



Influenza Final Surveillance Summary for 2017-2018 Influenza Season

In Connecticut, the Department of Public Health (DPH) utilizes multiple surveillance systems to monitor for circulating influenza (flu) viruses and track various indicators of influenza-associated illness. A summary of the 2017-2018 season, and details of the surveillance findings of these various systems during the 2017-2018 monitoring period are described below.

The 2017-2018 influenza season was notable for having one of the highest levels of flu activity observed during the past decade within Connecticut and throughout the United States. Geographically widespread flu activity persisted from December 2017 through May 2018. The season was characterized by two distinct activity waves. The first activity wave, comprised primarily of influenza A viruses, peaked in February, while the second lower activity wave, comprised primarily of influenza B viruses, peaked during early April 2018. The highest number of influenza-associated hospitalizations and deaths were recorded this season since these were first made reportable in Connecticut during October 2009. The high percentage of influenza A(H3N2) viruses in circulation likely contributed to this season's high levels of flu activity, as these viruses are generally associated with more severe illness.

For details please see the surveillance systems summaries below, as well as previous Connecticut annual influenza season summaries, which are located on our Influenza Statistics webpage:

<http://www.ct.gov/dph/cwp/view.asp?a=3136&q=410788&dphPNavCtr=#48059>

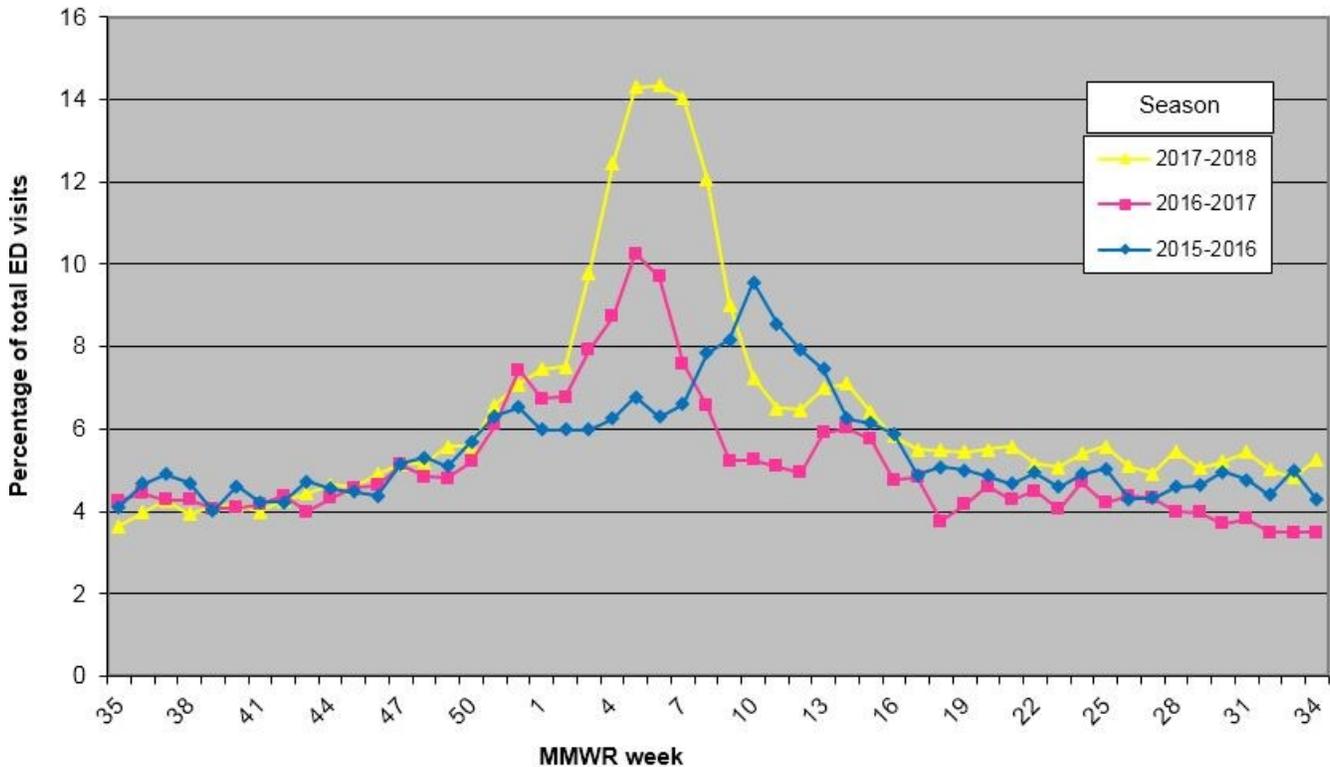
- The DPH examines the percentage of total emergency department (ED) visits attributed to the “fever/flu” syndrome category each week to identify when these visits exceed a level of 5% statewide, generally considered the minimum threshold for elevated influenza-associated ED visits. During the 2017-2018 influenza season, the percentage of “fever/flu” ED visits exceeded 5% from late November 2017 through late May 2018. The seasonal peak of 14.3% occurred during the week ending February 10, 2018, MMWR week 6; a second, smaller peak of 7.1 % occurred during the week ending April 7, 2018, MMWR week 14 (Figure 1). The peak weekly percentage of total emergency department (ED) visits attributed to the “fever/flu” syndrome exceeded the peak levels observed during the previous two seasons.
- The DPH examines the percentage of outpatient visits to a network of non-hospital based providers with influenza-like illness (ILI) each week to determine when these visits exceed a level of 1% statewide, generally considered the baseline for increased influenza-associated visits in the outpatient setting. During the 2017-2018 influenza season, the percentage of outpatient ILI visits remained above 1% from October 2017 through late-May 2018. The seasonal peak of 7.2% occurred during the week ending February 10, 2018, MMWR week 6, and a second, smaller peak of 4.2% occurred during the week ending March 31, 2018, MMWR week 13 (Figure 2). The peak weekly percentage of outpatients with influenza-like illness (ILI) exceeded the peak levels observed during the previous two seasons.
- Influenza-associated hospitalizations have been reportable in Connecticut since October 2009. During the 2017-2018 influenza season, a total of 3,895 persons hospitalized with influenza-associated illness were reported, including 2,744 influenza A, 1,148 influenza B and 3 of unknown type. Of the 711 Type A isolates subtyped, 661 (93%) were Type A (H3N2), with only 50 (7%) being Type A (2009 H1N1) influenza (Figure 3 &4).
- Influenza-associated deaths among individuals 18 years of age or younger have been reportable in Connecticut since January 2005, and influenza-associated deaths among all ages since October 2009. A total of 184 influenza-associated deaths were reported, including 31 in patients with Type A (H3N2), 2 in patients with Type A (2009 H1N1), 94 in patients with Type A subtype unspecified, and 57 in patients with Type B influenza. Of the 184 reported influenza-associated deaths, 154 (84%) were among patients equal to or greater than 65 years of

age, 17 (9%) 50-64 years of age, 9 (5%) 25-49 years of age, 1 (<1%) 18-24 years of age, and 3 (<2%) <18 years of age.

- The DPH tracks reports of laboratory-confirmed influenza. Positive results were reported from residents of all eight Connecticut counties and included 3,948 from Fairfield County, 3,469 from Hartford County, 3,375 from New Haven County, 1,149 from New London County, 740 from Litchfield County, 672 from Middlesex County, 581 from Windham County, 438 from Tolland County, and 10 from unknown counties. Of the 14,382 positive influenza reports received, 7,624 (53%) were Type A subtype unspecified, 1,468 (10%) were Type A (H3N2), 209 (<2%) identified as Type A (2009 H1N1), 5,070 (35%) were Type B, and 11 (<1%) of unknown type. Of the 1,677 Type A isolates that were subtyped, 1,468 (88%) were Type A (H3N2), and 209 (12%) Type A (2009 H1N1) influenza (Figures 5 & 6).
- The first activity wave during the 2017-2018 influenza season was comprised primarily of influenza A (H3N2) viruses and peaked during the week ending February 10, 2018, MMWR week 6. The second lower activity wave was comprised primarily of influenza B viruses and peaked during the week ending April 7, 2018, MMRW week 14. This second influenza B activity wave did not subside until late May 2019 (Figure 5).
- Using the Hospital Admissions Syndromic Surveillance (HASS) system, DPH examined the percentage of unscheduled hospital admissions due to pneumonia each week to determine when these admissions exceeded a baseline level of 4%. The percentage of weekly hospital pneumonia admissions remained above 4% of all unscheduled admissions statewide from December 2017 through February 2018 with seasonal peaks of 5.1% during the week ending January 6, 2018, MMWR week 1, and 4.7% during the week ending January 20, 2018, MMWR week 3 (Figure 7). The HASS system was discontinued at the end of the 2017-2018 flu season and will not be included in DPH surveillance during future seasons.

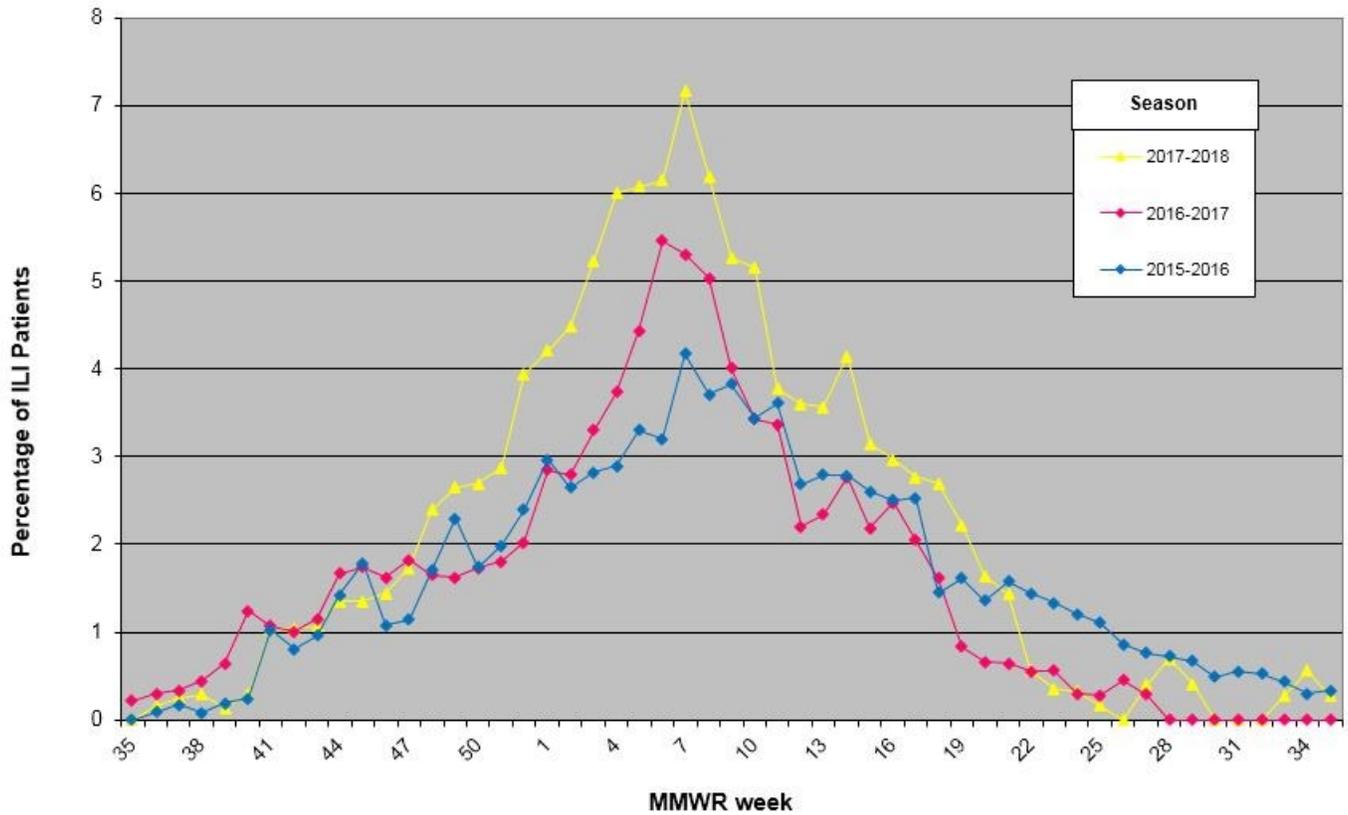
The **Hospital Emergency Department Syndromic Surveillance (HEDSS) System** receives daily electronic reports on ED visits from all 33 hospital-affiliated emergency departments in Connecticut. Data include a listing of total patient visits with information on their chief complaint, including fever/flu.

Figure 1. Connecticut Hospital Emergency Department Syndromic Surveillance (HEDSS) System: Percentage of total ED visits for "fever/flu" syndrome category, 2017-2018 influenza season compared to past seasons, MMWR Week 34 (week ending 8/25/2018)



Sentinel Provider Surveillance System: Reporting of influenza-like illness (ILI) is conducted through a statewide network of volunteer outpatient providers known as ILINet. The proportion of patients exhibiting ILI is reported to the DPH on a weekly basis. ILI is defined as a cough or sore throat in the absence of a known cause, and the presence of a fever > 100° F.

Figure 2. Outpatient Influenza-Like Illness Surveillance Network (ILINet), Percentage of Patients with Influenza-Like Illness (ILI); 2015-16, 2016-17, 2017-18



Influenza-associated Hospitalizations: In Connecticut, influenza-associated hospitalizations and deaths are reportable. Data collected describe the more serious illnesses associated with influenza infections.

Figure 3. Hospitalized Patients (n = 3895) with Positive Lab Tests by Subtype & Week, Connecticut, 2017-2018 season

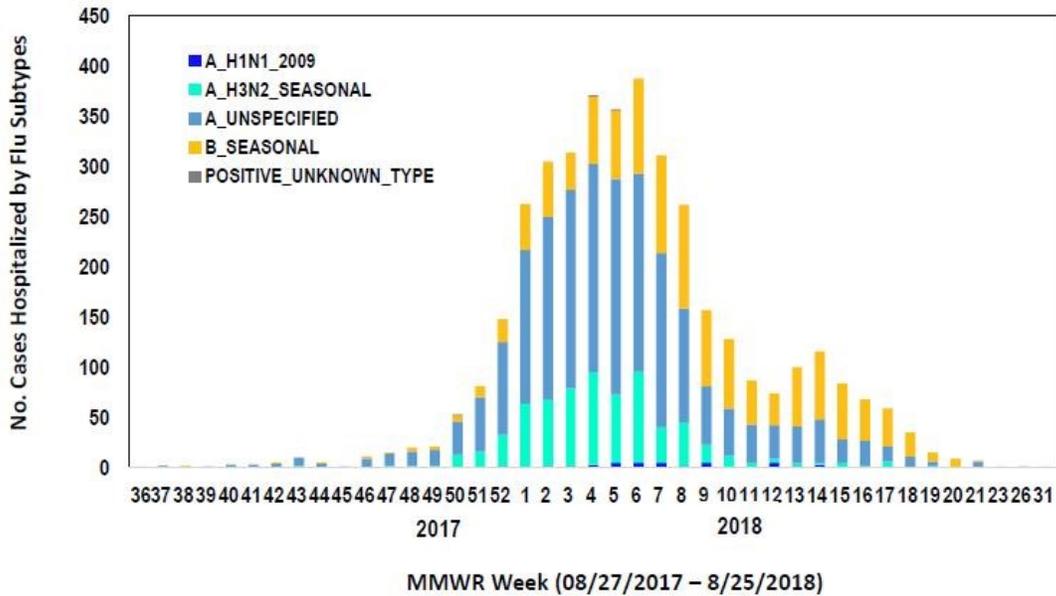
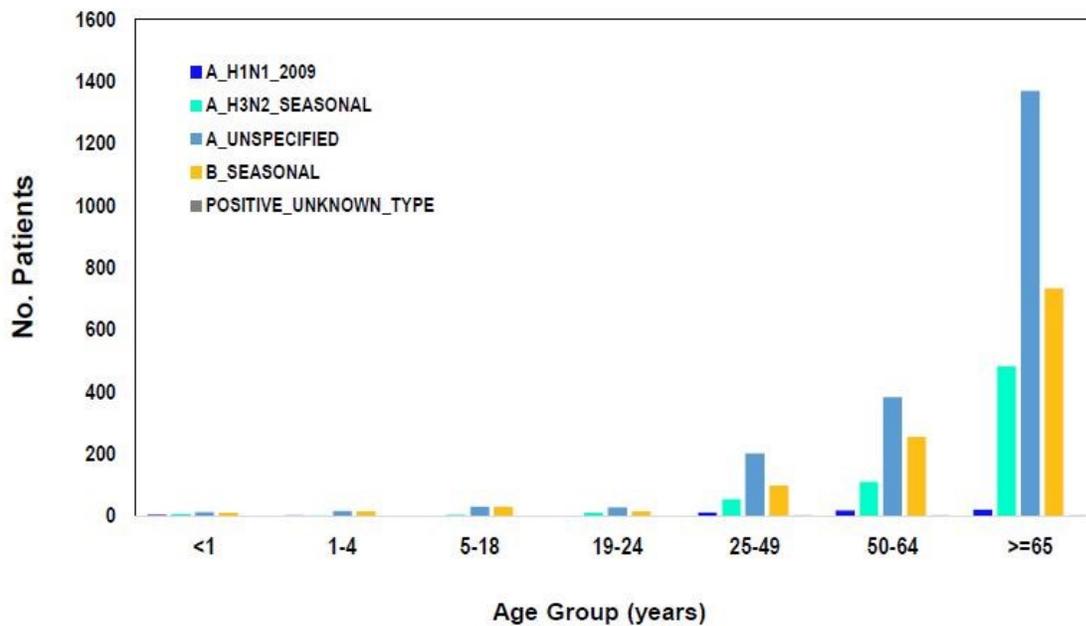


Figure 4. Hospitalized Patients (n=3895) with Positive Laboratory Tests by Influenza Subtype and Age Group, Connecticut, 2017-2018 season



Laboratory Surveillance: Positive influenza tests are laboratory reportable findings in Connecticut. The DPH tracks these results to determine what types, subtypes, and strains are circulating.

Figure 5. Positive Laboratory Tests (n = 14382) by Influenza Subtype and Week, Connecticut, 2017-2018 season

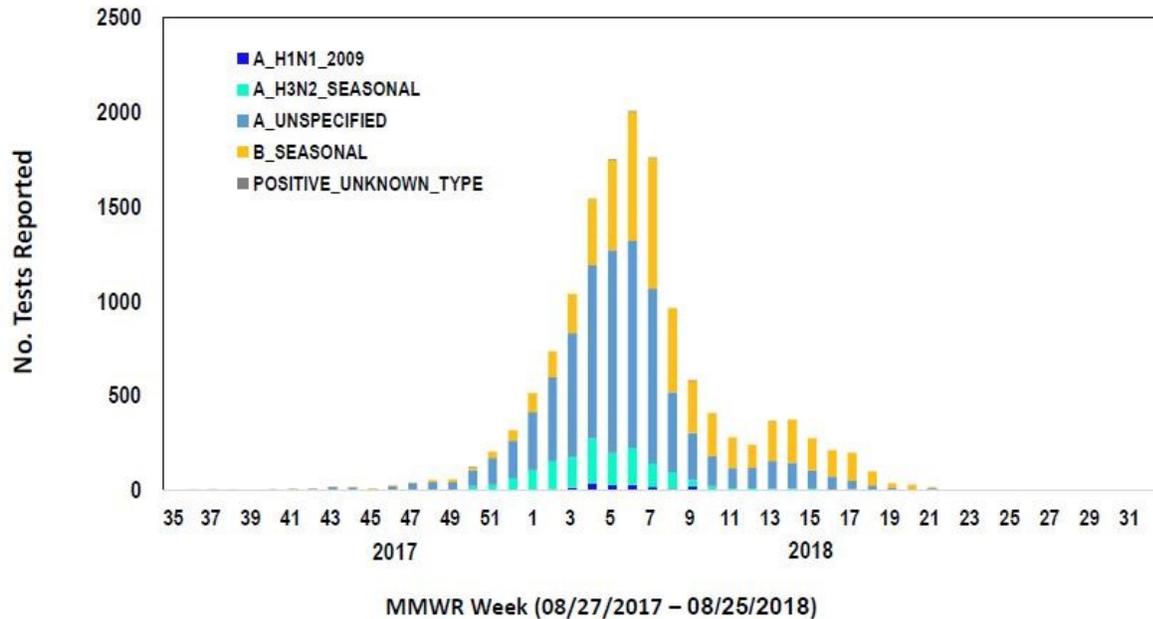
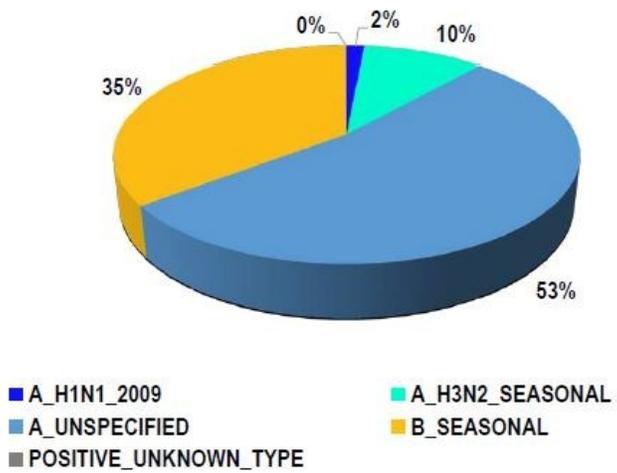


Figure 6. Proportion of Cumulative Positive Laboratory Tests (n = 14382) by Influenza Subtype, Connecticut, 2017-2018 season



The **Hospital Admissions Syndromic Surveillance (HASS) System**, receives daily electronic reports from all 32 acute care hospitals in Connecticut. Information on unscheduled admissions, including those for pneumonia that may be associated with influenza infections, is submitted.

Figure 7: Connecticut Hospital Admissions Syndromic Surveillance (HASS) System, Percentage of total statewide admissions for pneumonia; 2015-16, 2016-17, 2017-18

