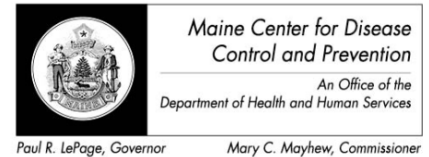


Maine Weekly Influenza Surveillance Update

September 2014 – May 2015



Synopsis

The purpose of the Maine Weekly Influenza Surveillance Update is to summarize influenza surveillance information that characterizes the incidence and burden of influenza and influenza-like illness in Maine. Weekly reports are published each Tuesday during influenza season on Maine Center for Disease Control and Prevention's (Maine CDC) Influenza website (<http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/influenza/influenza-surveillance-weekly-updates.shtml>) and are available through email list serve by contacting 1-800-821-5821, or by e-mailing disease.reporting@maine.gov.

Influenza is a viral illness that typically occurs during the winter months. Characterized by the abrupt onset of constitutional and respiratory signs and symptoms, such as fever, muscle aches, headache, severe malaise, non-productive cough, sore throat, and runny nose, influenza is spread from person to person primarily through the coughing and sneezing of infected persons. Influenza can be diagnosed through laboratory testing.

Influenza-like illness (ILI) is a term used to describe illness that presents with the typical signs and symptoms of influenza, but that has not been confirmed by laboratory test. ILI is defined as fever greater than or equal to 100°F (37.8°C) AND cough and/or sore throat, in the absence of a known cause other than influenza. Monitoring the frequency at which Maine residents present for medical care due to ILI may indicate the rate of new infection and burden of disease.

Moderate Disease Surveillance

Outpatient influenza-like illness (ILI)

Outpatient ILI data are collected through the U.S. Outpatient Influenza-Like Illness Surveillance Network (ILINet), a collaborative effort between the federal Centers for Disease Control and Prevention (CDC), Maine CDC, and local health care providers. During the 2014-15 season, 30 health care providers are enrolled and will report the total number of patients seen in their practices and the number of those patients seen for ILI by age group (0-4, 5-24, 25-49, 50-64, ≥65) on a weekly basis. This is reported on the weekly update as an unweighted percentage (# patients with ILI / total # patients seen), presented graphically.

Syndromic Surveillance

Emergency Room

Twenty five Maine emergency departments report daily de-identified emergency department visit data. The data is classified into syndromes based on chief complaint. The data are analyzed and reviewed on a daily basis. The influenza-like illness (ILI) syndrome is used to find the total number visits to emergency departments with these complaints on a daily basis. The number of visits for ILI is divided by the total number of visits per day to get the daily percentage of visits. The data are summed to get weekly percentage of visits for ILI. This is reported in the weekly update as a percent, and represented graphically.

Emergency Medical Services

All Emergency Medical Services (EMS) providers in the state of Maine report daily de-identified EMS run data. The data is classified into syndromes based on chief complaint. The data are analyzed and reviewed on a daily basis. The influenza-like illness (ILI) syndrome is used to find the total number of runs with these complaints on a daily basis. The number of runs for ILI is divided by the total number of runs per day to get the daily percentage of ILI runs. The data are summed to get weekly percentage of visits for ILI. This is reported in the weekly update as a percent, and represented graphically.

Severe Disease Surveillance

Hospital inpatients

Inpatient surveillance for respiratory illness admissions is conducted in collaboration with Maine CDC and regional hospitals. During the 2014-15 season, three hospitals will report the total number of patients admitted to the hospital and the total number of those patients admitted for pneumonia or influenza as an admitting diagnosis. This is reported on the weekly update as an unweighted percentage (# admits with P&I / total # admissions), presented graphically.

Laboratory Reporting

HETL

Maine CDC's Health and Environmental Testing Laboratory (HETL) works collaboratively with hospitals and private laboratories to collect specimens for respiratory virus testing and influenza positive isolate subtyping. Each week, HETL reports the total number of specimens received for respiratory virus testing and the number of positive isolates for influenza A (H1), A (H3), A (Undetermined), influenza B (Yamagata), and influenza B (Victoria) by specimen collection date. These data are used to calculate the percent of specimens received that are positive for influenza, and the proportion of isolates positives for each subtype.

Antiviral Resistance

HETL also has the capability to test for Tamiflu resistance in influenza samples through a method known as pyrosequencing. HETL performs pyrosequencing on a selection of positive influenza A/pH1N1 or influenza A/H3 samples submitted to the state lab. The number of samples tested and the number with any resistance is reported as counts.

Reference Laboratories

Two reference laboratories in Maine, and multiple national reference laboratories are also participating in 2014-14=5 influenza surveillance activities. Each week, laboratories report the total number of positive isolates for influenza A (H1), A(H3), A(Undetermined), and influenza B that are laboratory-confirmed by culture or reverse-transcriptase polymerase chain reaction (RT-PCR). This is reported in the weekly update as number of tests that are positive at Maine reference labs, and national reference labs, and is presented graphically.

Rapid Antigen Testing

All rapid positives that are reported to the state are also reported weekly as positive counts.

Outbreaks

Outbreaks of influenza or influenza-like illness are reportable in Maine. The definition used to recognize outbreaks of influenza-like illness varies by setting. Outbreaks are reported in table form and graphically by county.

1. **Long-term care facility outbreak**

Confirmed: A sudden increase of influenza like illnesses over the normal background rate, or when any resident tests positive for influenza. One case of confirmed influenza by any testing method in a long-term care facility resident is an outbreak

Probable: Three or more cases of influenza like illnesses occurring within 48 to 72 hours, in residents who are in close proximity to each other (e.g., in the same area of the facility)

2. **Acute care facility nosocomial outbreak**

Confirmed: One or more patients with laboratory-confirmed influenza with symptom onset greater than or equal to 48 hours post-admission

3. **School (K-12) or daycare outbreak**

Confirmed: Greater than or equal to 15% absenteeism among students where the majority of those absent report respiratory symptoms and laboratory-confirmed influenza has been reported by one or more students by any testing method

4. **School (residential) or University outbreak**

Confirmed: A sudden increase of influenza like illnesses over the normal background rate in this population

5. **Health Care Workers**

Confirmed: A sudden increase of influenza like illnesses over the normal background rate in this population

6. **Other Institutions (workplaces, correctional facilities etc.)**

Confirmed: A sudden increase of influenza like illnesses over the normal background rate in this population

7. **Summer camps**

Confirmed: A sudden increase of influenza like illnesses over the normal background rate in this population

A single case of laboratory confirmed influenza (by any method) is enough to make any ILI outbreak a lab-confirmed influenza outbreak

Fatalities Surveillance

Death Certificates

Maine's Electronic Death Registry System (EDRS) is used to determine the number of death certificates in which pneumonia and influenza are mentioned as a cause of death, as well as the total number of deaths by week. These data are used to calculate the percentage of deaths attributable to influenza and pneumonia by week of death. These data are reported in the weekly update as unweighted percentages (# deaths attributed to influenza and pneumonia / total number of deaths).

Pediatric Fatalities

Health care providers and the office of the Maine Medical Examiner report deaths in persons aged 18 years or younger associated with laboratory-confirmed influenza to Maine CDC. The EDRS system is also used to monitor for deaths in pediatric patients that were not reported by other sources. Each report is investigated to obtain additional demographic and illness-related information. Maine CDC reports influenza-associated pediatric fatalities to the federal Centers for Disease Control and Prevention. The total number of influenza-associated pediatric fatalities in the state of Maine is reported in the weekly update.

Geographic Distribution of Lab Tests

Influenza itself is not reportable in Maine, but many providers voluntarily report positive tests. All positive lab tests reported to the state are entered into Maine's surveillance system. Each week culture, PCR, and rapid antigen test results are sorted by county and displayed in a table, as well as graphically in a map. This map includes culture, PCR, and rapid antigen positive tests, but does not include aggregated lab data received from reference labs. Only influenza tests reported on a patient level (with patient name and date of birth) are represented in this map. If patient address is not received, the location of the ordering physician is used. Because influenza is not reportable, this map is understood to be an underrepresentation of the true burden of influenza. The chart and map do not include titer results as we cannot differentiate between infection and immunity.

National Influenza Activity

Antigenic Characterization

Federal CDC antigenically characterizes influenza viruses throughout the year. The number of viruses characterized, and the percent that match the vaccine are reported weekly.

ILINet State Activity Indicator Map

Data collected in ILINet are used to produce a measure of ILI activity by state. Activity levels are based on the percent of outpatient visits in a state due to ILI and are compared to the average percent of ILI visits that occur during spring and fall weeks with little or no influenza virus circulation. Activity levels range from minimal, which would correspond to ILI activity from outpatient clinics being below the average, to high, which would correspond to ILI activity from outpatient clinics being much higher than the average. Because the clinical definition of ILI is very general, not all ILI is caused by influenza; however, when combined with laboratory data, the information on ILI activity provides a clear picture of influenza activity in the United States.

The National Indicator Map is included in the weekly report.

Geographical Spread of Influenza

Maine reports influenza activity to the federal CDC every week as no activity, sporadic, local, regional, or widespread. These levels are defined as follows:

No Activity: No laboratory-confirmed cases of influenza and no reported increase in the number of cases of ILI.

Sporadic: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

Local: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in a single region of the state.

Regional: Outbreaks of influenza or increases in ILI and recent laboratory confirmed influenza in at least 2 but less than half the regions of the state.

Widespread: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least half the regions of the state.

The weekly report includes Maine's reported influenza level, and the federal map.