State influenza and influenza-like illness (ILI) activity:
- Florida reported “sporadic” activity to the Centers for Disease Control and Prevention (CDC) in week 17.
- Influenza activity this season peaked between weeks 7-11. This peak in activity has occurred later than in the past six seasons.
- Emergency department (ED) and urgent care center (UCC) visits for ILI peaked in week 9 and continues to decline in nearly all regions in Florida. These levels are similar to those seen in previous seasons at this time.
- In recent weeks, the preliminary estimated number of deaths due to pneumonia and influenza remained elevated. Deaths due to pneumonia and influenza tend to occur later in the season as at-risk populations develop complications from influenza infection.
  - Due to a late season peak, we anticipate that we will continue to see an increase in pneumonia and influenza-associated deaths in the next few weeks.
- In week 17, the majority of counties reported “mild” or no influenza activity.
- No influenza-associated pediatric deaths were reported in week 17.
  - Seven influenza-associated pediatric deaths have been reported so far this season.
  - While rare, Florida receives reports of influenza-associated pediatric deaths each season. Annual vaccination remains the best way to protect children against the flu.
- In week 17 two outbreaks of influenza were reported, one in a Hendry County correctional facility and one in an Orange County nursing home.
- Influenza A 2009 (H1N1) has been the most common influenza subtype identified by the Bureau of Public Health Laboratories (BPHL) this season. As Florida transitions into the summer months, it is not uncommon for the predominately circulating strain of influenza to change.

National influenza activity:
- Influenza activity continues to decrease. Data suggests that influenza activity peaked nationally around week 10, which also coincided with the peak in Florida.
- The CDC recommends that persons at high risk for developing complications from influenza infection (such as children and pregnant women) or very ill patients suspected of having influenza receive prompt treatment with antiviral drugs, even prior to laboratory confirmation.
- Influenza A 2009 (H1N1) is the predominately circulating strain.
- The vast majority of circulating flu viruses analyzed this season remain similar to the vaccine virus components for this season’s flu vaccines.
  - The CDC reported preliminary influenza vaccine effectiveness estimates for the 2015-16 seasonal influenza vaccine. The 2015-16 flu vaccine is a good match for the currently circulating strains of influenza.
  - A recently published Australian study suggested that pregnant Australian women who received the influenza vaccine while pregnant were significantly less likely to experience stillbirth compared to unvaccinated pregnant Australian women. Additional research is needed to make strong conclusions on the subject. To learn more, http://cid.oxfordjournals.org/content/early/2016/03/10/cid.ciw082.abstract.
  - Highly pathogenic avian influenza (HPAI) H5 viruses identifications in birds are expected during the spring and summer of 2016. Influenza (HPAI) H5 has not been identified in Florida birds yet, but identifications are anticipated. No human HPAI infections have been identified in Florida or the rest of the nation. To learn more, www.floridahealth.gov/novelflu.
Influenza surveillance goals:

- Influenza surveillance is conducted to detect changes in the influenza virus. These data are used to help determine the annual national vaccine composition and to prepare for potential epidemics or pandemics.
- Surveillance is also conducted to identify unusually severe presentations of influenza infection, detect outbreaks, and determine seasonal influenza trends in order to guide influenza prevention, particularly in high-risk populations like children, adults ≥65 years old, and pregnant women.
- See the back page of this report for more information on influenza surveillance systems used in Florida: Page 11

Statewide ILI Visits

Influenza-like illness (ILI) is defined as a fever ≥100°F AND sore throat and/or cough in the absence of another known cause.

The graphic above shows how influenza activity in Florida can vary widely from season to season. This unpredictability underscores the importance of influenza surveillance in Florida.

Figure 1 shows the percent of visits for ILI from ED and UCC chief complaint data for ESSENCE-FL participating facilities (n=265), week 40, 2012 to week 17, 2016. In week 17, the percent of visits to EDs and UCCs for ILI decreased and is similar to levels seen in previous seasons at this time. Peak activity this season occurred in week 9.
Figure 2 shows the percent of visits for ILI reported by ILINet outpatient providers statewide (n=42), week 40, 2012 to week 17, 2016. In week 17, the percent of visits for ILI reported by ILINet outpatient providers decreased but remains slightly above levels seen in previous seasons at this time.

Figure 3 shows P&I deaths* for all Florida counties, the number of deaths predicted using a multi-year regression model, and the upper bound of the 95% confidence interval for this prediction.

As of week 16 (ending April 23, 2016), 6,605 P&I deaths have been reported in the 2015-16 influenza season. The number of P&I deaths decreased but remains above levels seen in previous seasons at this time. P&I deaths tend to occur later in the season as at-risk populations develop complications from influenza infection. Due to a late season peak, an increase in P&I deaths is expected in upcoming weeks.

Figure 4 shows the number of preliminary estimated P&I deaths* for all Florida counties, the number of deaths predicted using a multi-year regression model, and the upper bound of the 95% confidence interval for this prediction.

For week 16 (ending April 23, 2016):
206 preliminary estimated P&I deaths were reported.

The upper bound of the 95% confidence interval for prediction is 235 deaths, with no excess deaths.

The number of P&I deaths is slightly above levels seen in previous seasons at this time. P&I deaths tend to occur later in the season as at-risk populations develop complications from influenza infection.

* Current season P&I death counts are preliminary estimates, and may change as more data are received. The most recent data available are displayed here. Vital statistics death records received in ESSENCE-FL are considered to be complete through week 16, 2016.
Figures 5-7 show the number of pediatric deaths associated with influenza infection, week 40, 2011 to week 17, 2016. No influenza-associated pediatric deaths were reported in week 17. Seven influenza-associated pediatric deaths have been reported so far this season. While rare, Florida receives reports of influenza-associated pediatric deaths each season. Most deaths occurred in unvaccinated children with underlying health conditions. Children, especially those with underlying health conditions, are at higher risk of severe outcomes from influenza infection. Annual vaccination remains the best way to protect against the flu. It is not too late to vaccinate children for the 2015-16 season. To learn more please visit: www.cdc.gov/flu/protect/whoshouldvax.htm#annual-vaccination.

County Influenza Activity

As of 9:30 a.m. May 4, 2016, a total of 67 (100%) counties reported their weekly level of influenza activity. Please note that data reported after the deadline Tuesday at 5 p.m. are recorded but may not be included in the activity maps for this week.

Influenza-Associated Pediatric Deaths

FIGURES 5 - 7

Figures 5-7 show the number of pediatric deaths associated with influenza infection, week 40, 2011 to week 17, 2016. No influenza-associated pediatric deaths were reported in week 17. Seven influenza-associated pediatric deaths have been reported so far this season. While rare, Florida receives reports of influenza-associated pediatric deaths each season. Most deaths occurred in unvaccinated children with underlying health conditions. Children, especially those with underlying health conditions, are at higher risk of severe outcomes from influenza infection. Annual vaccination remains the best way to protect against the flu. It is not too late to vaccinate children for the 2015-16 season. To learn more please visit: www.cdc.gov/flu/protect/whoshouldvax.htm#annual-vaccination.
Two outbreaks of influenza were reported in week 17; 56 outbreaks of influenza and ILI have been reported into EpiCom so far in the 2015-16 season.

Hendry County:
A correctional facility reported 15 inmates with ILI. One inmate tested positive for influenza A by rapid antigen testing on site. Four specimens were forwarded to BPHL and of those, one tested positive for influenza A 2009 (H1N1) by PCR. Influenza vaccination status for ill individuals is unknown. Infection control measures were reviewed with facility leadership. This investigation is ongoing.

Orange County:
A nursing home reported 17 residents and three staff members with ILI. Two residents tested positive for influenza B by rapid antigen testing at local health care providers. Three specimens were forwarded to BPHL. Influenza vaccination status for ill individuals is unknown. Infection control measures were reviewed with facility leadership. This investigation is ongoing.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Total</th>
<th>A (H3)</th>
<th>A 2009 (H1N1)</th>
<th>A &amp; B Unspecified</th>
<th>B Yamagata</th>
<th>B Victoria</th>
<th>B Unspecified</th>
<th>Influenza Unspecified</th>
<th>Other respiratory viruses</th>
<th>Currently unknown pathogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>19</td>
<td>-</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1 - respiratory syncytial virus (RSV)</td>
<td>5</td>
</tr>
<tr>
<td>Daycares</td>
<td>7</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>2 - RSV</td>
</tr>
<tr>
<td>Jails &amp; prisons</td>
<td>8</td>
<td>-</td>
<td>4</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mental health facilities</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nursing homes &amp; long term care facilities</td>
<td>19</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>-</td>
<td>1 - rhinovirus, 1 - human metapneumovirus</td>
<td>5</td>
</tr>
<tr>
<td>Health care facilities</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>1</td>
<td>7</td>
<td>17</td>
<td>4</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>5</td>
<td>12</td>
</tr>
</tbody>
</table>

Figure 8 shows the distribution of outbreaks by facility type and season.
Influenza activity typically increases in children before older age groups. Increased ILI activity in facilities serving older age groups is expected at this time in the influenza season.
Figures 9 and 10 use BPHL viral surveillance data. Figure 9 shows the number of influenza-positive specimens, tested by subtype and lab event date.*

Influenza A 2009 (H1N1) has been the most commonly identified influenza subtype by BPHL since December. In the early part of the 2015-16 influenza season, influenza A (H3) was the most commonly identified subtype. This change was also observed nationally.

Influenza B Yamagata lineage and influenza B Victoria lineage have also been identified by BPHL this season.

Figure 10 shows the number of specimens tested by BPHL and the percent that were positive for influenza by lab event date*.

In recent weeks, the number of specimens tested for influenza and the percent of laboratory results testing positive for influenza has decreased. Both indicators remain above levels seen in previous seasons at this time.

TABLE 2: Bureau of Public Health Laboratories (BPHL) Viral Surveillance by Lab Event Date*

<table>
<thead>
<tr>
<th>Influenza Type</th>
<th>Current Week 17</th>
<th>Previous Week 16</th>
<th>Current 2015-16 Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Specimens Tested</td>
<td>7</td>
<td>26</td>
<td>1405</td>
</tr>
<tr>
<td>Influenza positive specimens (% of total specimen tested)</td>
<td>1 (14%)</td>
<td>12 (46%)</td>
<td>651 (46%)</td>
</tr>
<tr>
<td>Influenza A 2009 (H1N1) (% of influenza positives)</td>
<td>-</td>
<td>5 (42%)</td>
<td>315 (48%)</td>
</tr>
<tr>
<td>Influenza A (H3) (% of influenza positives)</td>
<td>1 (100%)</td>
<td>-</td>
<td>139 (21%)</td>
</tr>
<tr>
<td>Influenza A not yet subtyped (% of influenza positives)</td>
<td>-</td>
<td>1 (8%)</td>
<td>16 (3%)</td>
</tr>
<tr>
<td>Influenza A inconclusive** (% of influenza positives)</td>
<td>-</td>
<td>-</td>
<td>5 (1%)</td>
</tr>
<tr>
<td>Influenza B Yamagata (% of influenza positives)</td>
<td>-</td>
<td>1 (8%)</td>
<td>42 (6%)</td>
</tr>
<tr>
<td>Influenza B Victoria (% of influenza positives)</td>
<td>-</td>
<td>4 (34%)</td>
<td>131 (20%)</td>
</tr>
<tr>
<td>Influenza B not yet subtyped (% of influenza positives)</td>
<td>-</td>
<td>1 (88%)</td>
<td>3 (1%)</td>
</tr>
</tbody>
</table>

**Lab event date** is defined as the earliest of the following dates associated with influenza testing at the laboratory: date specimen collected, date received by the laboratory, date reported or date inserted.

*Influenza A inconclusive test results are due to technical difficulties including an insufficient sample for testing or internal sample control failure and occur occasionally in routine laboratory testing.

There is no week 53 for the 2012-13, 2013-14, and 2015-16 seasons; the week 53 data point for those seasons is an average of weeks 52 and 1.

**Regional ILI Visits**

**ED and UCC Visits for ILI by Region**

ED = emergency department, UCC = urgent care center, ILI = influenza-like illness

*Figures 11-17 show the percent of visits for ILI from ED and UCC chief complaints for ESSENCE-FL participating facilities (n=265), by ESSENCE-FL Regional Domestic Security Task Force (RDSTF) regions (see map 4) from week 40, 2012 to week 17, 2016*. In week 17, ED and UCC ILI visits increased slightly in regions 2 and 6 and decreased in all other regions. ED and UCC visits are similar to levels seen in previous seasons in all regions except for region 7, where levels remain slightly above those seen in previous seasons at this time.

*There is no week 53 for the 2012-13, 2013-14, and 2015-16 seasons; the week 53 data point for those seasons is an average of weeks 52 and 1.*
FIGURE 19 shows the number of visits for ILI reported by ILINet outpatient providers statewide (n=42) by age group, week 40, 2012 to week 17, 2016.

In week 17, the number of visits for ILI decreased and is similar to levels seen in previous seasons in all age groups at this time.

*Data presented here are counts, not proportions. This is because age group denominator data is not available through ILINet.

FIGURE 18 shows the percent of visits for ILI from ED and UCC chief complaints by age group for ESSENCE-FL participating facilities (N=265), week 40, 2012 to week 17, 2016.

In week 17, ED and UCC visits for ILI decreased in all age groups. ED and UCC visits for ILI remain slightly above levels seen in previous seasons in the 5-24 and 25-64 age groups at this time. ED and UCC visits for ILI are similar to levels seen in previous seasons in the 0-4 and ≥65 age groups at this time.

*Current season P&I death numbers are preliminary estimates, and may change as more data are received. The most recent data available are displayed here. Vital statistics death records received in ESSENCE-FL are currently considered to be complete through week 16, 2016.
ESSENCE-FL collects data daily from 265 EDs and UCCs. Data are processed into 11 different syndrome categories based on the patient's chief complaint. One of the categories is ILI, which is composed of chief complaints that include the words "influenza" or "flu," or complaints that contain “fever,” “cough,” and/or “sore throat.” The Florida Department of Health uses ED and UCC chief complaint data to monitor influenza and ILI activity in a timely manner in groups at higher risk of severe health outcomes (such as hospitalization and death) from influenza infection. These at-risk groups include pregnant women, children ≤18 years old, and adults ≥65 years old.

Figure 21 shows the number of visits* to EDs and UCCs with chief complaints of influenza infection and pregnancy, as reported into ESSENCE-FL, week 40, 2012 to week 17, 2016. In week 17, the number of visits to EDs and UCCs by pregnant women with mention of influenza decreased slightly, but remains above levels seen in previous seasons at this time.

*This count under-represents the true number of pregnant women presenting for care to EDs and UCCs with influenza. The overall trend has been validated through review of hospital discharge data collected by the Agency for Health Care Administration.

Figure 22 shows the percent of ILI visits among all ED and UCC visits for children ≤18 years old, as reported into ESSENCE-FL, week 40, 2012 to week 17, 2016. In week 17, the percent of ILI visits among all ED and UCC visits for children ≤18 years old decreased and is similar to levels seen in previous seasons at this time.

Figure 23 shows the percent of ILI visits among all ED and UCC visits for adults ≥65 years old, as reported into ESSENCE-FL, week 40, 2012 to week 17, 2016. In week 17, the percent of ILI visits among all ED and UCC visits for adults ≥65 years old decreased and is similar to levels seen in previous seasons at this time.
County health departments are asked to evaluate influenza activity in certain settings within their county. The assessment scale for activity ranges from no or minimal activity to very high activity.

**Figure 24** shows the results of the influenza activity assessment for week 17, 2016. Counties that reported “not applicable” for the listed settings are excluded from the denominator in the calculations below.

**ILI Activity Levels:**
- No or very minimal activity
- Moderate activity
- High activity
- Very high activity

**Settings for Children under 18**
- In elementary schools, one county (2%) reported moderate influenza or ILI activity.
- In daycare settings, 51 counties (85%) reported no or minimal influenza or ILI activity.

**Settings for Adults over 65**
- In nursing homes, 51 counties (84%) reported no or minimal influenza or ILI activity.
- In retirement homes, 41 counties (82%) reported no or minimal influenza or ILI activity.

**Settings for Adults ages 18 to 65**
- In colleges, 35 of 43 counties (81%) reported no or minimal influenza or ILI activity.
- In businesses, 45 counties (85%) reported no or minimal influenza or ILI activity.
- In government offices, 50 counties (88%) reported no or minimal influenza or ILI activity.

**Other Unique settings**
- In jails and prisons, one county (2%) reported moderate influenza or ILI activity.
- In health care settings, including rehabilitation facilities and mental health facilities, two counties (3%) reported moderate influenza or ILI activity.

Laboratory Viral Respiratory Surveillance- Data sources for figure 25
- The National Respiratory and Enteric Virus Surveillance System (NREVSS) and Electronic Laboratory Reporting (ELR) collect data from laboratories in Florida on a weekly basis and monitor temporal and geographic patterns of six commonly circulating respiratory viruses. NREVSS data is collected by the Centers for Disease Control and Prevention (CDC) and ELR data is collected by the Florida Department of Health (DOH).

Case-Based Influenza Surveillance
Influenza-Associated Pediatric Deaths (Merlin) - Data source for figure 5-7
Influenza due to Novel or Pandemic Strains (Merlin)