



Week 5: January 29, 2017—February 4, 2017

Washington State Department of Health, Communicable Disease Epidemiology

Please note all data are preliminary and may change as data are updated.

State Summary: Flu activity remains elevated but some measures are decreasing

- One hundred seventy two lab-confirmed influenza deaths have been reported for the 2016-2017 season to date.
- During week 5, 275 out of 1,614 specimens (17.0%) tested by the World Health Organization/National Respiratory and Enteric Virus Surveillance System (WHO/NREVSS) collaborating laboratories in Washington were positive for influenza: 7 influenza A (2009 H1N1), 65 influenza A (H3N2), 178 influenza A (not subtyped) and 25 influenza B.
- During week 5, the proportion of outpatient visits for influenza-like illness (ILI) was 2.0 percent, above the baseline of 1.1 percent.
- Influenza is characterized as widespread in Washington.

Laboratory Data: World Health Organization (WHO) & National Respiratory and Enteric Virus Surveillance System (NREVSS) Data Reported to CDC

For the 2016-2017 influenza season, CDC has generated separate graphs of data reported to CDC by public health laboratories (Figure 1) and commercial laboratories (Figure 2).

Table 1 combines the data from the public health and commercial laboratories.

Table 1: WA Influenza Specimens Reported to CDC, Public Health Laboratories and Commercial Laboratories

| Week | No. Labs Reporting | A (H1) | A (2009 H1N1) | A (H3N2) | A (Unable to subtype) | A (Subtyping not performed) | B | BYam | BVic | Total # Tested | % Flu Positive |
|------|--------------------|--------|---------------|----------|-----------------------|-----------------------------|----|------|------|----------------|----------------|
| 2 | 11 | 0 | 2 | 136 | 0 | 359 | 11 | 0 | 0 | 1,977 | 25.7 |
| 3 | 11 | 0 | 2 | 151 | 0 | 358 | 21 | 0 | 0 | 2,021 | 26.3 |
| 4 | 10 | 0 | 10 | 104 | 0 | 260 | 17 | 1 | 0 | 1,822 | 21.5 |
| 5 | 7 | 0 | 7 | 65 | 0 | 178 | 25 | 0 | 0 | 1,614 | 17.0 |

Note on B lineages: Yam (Yamagata), Vic (Victoria), B (lineage typing not performed).

Figure 1: Influenza Positive Tests Reported to CDC, WA Public Health Laboratories

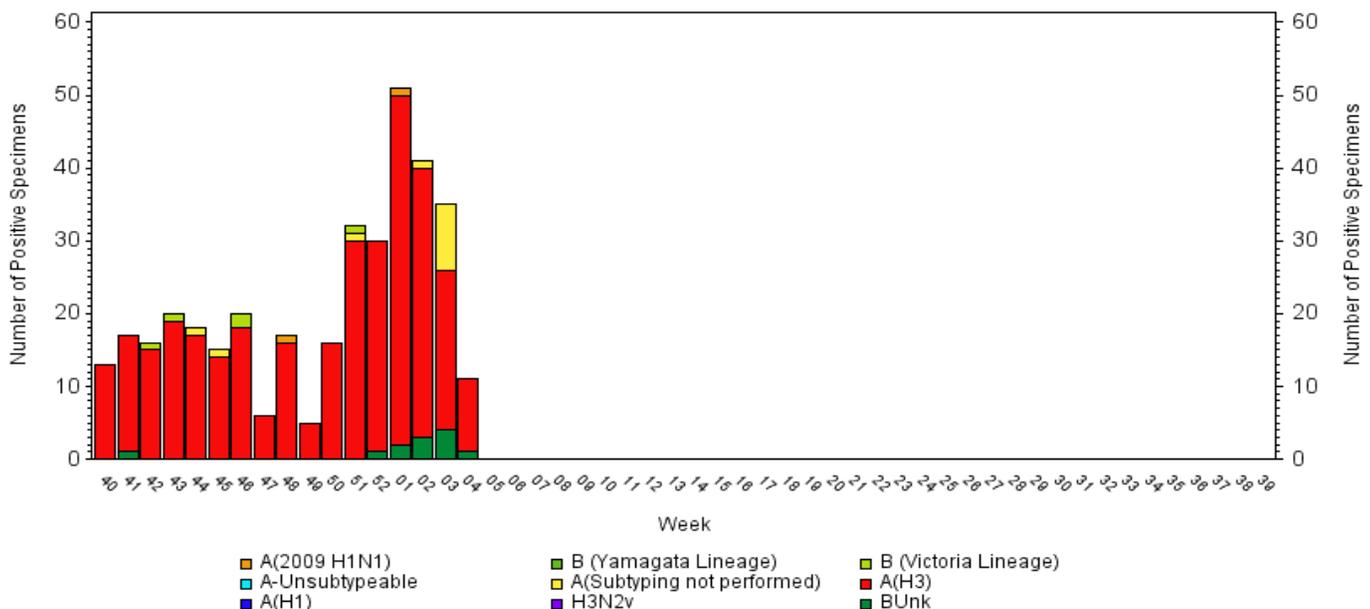
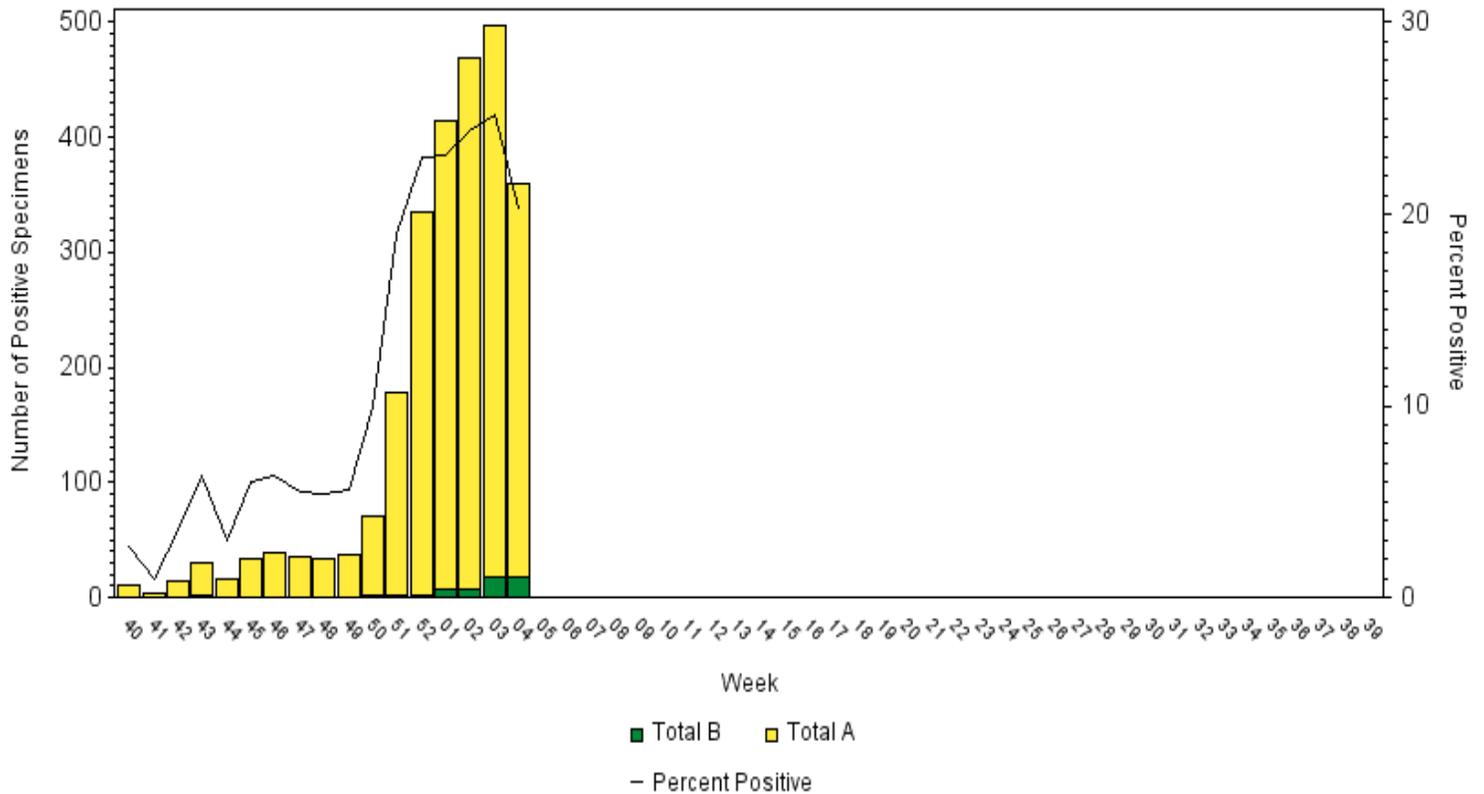


Figure 2: Influenza Positive Tests Reported to CDC, WA Commercial Laboratories



Updated 02/03/2017

Antigenic Characterization

Antigenic characterization has been conducted by CDC on a subset of influenza specimens collected in Washington during the 2016-2017 season.

Fifteen influenza A (H3N2) specimens were characterized as A/Hong Kong/4801/2014-like, the influenza A (H3N2) component of the 2016-2017 vaccine.

One influenza B specimen was characterized as B/Brisbane/60/2008-like, the B Victoria lineage component of the 2016-2017 trivalent and quadrivalent influenza vaccines.

Antiviral Resistance Testing

No testing has yet occurred on specimens collected during the 2016-2017 influenza season.

Novel, Avian and Unsubtypable Influenza Viruses

In December 2016 influenza H7N2 was identified in cats in New York City, with one [human infection reported](#). In January 2016 HPAI H7N8 was reported in a commercial turkey flock in Indiana, while in August 2016 HPAI H5N2 was identified in a wild Alaskan duck. During the 2014-2015 season, highly pathogenic avian influenza (HPAI) was identified in bird populations in Washington state and elsewhere in the United States. No human cases have been identified. See [USDA avian flu tracking page](#).

Outpatient Influenza-like Illness Surveillance Network (ILINet) Data

ILI is defined as fever (temp $\geq 100^{\circ}\text{F}/37.8^{\circ}\text{C}$) plus cough and/or sore throat. During week 5, 29 sentinel providers in Washington reported data through the U.S. Outpatient Influenza-like Illness Surveillance Network Surveillance Network (ILINet). Of 4,653 visits reported, 84 (1.8%) were due to ILI, above the baseline of 1.1%.

Note that for this figure the baseline is determined by calculating the mean percentage of patient visits for ILI during non-influenza weeks for the previous three seasons and adding two standard deviations. A non-influenza week is defined as periods of two or more consecutive weeks in which each week accounted for less than 2% of the season's total number of specimens that tested positive for influenza in public health laboratories.

See <http://www.cdc.gov/flu/weekly/overview.htm>

Figure 4. Percentage of ILI Visits Reported by Sentinel Providers, Washington, 2015–2017

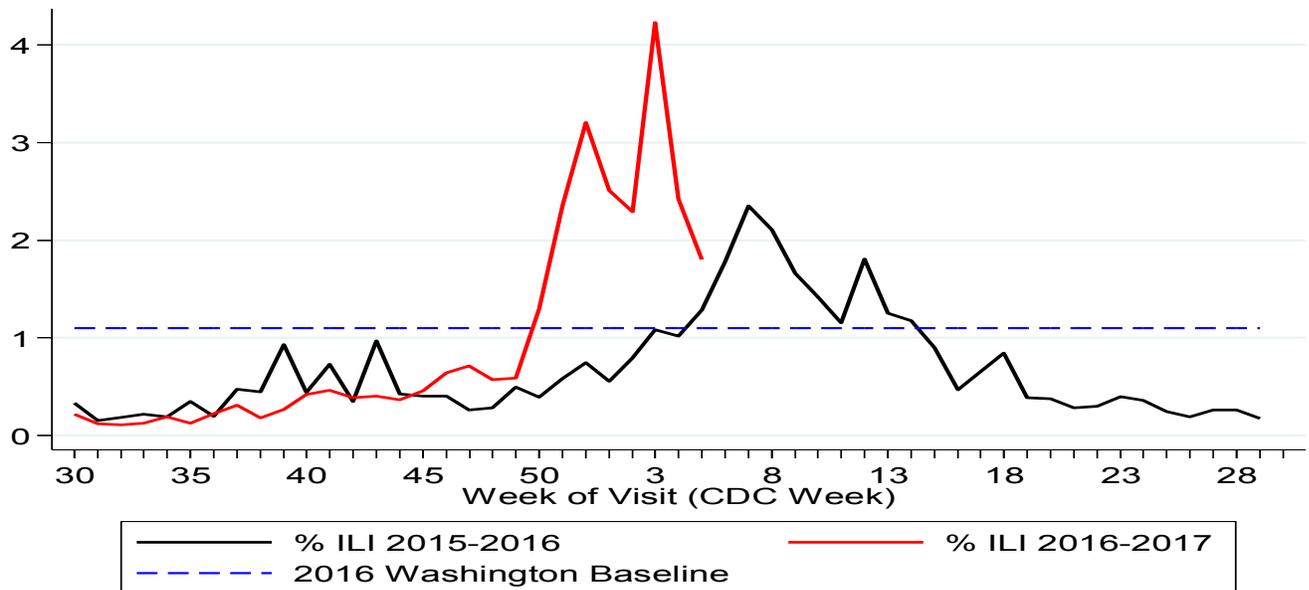


Table 2: Number of ILI Visits Reported by Sentinel Providers by Age Group, Washington

| CDC Week | # Sentinel Providers/ | Age | | | | | Total ILI | Total Patients | % ILI |
|----------|-----------------------|-----|------|-------|-------|---------|-----------|----------------|-------|
| | | 0–4 | 5–24 | 25–49 | 50–64 | Over 64 | | | |
| 2 (2017) | 42 | 15 | 37 | 32 | 26 | 9 | 119 | 5,158 | 2.3 |
| 3 (2017) | 42 | 22 | 102 | 49 | 16 | 10 | 199 | 4,707 | 4.2 |
| 4 (2017) | 40 | 7 | 79 | 23 | 10 | 3 | 122 | 5,038 | 2.4 |
| 5 (2017) | 29 | 11 | 45 | 4 | 13 | 11 | 84 | 4,653 | 1.8 |

Other Causes of Respiratory Infections

The University of Washington Clinical Virology Laboratory publishes aggregate test results for influenza as well as other respiratory viruses.

During week 5, the following **non-influenza respiratory viruses** were identified by the University of Washington Clinical Virology Laboratory (highest count listed first): respiratory syncytial virus, coronavirus, rhinovirus, human metapneumovirus, parainfluenza, and adenovirus.

University of Washington Clinical Virology Laboratory: <http://depts.washington.edu/rspvirus/respiratory.htm>

Note that **pertussis** is also circulating in Washington state.

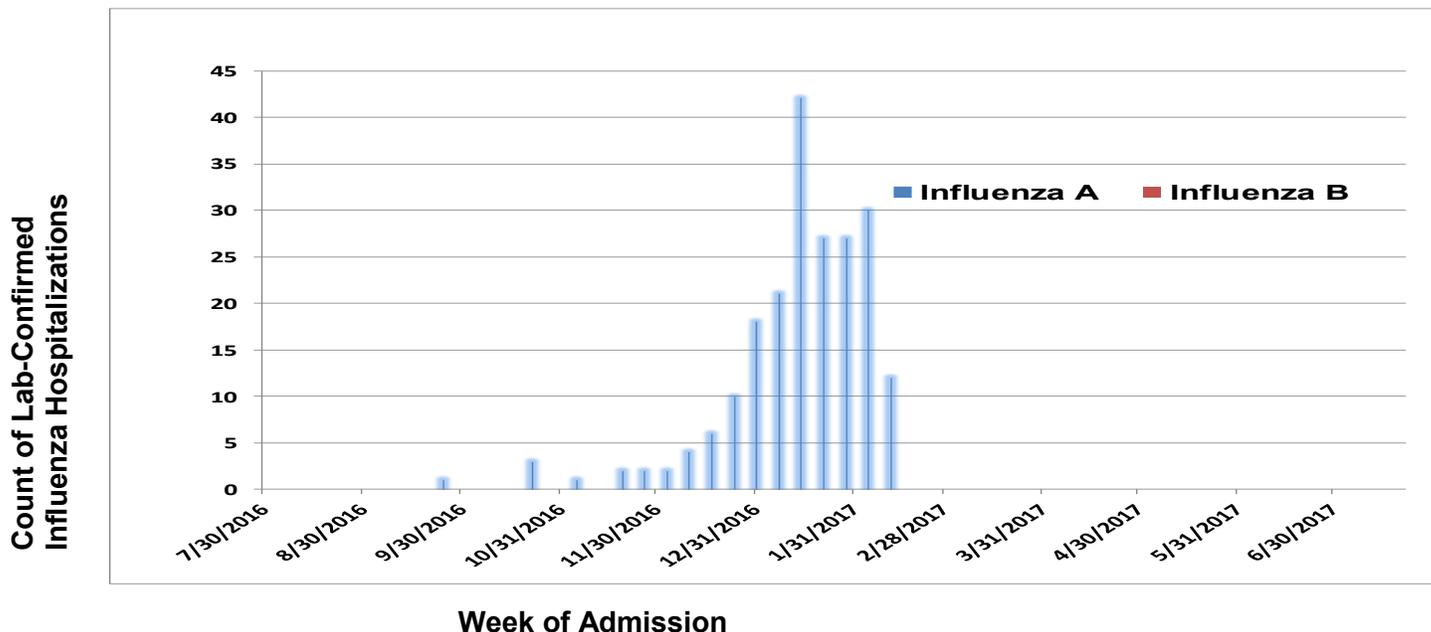
WA DOH Pertussis Update: <http://www.doh.wa.gov/Portals/1/Documents/Pubs/348-254-PertussisUpdate.pdf>

Influenza Hospitalization Data—Spokane County Only

Reported Laboratory-confirmed Influenza Hospitalizations (Spokane County Only)

Spokane Regional Health District requires hospitals to report laboratory-confirmed influenza-associated hospitalizations. Two hundred eight lab-confirmed influenza hospitalizations have been reported since week 30 of 2016, all influenza A.

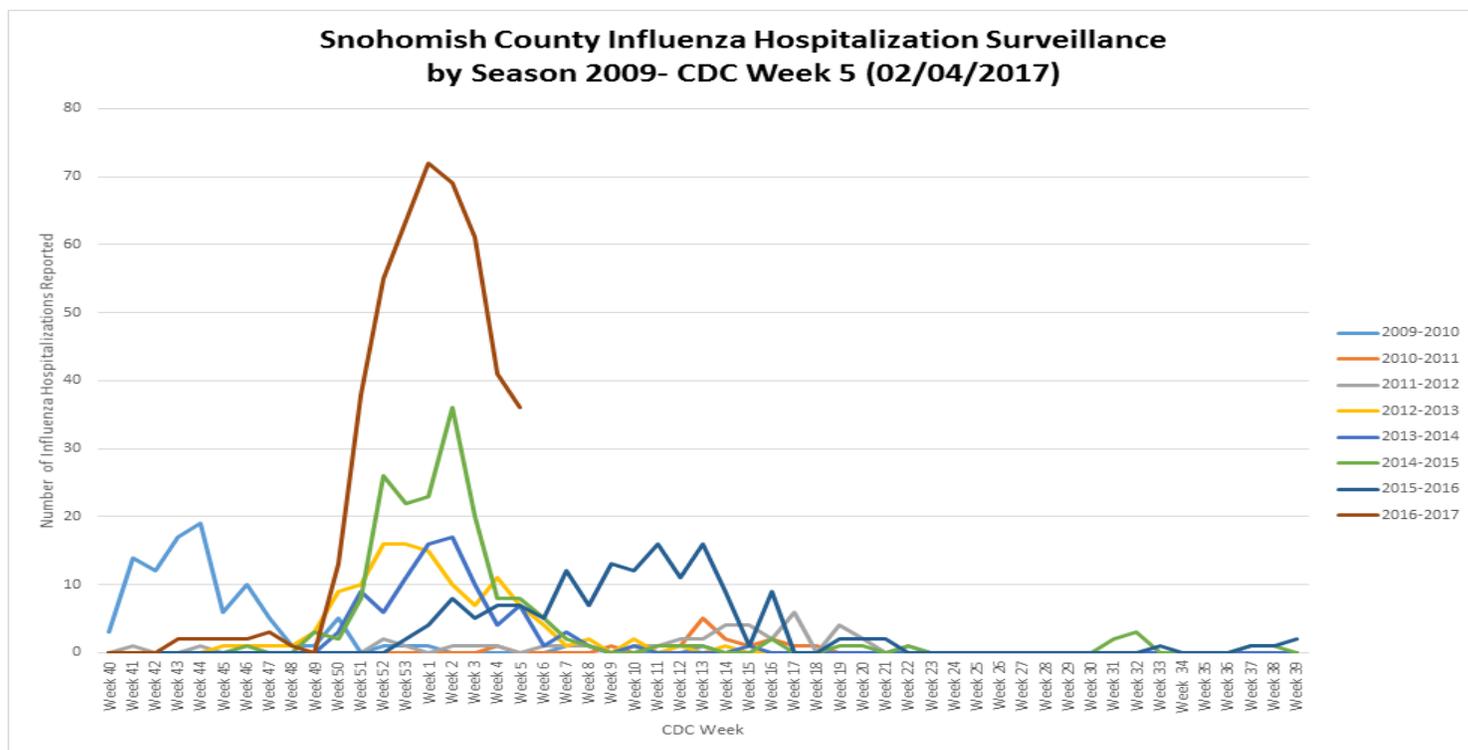
Figure 5: Spokane Lab-Confirmed Influenza Hospitalizations by Week of Admission and Influenza Type



Influenza Hospitalization Data—Snohomish County Only

Reported Laboratory-confirmed Influenza Hospitalizations (Snohomish County Only)

Snohomish Health District requires hospitals in Snohomish County to report laboratory-confirmed influenza-associated hospitalizations to the health district. See figure below, courtesy of Snohomish Health District.



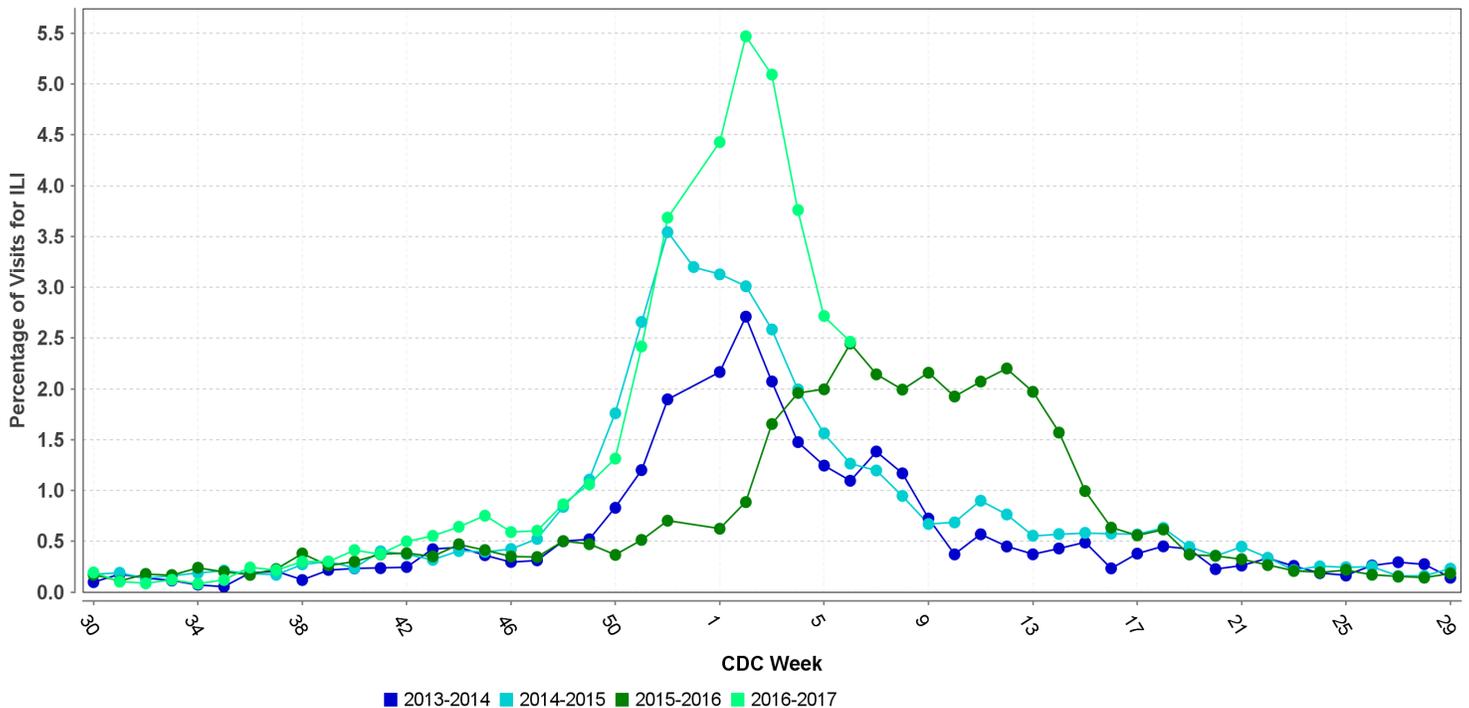
Influenza-like Illness Syndromic Surveillance Data, Western Washington

ESSENCE Syndromic Surveillance Data

Figure 6 shows the proportion of visits at a sample of emergency departments in western Washington for a chief complaint of influenza-like illness, or discharge diagnosis of influenza, by CDC week. For this purpose, ILI is defined as “influenza” OR fever with cough or fever with sore throat. Syndromic Surveillance ILI data are not available for eastern Washington facilities.

For more information about Syndromic Surveillance in Washington state, see <http://www.doh.wa.gov/ForPublicHealthandHealthcareProviders/HealthcareProfessionalsandFacilities/DataReportingandRetrieval/ElectronicHealthRecordsMeaningfulUse/SyndromicSurveillance>.

Figure 6: Syndromic Surveillance, Percentage of Hospital Visits for a Chief Complaint of ILI, or Discharge Diagnosis of Influenza, by CDC Week, Western Washington, 2013-2017



Influenza-like illness outbreaks in long term care facilities

Long term care facilities are required to report all suspected and confirmed outbreaks to their [local health jurisdiction](#) per Washington Administrative Code (WAC) [246-101-305](#). Long-term care facilities are required to report the following:

- A sudden increase in acute febrile respiratory illness over the normal background rate (e.g., 2 or more cases of acute respiratory illness occurring within 72 hours of each other) OR
- Any resident who tests positive for influenza

Recommendations for prevention and control of influenza outbreaks in long-term care facilities are available at: <http://www.doh.wa.gov/Portals/1/Documents/5100/fluoutbrk-LTCF.pdf>

Local health jurisdictions in turn [report](#) long-term care facility influenza-like illness outbreaks to the Washington State Department of Health.

Since July 2016, 162 influenza-like illness outbreaks in long-term care facilities have been reported to the Washington State Department of Health.

Seasonal Baselines and Epidemic Thresholds

Figures 7 and 8 are courtesy of Elaine Nsoesie of the University of Washington Institute for Health Metrics and Evaluation and Al Ozonoff of Harvard Medical School. Methods are based on the work of Robert E Serfling (1963). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1915276/>

Figure 7 shows the percentage of specimens tested for influenza at WHO/NREVSS labs that are positive for influenza by week. For week 5, the percentage of specimens positive for influenza is above the seasonal baseline but below the epidemic threshold.

Figure 8 shows the percentage of visits that are for influenza like illness among ILINet providers. For week 5, the percentage of visits for ILI is above the seasonal baseline but below the epidemic threshold.

The seasonal baseline is calculated using data from the previous five years, and the epidemic threshold is 1.645 standard deviations above the seasonal baseline. This method is similar to that used by CDC when calculating pneumonia and influenza mortality, as described in <http://www.cdc.gov/flu/weekly/overview.htm>.

This is the first season for which Washington state has used these models. The intention of these models is to provide a data driven approach to determining when influenza has reached an epidemic level. Under these models, influenza is considered to be epidemic when the percentage of specimens positive for influenza is at or above the epidemic threshold, *and* the percentage of visits for ILI is also at or above the epidemic threshold.

Taken together, these figures suggest that influenza activity remains below the epidemic threshold for week 5. Feedback on the use of these models is welcomed.

Figure 7: Percentage of Specimens Positive for Influenza, WHO/NREVSS labs

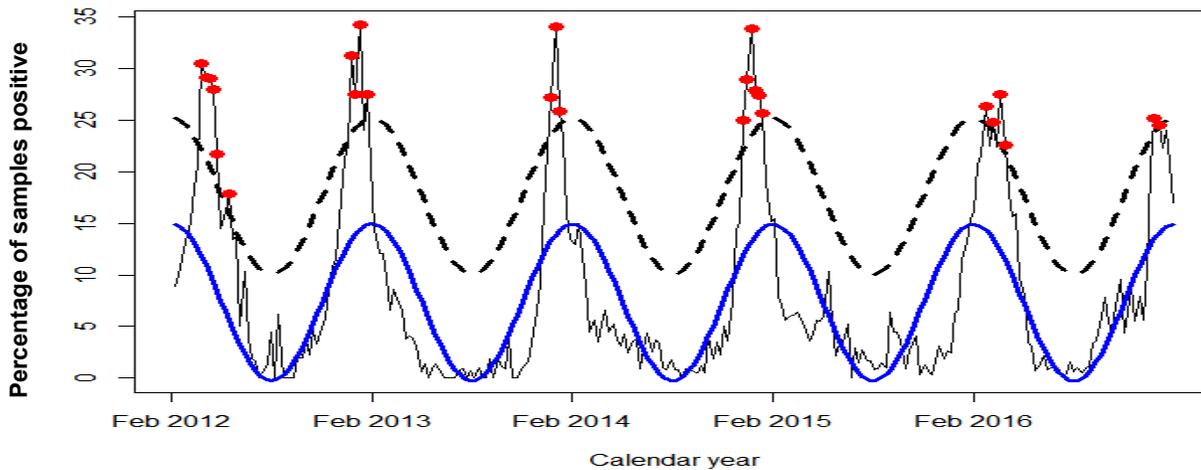
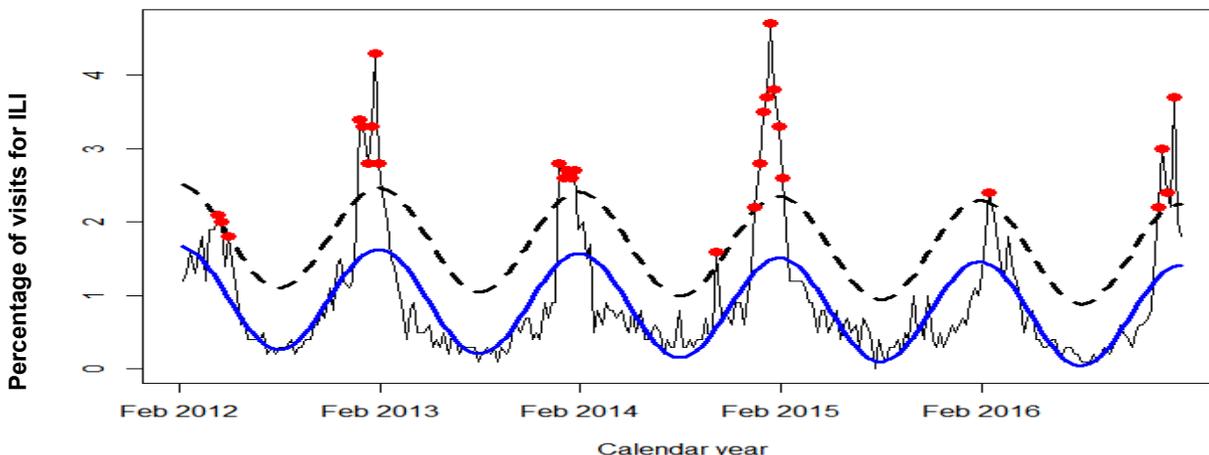


Figure 8: Percentage of Visits for ILI, Sentinel Providers



Legend

- - Epidemic threshold
- Seasonal baseline
- Percentage, as described on Y axis
- Week above epidemic threshold

Reported Laboratory-Confirmed Influenza-Associated Deaths

One hundred seventy two laboratory-confirmed influenza deaths have been reported since week 30 of 2016, 171 influenza A and one influenza B. All deaths have occurred in people with underlying health conditions, or in people with no pre-existing conditions but who were elderly. One death occurred in a child under 10. *Note that these counts reflect only deaths officially reported to the Washington State Department of Health.*

Table 3: Count and rate of reported laboratory-confirmed influenza-associated deaths by age group, Washington, 2016-2017 season to date

| Age Group (in years) | Count of Deaths | Death Rate (per 100,000 population) |
|----------------------|-----------------|-------------------------------------|
| 0-4 | 0 | 0 |
| 5-24 | 2 | 0.11 |
| 25-49 | 5 | 0.22 |
| 50-64 | 14 | 1.01 |
| 65+ | 151 | 16.12 |
| Total | 172 | 2.50 |

Reported Laboratory-Confirmed Influenza-Associated Deaths, Past Seasons

For reference, lab-confirmed influenza death totals reported to the Department of Health for past seasons are presented below in Table 4. Note that for the purposes of tables 3 and 4, each influenza season runs from week 30 of one year to week 29 of the next (roughly July to July).

Past season summaries are available:

<http://www.doh.wa.gov/DataandStatisticalReports/DiseasesandChronicConditions/CommunicableDiseaseSurveillanceData/InfluenzaSurveillanceData>

Note that influenza deaths are likely under-reported. The reasons for this under-reporting vary. Influenza may not be listed as a cause of death, influenza testing may not have occurred in a timely fashion to identify the virus, or may not have been performed at all, and lab-confirmed influenza deaths may not have been appropriately reported to public health.

CDC has published information about estimating seasonal influenza-associated deaths:

http://www.cdc.gov/flu/about/disease/us_flu-related_deaths.htm?mobile=nocontent

Table 4: Count of reported laboratory-confirmed influenza-associated deaths, past seasons to week 5 and total

| Season | Count of Deaths Reported as of <u>Week 5</u> of Season | Count of Deaths Reported for the <u>Entire</u> Season (week 30 to week 29) |
|--------------------|--|--|
| 2016-2017, to date | 172 (current week) | 172 (season to date) |
| 2015-2016 | 12 | 68 |
| 2014-2015 | 101 | 157 |
| 2013-2014 | 44 | 79 |
| 2012-2013 | 34 | 54 |
| 2011-2012 | 2 | 18 |
| 2010-2011 | 4 | 36 |

Reported Laboratory-Confirmed Influenza-Associated Death

Table 5 shows the count of laboratory-confirmed influenza deaths reported to the Washington State Department of Health by county of residence. Deaths are from week 30 of 2016 through the present. Note that due to reporting lag, counts may be different at the county level. Only deaths reported by the county as “investigation complete” are included in the official Washington State Department of Health counts.

Table 5: Count of deaths reported to WA DOH by county of residence. Note that due to reporting lag, counts may be different at the county level.

| County | Count of Deaths Reported to WA DOH from week 30 of 2016 to present |
|--------------|--|
| Chelan | 3 |
| Clark | 16 |
| Cowlitz | 1 |
| Douglas | 1 |
| Grays Harbor | 2 |
| Island | 3 |
| Jefferson | 1 |
| King | 35 |
| Kitsap | 11 |
| Kittitas | 1 |
| Klickitat | 1 |
| Pend Oreille | 1 |
| Pierce | 34 |
| Skagit | 4 |
| Snohomish | 33 |
| Spokane | 10 |
| Stevens | 1 |
| Thurston | 9 |
| Walla Walla | 2 |
| Whatcom | 1 |
| Yakima | 2 |

Additional Resources

International Influenza Data: <http://www.who.int/topics/influenza/en/>

National Influenza Surveillance Report: <http://www.cdc.gov/flu/weekly/>

Washington DOH Influenza Information for Public Health and Healthcare Providers:

<http://www.doh.wa.gov/ForPublicHealthandHealthcareProviders/PublicHealthSystemResourcesandServices/Immunization/InfluenzaFluInformation#recommendation>

Washington Local Health Department Influenza Surveillance Reports:

Clark County: <https://www.clark.wa.gov/public-health/flu>

King County: <http://www.kingcounty.gov/healthservices/health/communicable/diseases/Influenza.aspx>

Kitsap County: <http://www.kitsappublichealth.org/Respiratory.pdf>

Pierce County: <http://www.tpchd.org/providers-partners/influenza-medical-providers>

Whatcom County: <http://www.co.whatcom.wa.us/967/Influenza>

Yakima County: <http://www.yakimacounty.us/365/RSV-Flu-Stats>