IDAHO DEPARTMENT OF HEALTH & WELFARE
DIVISION OF PUBLIC HEALTH

Idaho Influenza Surveillance Data Sources and Data Limitations

The following sections describe data sources, and in some cases, data limitations associated with surveillance findings presented in the current Idaho influenza surveillance report. To view the current weekly surveillance report, visit the following link: http://flu.idaho.gov

1. Influenza Activity Estimates

State health departments, including Idaho, report estimated levels of influenza activity weekly to CDC, based on a review of surveillance findings (*i.e.*, outpatient visits, syndromic data, mortality data, and virologic data). Activity levels are described as either no activity, sporadic, local, regional, or widespread. Activity levels rely on the extent of geographic regions affected by the flu; Idaho regions are defined as the borders of the Idaho Public Health Districts.

2. ILINet Data

Data on outpatient visits to healthcare providers for Influenza-like Illness (ILI) are collected through the U.S. Outpatient ILI Surveillance Network (ILINet) website. In Idaho 10 ILINet sites from across the state contribute data weekly throughout the influenza season providing situational awareness on the geographic spread and ILI activity in their practice. The weekly % ILI is calculated from ILINet reports by dividing the total number of patients seen for any reason by the number of those patients specifically seen for ILI. A baseline for expected ILI visits outside the normal influenza season is shown in Figure 1 of the weekly report; Idaho is part of Region 10 (AK, ID, OR, and WA). Visit http://www.cdc.gov/flu/weekly/overview.htm to learn more about the ILINet reporting system.

3. Idaho Syndromic Surveillance Program and Limitations

The Idaho Syndromic Surveillance program (ISSP) works with Idaho hospitals to contribute emergency department (ED) visit data to the national BioSense platform. ESSENCE is the main syndromic surveillance tool in the platform, which provides analytic tools for tracking clinical syndromes through chief complaint and discharge diagnosis data. Syndromes are defined by chief complaint text and diagnosis codes related to individual visits. A syndrome-matched visit is defined as a visit that is associated with a syndrome through system query based on the syndrome definition. The following definition is the chief complaint and discharge diagnoses (CCANDDD) syndrome definition used by the ISSP to identify visits related to influenza-like-illness for this report. Diagnosis codes follow ICD-10-CM convention and include variations in the form of notation (e.g., inclusion of decimal in diagnostic codes). Therefore, the definition includes diagnosis codes that follow notation conventions of facilities submitting data. This definition identifies visits in addition to those identified by the National Syndromic Surveillance Program (NSSP) influenza-like-illness chief complaint text syndrome definition (SYNDROME="ILI").

((([CCANDDD="*r50.9*"] AND ([CCANDDD="*r05*"] OR [CCANDDD="*r02.9*"] OR [CCANDDD="*j06.9*"] OR [CCANDDD="*b34.9*"] OR [CCANDDD="*rJ18.9*"] OR [CCANDDD="*J20.9*"])) OR ([CCANDDD="*r509*"] AND ([CCANDDD="*r05*"] OR [CCANDDD="*r029*"] OR [CCANDDD="*j069*"] OR [CCANDDD="*b349*"] OR [CCANDDD="*rJ189*"] OR [CCANDDD="*J209*"])) OR ([CCANDDD="*r05*"] AND ([CCANDDD="*B349*"] OR [CCANDDD="*j029*"])) OR ([CCANDDD="*r05*"] AND ([CCANDDD="*B34.9*"] OR [CCANDDD="*j02.9*"])) OR ([CCANDDD="*j06.9*"] AND ([CCANDDD="*B34.9*"] OR [CCANDDD="*j02.9*"] OR [CCANDDD="*j20.9*"])) OR ([CCANDDD="*j069*"] AND ([CCANDDD="*B349*"] OR [CCANDDD="*j029*"] OR [CCANDDD="*j209*"])) OR [CCANDDD="*j101*"] OR [CCANDDD="*j10.1*"] OR [CCANDDD="*J05.0*"]OR [CCANDDD="*J050*"] OR [CCANDDD="*J02.0*"] OR [CCANDDD="*J020*"]) OR [SYNDROME="ILI"])

The below limitations apply to the ISSP data accessible through ESSENCE.

- Data are not representative jurisdiction-wide because not all hospital emergency departments in the jurisdiction were submitting data at the time these data were retrieved. Additionally, data on Idaho residents visiting EDs outside of Idaho have not been shared with Idaho public health officials.
- ED visits are categorized into syndromes by using chief complaint and discharge diagnosis codes. Chief complaint is commonly captured as a free text field, which could include misspellings or abbreviations, and could lack context to assist public health with interpretation of the reason for the visit (e.g., “feels unwell” without any symptoms listed). Variability in documentation of chief complaint can make it difficult to categorize all visits into appropriate syndromes and miscategorization can occur.
- Transmission of standardized diagnosis codes generally lag behind transmission of chief complaint data; therefore, the number and percentage of visits for a syndrome which uses both chief complaint and diagnosis codes for syndrome categorization can change by when the data were queried, especially when data are queried for visits within one week.
- Messages are received daily and may update records associated with an earlier visit; therefore, the same query of the same visits may result in different information on different days.

4. Virologic Surveillance

Healthcare providers from across the state are encouraged to submit clinical respiratory samples year-round to the Idaho Bureau of Laboratories (IBL) for influenza virus testing. Samples are collected from a subset of patients experiencing influenza-like illness (ILI), and are examined by IBL to determine the kind of influenza viruses in circulation. Information is presented in Figure 4, highlighting laboratory findings during and leading up to the current influenza season; the time of year when samples are more likely to be positive for an influenza virus. Positive samples are forwarded to the Centers for Disease Control and Prevention (CDC) for strain determination; this helps the CDC determine if the seasonal influenza vaccine is a good match for one or more of the viruses in circulation.

5. Idaho Mortality Data

Influenza-related deaths reported to the Idaho Bureau of Vital Records and Health Statistics during the influenza season are listed in Table 2 of the weekly report (http://flu.idaho.gov). Reviewing the number of deaths, by age group, and geographic region, provides information on populations and areas most severely affected by seasonal influenza.

- Only deaths occurring in Idaho are reported in Table 2; data include deaths in Idaho residents and non-residents, by public health district of residence. Deaths in Idaho residents occurring while out-of-state are not shown here. Data shown in Table 2 may differ from statistics based on Idaho resident records, data based on underlying cause of death only, and data based on calendar year.
- Deaths are considered influenza-related based on ICD coding for Influenza in Part I or Part II on the death certificate. Influenza may have been the underlying cause of death or contributed to death.

Table 3 (below) lists the number of Idaho deaths recorded during recent past influenza seasons; with an average of 23 deaths recorded annually between 2009-2010 and 2015-2016; note the death count rose sharply during the 2016-2017 season.

Table 3. Influenza-related deaths—Idaho, 2009-2010 through 2016-2017 influenza seasons

Influenza season	Influenza-related deaths	Influenza season	Influenza-related deaths
2016-2017	72	2012–2013	35
2015-2016	26	2011–2012	5
2014-2015	32	2010–2011	21
2013-2014	19	2009–2010	22