/2013	12/20/2014	12/26/2015
52	12/31/2011	12/29/2012	12/28/2013	12/27/2014	1/2/2016
53				1/3/2015	