State of Alaska Epidemiology **Bulletin**

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Alaska Influenza Surveillance Summary, 2017–18 Season

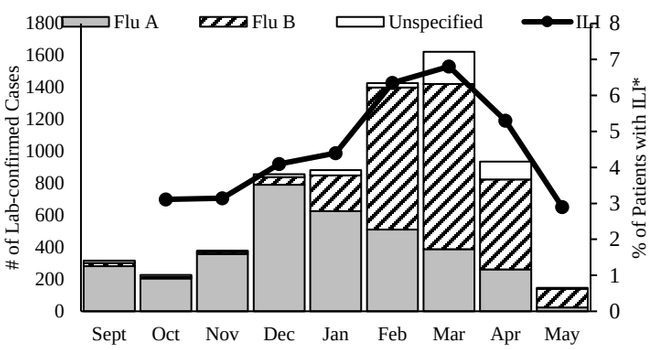
Background

The Alaska Section of Epidemiology (SOE) conducts routine influenza surveillance throughout the year, with heightened surveillance occurring October through May. Influenza surveillance provides information on where influenza activity is happening, tracks influenza-related illness (ILI) and influenza-associated mortality, and detects changes in the viral genome that may influence antiviral drug susceptibility or vaccine effectiveness. Weekly surveillance reports are posted on the SOE influenza webpage.[1] This *Bulletin* provides an epidemiologic summary of the 2017–18 influenza season.

Alaska 2017–18 Influenza Activity

During the 2017–18 season, widespread influenza activity started during the early winter months in Alaska and continued to gradually increase, with peak activity occurring from February through mid-April (Figure). Influenza A(H3) viruses predominated earlier in the season, and influenza B viruses predominated later in the season (Figure).

Figure. Positive Influenza Laboratory Tests (PCR and Rapid), Emergency Department Syndromic Surveillance, and Outpatient ILI Reports — Alaska, Sept 2017–May 2018



**Proportion of patients seen in an outpatient clinic (ILINet) or in an emergency department (syndromic surveillance) who had ILI.*

Laboratory Surveillance

To ensure confidence in detecting and characterizing influenza activity, national targets for specimen testing and positive results must be met based on each jurisdiction's population size.[2] A subset of the Alaska State Virology Laboratory (ASVL) respiratory samples (n=84) were sent to the Centers for Disease Control and Prevention (CDC) for genomic sequencing and antigenic typing, per specific CDC criteria.[3] Another subset of respiratory samples (n=58) were sent to New York-Wadsworth for pyrosequencing and antiviral resistance testing.

Viruses are characterized both by genetic and antigenic features. Genetic matching refers to similarities evident through whole genome sequencing; while antigenic matching refers to immunogenicity and similarity to the antibodies needed for virus neutralization. During the 2017–18 season nationally and in Alaska, the majority of influenza A and B isolates characterized were genetically well matched to strains included in the 2017–18 vaccine.[4,5] However, because the immunogenicity was suboptimal for both the A/Hong Kong/4801/2014(H3N2)-like and the B/Brisbane/60/2008-like strains, they are being replaced in the 2018–19 vaccine formulation with strains that have better neutralizing activity, A/Michigan/45/2015(H1N1)pdm09-like and B/Colorado/06/2017-like.

Of the 58 specimens selected for susceptibility testing, 56 (97%) were susceptible to neuraminidase inhibitors and two (both influenza A/H1N1 specimens) showed sequence variations that confer resistance to oseltamivir. ASVL publishes a weekly report that contains PCR data (i.e., A vs. B and hemagglutinin type) and antigenic characterization data.[5]

Outpatient Surveillance

Since 1997, outpatient ILI surveillance through ILINet has been an important component of Alaska's influenza surveillance.[6] During the 2017–18 season, data streams from participating clinics (ILINet) and emergency departments (syndromic surveillance) were integrated into one outpatient ILI activity feed. ILI surveillance tracks the proportion of patients with compatible influenza symptoms (Figure), which could also result from other respiratory viruses (e.g., coronaviruses and respiratory syncytial virus). Although ILI activity may capture different patients than those with lab-confirmed influenza, activity trends for both usually match well.

Influenza-Associated Mortality

During the 2017–18 season, 15 adult and no pediatric influenza-associated deaths were identified from health care provider reports and Alaska death certificate reviews.

Summary

Compared to 2016–17, the beginning of influenza season for 2017–18 saw widespread activity and high numbers for ILI. The ILI case counts decreased slightly in October and then gradually increased until they peaked in March (Figure).

Recommendations

1. Health care providers should strongly urge all patients aged ≥6 months without contraindications to receive influenza vaccine every year as soon as it becomes available. Influenza vaccine is the most effective tool available to prevent influenza-associated morbidity and mortality.
2. Health care providers can submit respiratory specimens from patients with ILI to ASVL for influenza testing; supplies can be obtained free of charge by calling 907-371-1000. Laboratory request forms are available at: http://www.dhss.alaska.gov/dph/Labs/Documents/publications/FbxSupplyReq.pdf
3. Health care providers must report suspected and confirmed influenza-associated deaths and unusual clusters of respiratory illness to SOE (call 907-269-8000 during business hours, or 1-800-478-0084 after hours).
4. Laboratories must report all positive influenza test results (*including rapid test results*) to SOE per 7 AAC 27.007.
5. Laboratories are encouraged to report the total number of influenza tests performed and the number of positive results directly to CDC to help meet Alaska's National Respiratory and Enteric Virus Surveillance System goals.[7] Call ASVL at 907-371-1000 for more information.

References

1. Alaska SOE Influenza Surveillance Report. Available at: http://dhss.alaska.gov/dph/Epi/id/Pages/influenza/fluinfo.aspx
2. APHL. Influenza Virologic Surveillance Right Size Roadmap. Available at: https://www.aphl.org/programs/infectious_disease/influenza/Influenza-Virologic-Surveillance-Right-Size-Roadmap/pages/default.aspx
3. CDC Criteria for Selecting Influenza Specimens for Referral. See: http://www.aphl.org/programs/infectious_disease/influenza/Documents/ID_2013July_Laboratory-Testing-Implementation-Guidance.pdf
4. CDC. Influenza activity in the United States during the 2017-18 season and composition of the 2018-19 influenza vaccine. *MMWR* 2018;67(22):634-42. Available at: https://www.cdc.gov/mmwr/volumes/67/wr/pdfs/mm6722a4-H.pdf
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6. Alaska SOE *Bulletin*. "Influenza Surveillance Update and New Laboratory Guidelines." No. 7, March 12, 2010. Available at: http://www.epi.alaska.gov/bulletins/docs/b2010_07.pdf
7. CDC. The National Respiratory and Enteric Virus Surveillance System. Available at: https://www.cdc.gov/surveillance/nrevss/index.html

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