



MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH (MDPH)
WEEKLY INFLUENZA UPDATE
May 3, 2019

Geographic Distribution:

| | | | | |
|-------------|----------|-------|----------|-------------------|
| No Activity | Sporadic | Local | Regional | Widespread |
|-------------|----------|-------|----------|-------------------|

ILI Intensity:

| Minimal | | | Low | | Moderate | | High | | |
|---------|----------|---|-----|---|----------|---|------|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

All data in this report are preliminary and subject to change as more information is received. Data collected through April 27, 2019 are included in this report.

Highlights from this week's report:

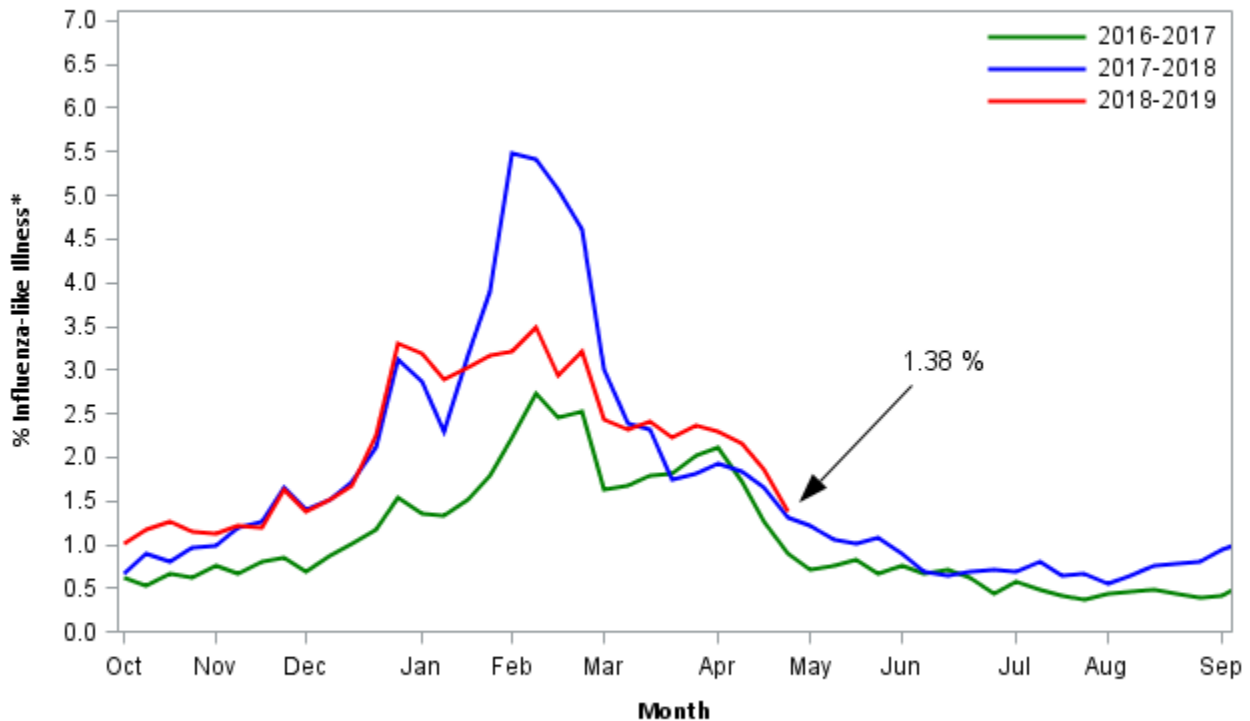
- There is still time to get a flu shot to ensure you are protected as flu activity continues.
- Influenza-like illness activity in Massachusetts has declined over recent weeks, but remains elevated.
- Geographic spread is widespread: ILI activity remains elevated in all regions of Massachusetts except the Southeast and West. Influenza laboratory confirmations remain elevated in all regions of the state.
- Influenza-associated hospitalizations in Massachusetts have gradually declined since February but remain elevated, consistent with activity levels normally seen at this time of year.
- The number of influenza positive laboratory tests reported to MDPH decreased this week by 44.8% compared to last week.
- For the 2018-2019 season to date, the predominant influenza strain is A/2009 H1N1; however, over recent weeks influenza strain A/H3N2 has become more common than the A/2009 H1N1 strain, and Influenza B has also increased.
- All influenza strains that have been characterized in Massachusetts this season to date are covered by the current influenza vaccine.
- No resistance to antiviral medications has been detected this season.
- Nationally, flu activity is decreasing, consistent with normal levels of activity at this time of year.
- Additional data are available upon request and at www.cdc.gov/flu/weekly.

Influenza-like illness activity

Influenza-like illness (ILI) is defined as fever above 100F in addition to either cough or sore throat. Many more people are infected with influenza than are tested for influenza. ILI is used throughout the regular influenza season as a way to help track influenza activity in individuals who are not tested, as trends in ILI have been shown to mirror influenza trends. Sixty healthcare facilities called 'sentinel sites', including provider offices, school health services, community health centers, and emergency departments across Massachusetts report the number of patients they see with ILI each week during regular flu season.

Figure 1 shows that ILI activity has remained elevated over recent weeks. For more information, see CDC's influenza surveillance website at www.cdc.gov/flu/weekly/fluactivitysurv.htm.

**Figure 1: Percentage of ILI visits reported by sentinel provider sites
September 30, 2018 – April 27, 2019**



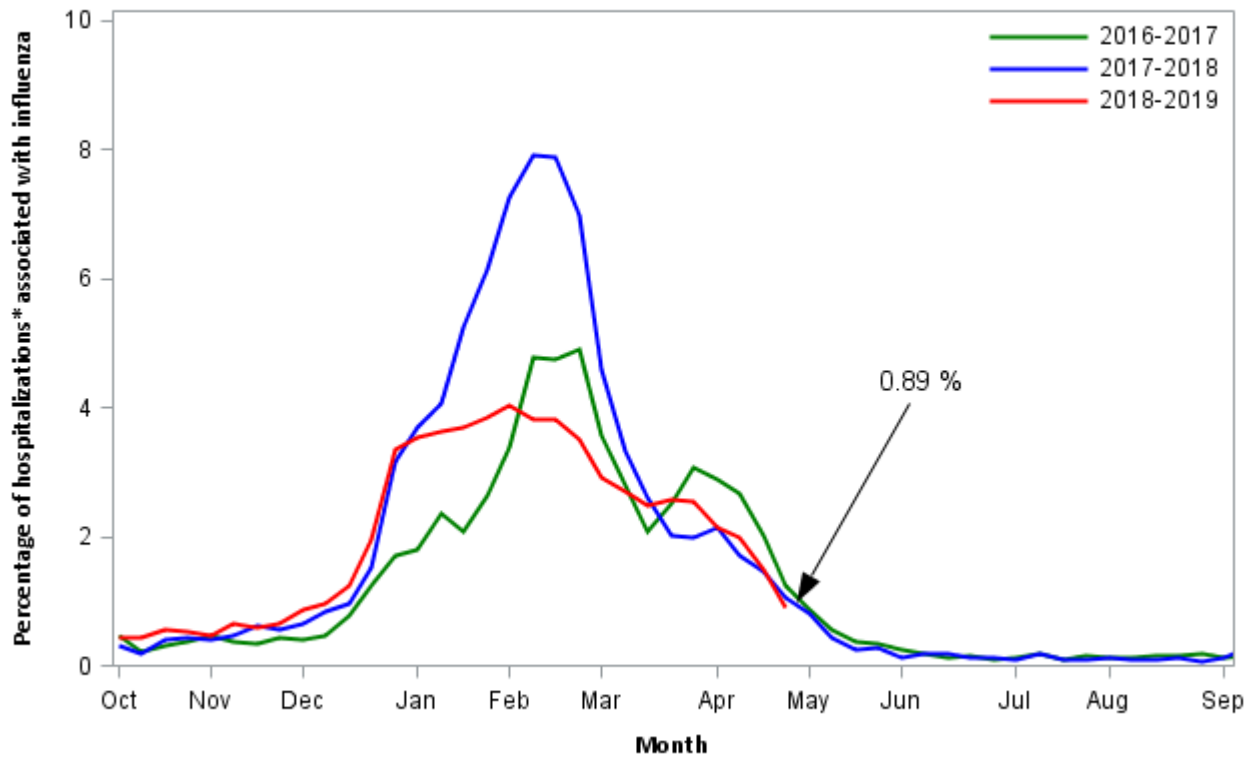
**Influenza-like illness (ILI, defined by fever >100F and cough and/or sore throat), as reported by Massachusetts sentinel surveillance sites*

Influenza-associated hospitalizations

As part of the National Syndromic Surveillance Program, MDPH receives data from Emergency Departments (EDs) covering more than 90% of ED visits statewide. These data are used to track patient visits related to influenza by monitoring the reason patients are seeking care (chief complaint) and the diagnoses the patients receive (ICD-10 code). These data are available to MDPH in near real-time.

Figure 2 shows the percent of all ED visits which result in the patient being hospitalized that are associated with influenza infection.

**Figure 2: Influenza-associated Hospitalizations, Massachusetts
September 30, 2018 – April 27, 2019**

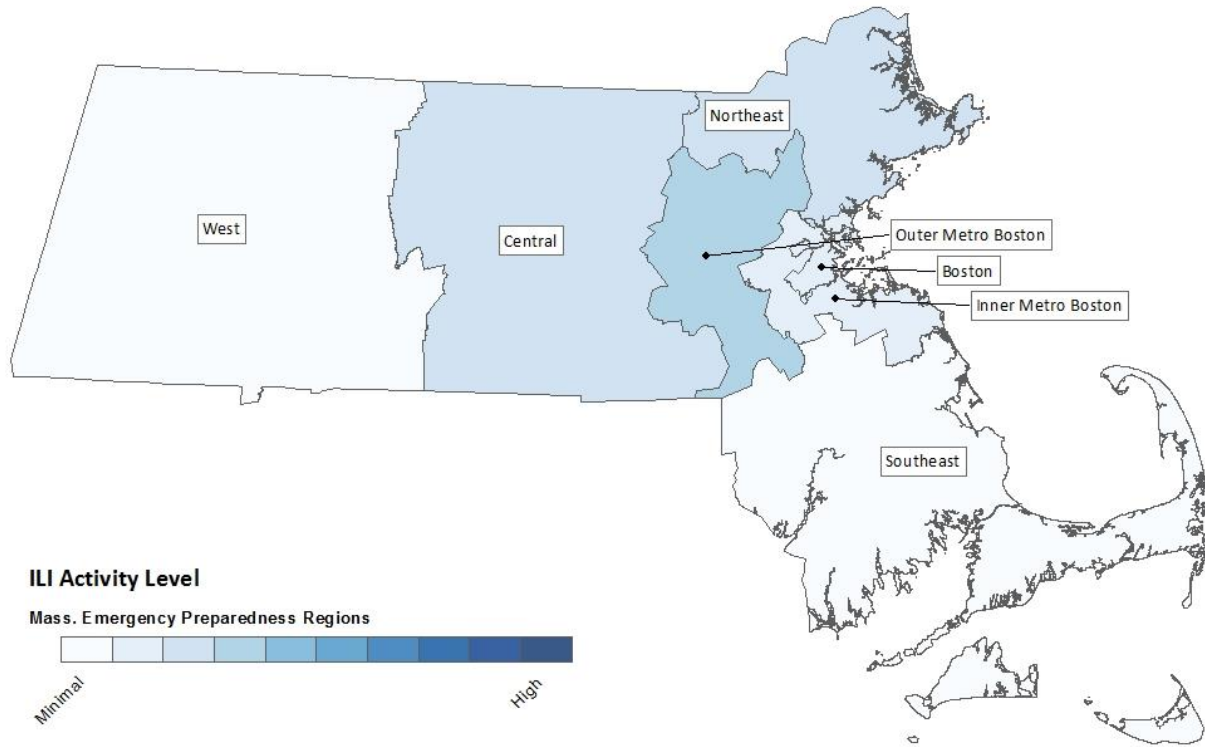


**All patients admitted through hospital emergency departments as captured by syndromic surveillance*

Regional ILI activity

Figure 3 shows the relative intensity of reported ILI activity in Massachusetts by region. Although regions may not all experience the same intensity of ILI at similar times, infections due to influenza can be found throughout Massachusetts during flu season. Figure 3 shows that five of the seven regions of Massachusetts are reporting increased ILI activity. The Southeast and West regions are reporting limited ILI activity.

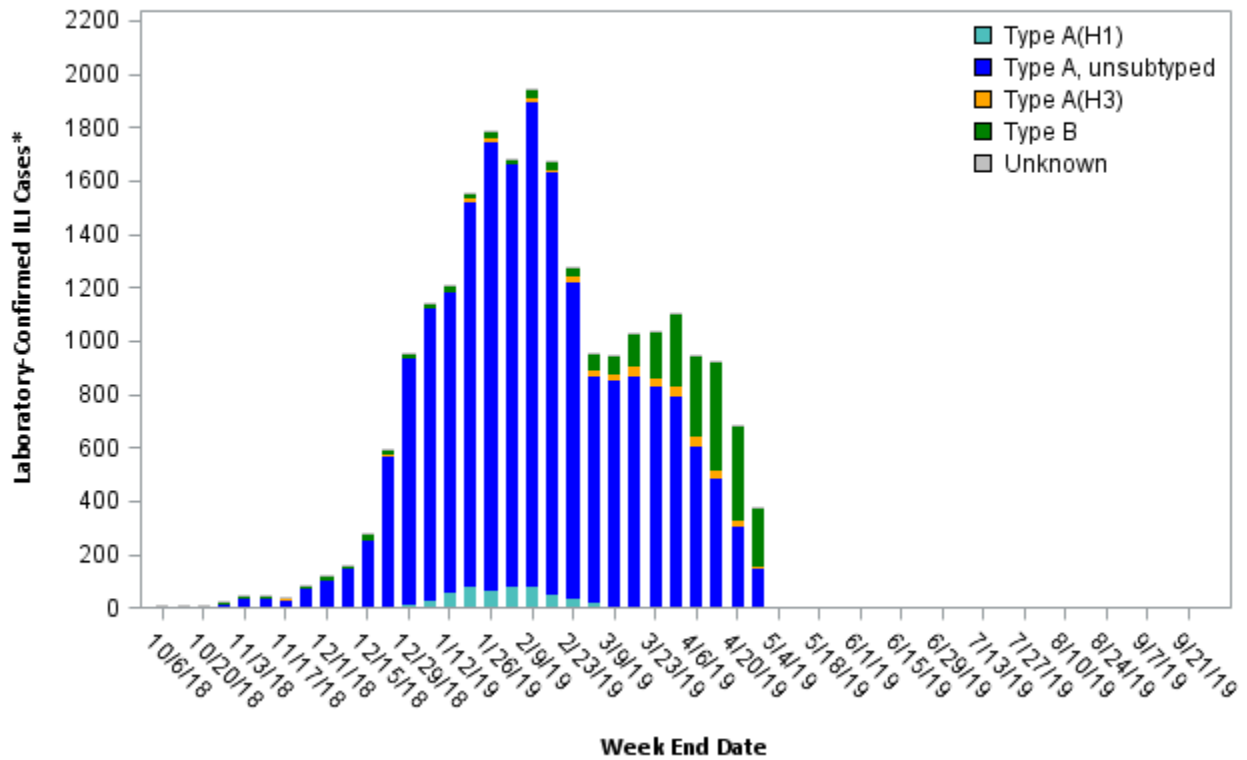
Figure 3: ILI Intensity Reported Weekly by Massachusetts Sentinel Sites



Laboratory testing for influenza

Laboratories in Massachusetts report all positive influenza test results to MDPH. The majority of individuals with influenza-like illness are not tested; therefore the number of positive test results does **not** reflect the total number of influenza cases in Massachusetts. However, laboratory data do provide information about the types of influenza virus circulating in Massachusetts and help indicate the presence and define the distribution of influenza in the state. Figure 4 illustrates the number of positive laboratory confirmed influenza cases in Massachusetts by week.

Figure 4: Laboratory-confirmed Influenza Cases in Massachusetts, September 30, 2018 – April 27, 2019



*Influenza cases confirmed via viral culture or PCR test by specimen collection date.

Testing at the State Public Health Laboratory

The Massachusetts State Public Health Laboratory (MA SPHL) performs influenza surveillance testing year round to confirm circulating influenza virus types. Samples are submitted by outpatient healthcare providers (ILINet) and hospital diagnostic laboratories in Massachusetts. For the 2018-2019 season, Table 1 summarizes the influenza surveillance testing conducted by MA SPHL beginning September 30, 2018. For the 2018-2019 season so far, the predominant influenza strain is A/2009 H1N1; however, over recent weeks influenza strain A/H3N2 has become more common than the A/2009 H1N1 strain, and Influenza B has also increased.

Table 1: Weekly Summary of Massachusetts State Public Health Laboratory Influenza Surveillance Test Results

| 2018-2019 Season: Influenza Surveillance | | | | | | | | | |
|--|------------|-----------------|----------|-----------|------------|-----------------|-----------|--------------|-------------|
| Week | 2009 H1N1 | seasonal A/H3N2 | H3N2v | B Yam | B Vic | No. Flu Pos (%) | Unsat | Total Tested | Total Rec'd |
| 14 (03/31 – 04/06/19) | 4 | 18 | 0 | 2 | 13 | 37(90%) | 1 | 41 | 42 |
| 15 (04/07 – 04/13/19) | 4 | 17 | 0 | 5 | 23 | 49(91%) | 0 | 54 | 54 |
| 16 (04/14 – 04/20/19) | 2 | 8 | 0 | 1 | 12 | 23(85%) | 0 | 27 | 27 |
| 17 (04/21 – 04/27/19) | 0 | 4 | 0 | 1 | 11 | 16(64%) | 1 | 25 | 26 |
| Prior 4 wk Total | 10 | 47 | 0 | 9 | 59 | 125(85%) | 2 | 147 | 149 |
| Cumulative Season total | 422 | 167 | 0 | 30 | 101 | 720(77%) | 17 | 930 | 947 |

All data are subject to change as test results become finalized. The 2018 -2019 influenza season began the week of 09/30- 10/06/2018.

All specimens which test negative for influenza at MA SPHL are also tested for non-influenza respiratory diseases. Table 2 shows that viruses from rhinovirus (RHV)/enterovirus (ENT) and coronavirus (HCoV) groups have circulated in Massachusetts this season. This contributes to ILI trends in Massachusetts.

Table 2: Weekly Summary of Massachusetts State Public Health Laboratory non-Influenza Respiratory Surveillance Test Results

| 2018-2019 Season: Influenza Like Illness Surveillance | | | | | | | | | | | |
|---|----------|-----------|----------|----------|-----------|----------|----------------|----------------|----------|--------------|-------------|
| Week: | RSV | RHV/ ENT | PIV | HMPV | HCoV | ADV | # Co-Infection | No. Pos (%) | Unsat | Total Tested | Total Rec'd |
| 14 (03/31 – 04/06/19) | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 3(38%) | 1 | 8 | 9 |
| 15 (04/07 – 04/13/19) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1(14%) | 0 | 7 | 7 |
| 16 (04/14 – 04/20/19) | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 3(43%) | 1 | 7 | 8 |
| 17 (04/21 – 04/27/19) | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 5(42%) | 0 | 12 | 12 |
| Prior 4 wk Total | 0 | 5 | 1 | 3 | 1 | 2 | 0 | 12(35%) | 2 | 34 | 36 |
| Cumulative Season total | 7 | 22 | 5 | 6 | 31 | 6 | 2 | 75(35%) | 2 | 217 | 219 |

All data are subject to change as test results become finalized. The 2018 -2019 influenza season began the week of 9/30- 10/06/2018.

MA SPHL submits a subset of influenza samples to CDC for further genetic analysis (antigenic characterization). All strains that have been analyzed from Massachusetts this season are covered by the current influenza vaccine.

Every two weeks MASPHL screens influenza specimens to detect mutations within influenza A/H3N2 and A/2009 H1N1 viruses to look for antiviral resistance. No mutations have been identified in the 2018-2019 season.

Additional information on national antiviral resistance testing including recommendations for antiviral treatment and chemoprophylaxis of influenza virus infection can be found at <http://www.cdc.gov/flu/weekly/>.