Missouri Weekly Influenza Surveillance Report
2016-2017 Influenza Season[1]

Week 52: December 25 – December 31, 2016

All data are preliminary and may change as more reports are received.

Summary:

- The estimated influenza activity in Missouri is Local[2].

- A season-to-date total of 2,041 laboratory-positive[3] influenza cases (1,577 influenza A, 414 influenza B, and 50 untyped) have been reported in Missouri as of Week 52. The influenza type for reported cases season-to-date includes 77% influenza A, 20% influenza B, and 3% untyped. Five hundred and eighty-seven laboratory-positive[3] influenza cases (521 influenza A, 56 influenza B, and 10 untyped) were reported during Week 52. No laboratory-confirmed cases of influenza were reported by the Missouri State Public Health Laboratory (MSPHL) during Week 52.

- Influenza-like illness (ILI) activity is above baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 7.18% and 1.92% through ILINet and ESSENCE respectively.[4] The percentage of respiratory specimens testing positive for influenza in clinical laboratories increased.

- No influenza-associated deaths have been reported in Missouri, to date, this influenza season. During Week 51, 65 deaths involving Pneumonia and Influenza (P&I) were reported to the Bureau of Vital Records, resulting in a season-to-date total of 672 P&I associated deaths in Missouri.[5]

- Two influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity increased in the U.S. during Week 51. National influenza surveillance information is prepared by CDC and is included in the weekly FluView report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2016-2017 influenza season begins CDC Week 40 (week ending October 8, 2016) and ends CDC Week 39 (week ending September 30, 2017).

[2]Local is defined as: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in a single region of the state.

[3]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

Surveillance Data:

Interactive Maps

The county specific influenza data are provided though interactive maps available at http://arcg.is/2hS2ySN. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory-positive Influenza Cases by Influenza Type by County, CDC Week 52**
- **Reported Laboratory-positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Reported Rate per 100,000 Population, CDC Week 52**

Data Figures

**Figure 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type,
Missouri, CDC Week 52 (December 25 – December 31, 2016)**

Influenza Type	Week 50	Week 51	Week 52	2016-2017* Season-to-Date
Influenza A	219	432	521	1,577
Influenza B	54	40	56	414
Influenza Unknown Or Untyped	6	11	10	50
Total	279	483	587	2,041

[†]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza season begins week ending October 8, 2016 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Figure 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,
Missouri, CDC Week 52 (December 25 – December 31, 2016)**

Age Group	Week 52 Cases	Week 52 Rate[‡]	2016-2017* Season-to-Date	2016-2017* Season-to-Date Rate[‡]
00-04	71	19	246	66
05-14	105	13	406	52
15-64	288	7	1,044	26
65+	123	13	344	37
Total	587	10	2,041	34

[†]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza season begins week ending October 8, 2016 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

Figure 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 52 (December 25 – December 31, 2016)

District	Week 52 Cases	Week 52 Rate[‡]	2016-2017* Season-to-Date	2016-2017* Season-to-Date Rate[‡]
CE	136	21	379	57
EA	108	5	340	15
NW	110	7	487	31
SE	51	11	193	41
SW	182	17	642	60
Total	587	10	2,041	34

[†]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza season begins week ending October 8, 2016 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

Figure 4. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2013-2017*
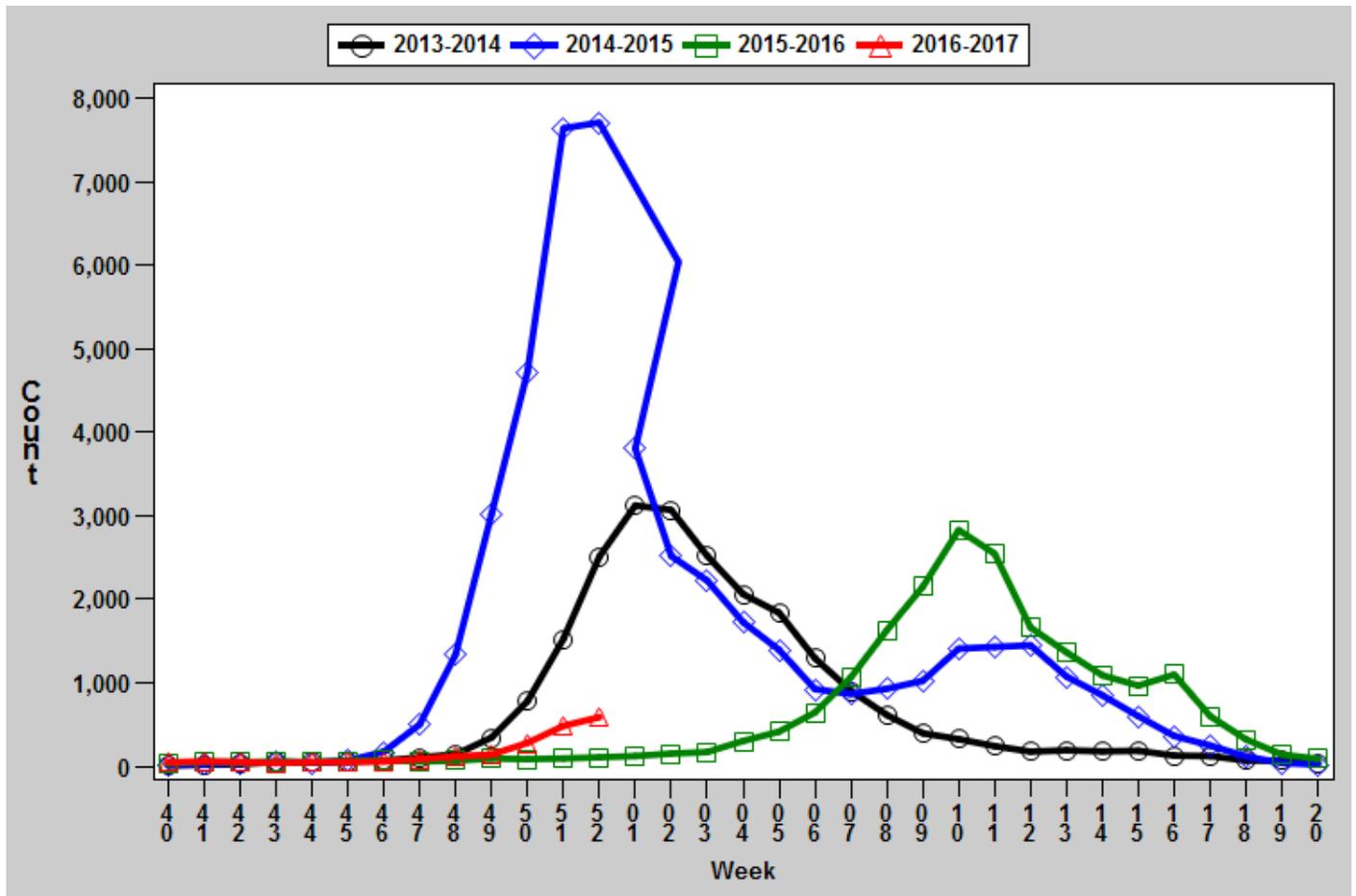
[†]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*2016-2017 season-to-date through the week ending May 20, 2017 (Week 20). The 2014-2015 season had 53 weeks rather than the usual 52. Week 53, 2014-2015 flu season has 3,082 reported confirmed cases. Data Source: Missouri Health Information Surveillance System (WebSurv).

Figure 5. Percentage of Outpatient Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2013-2017[†]
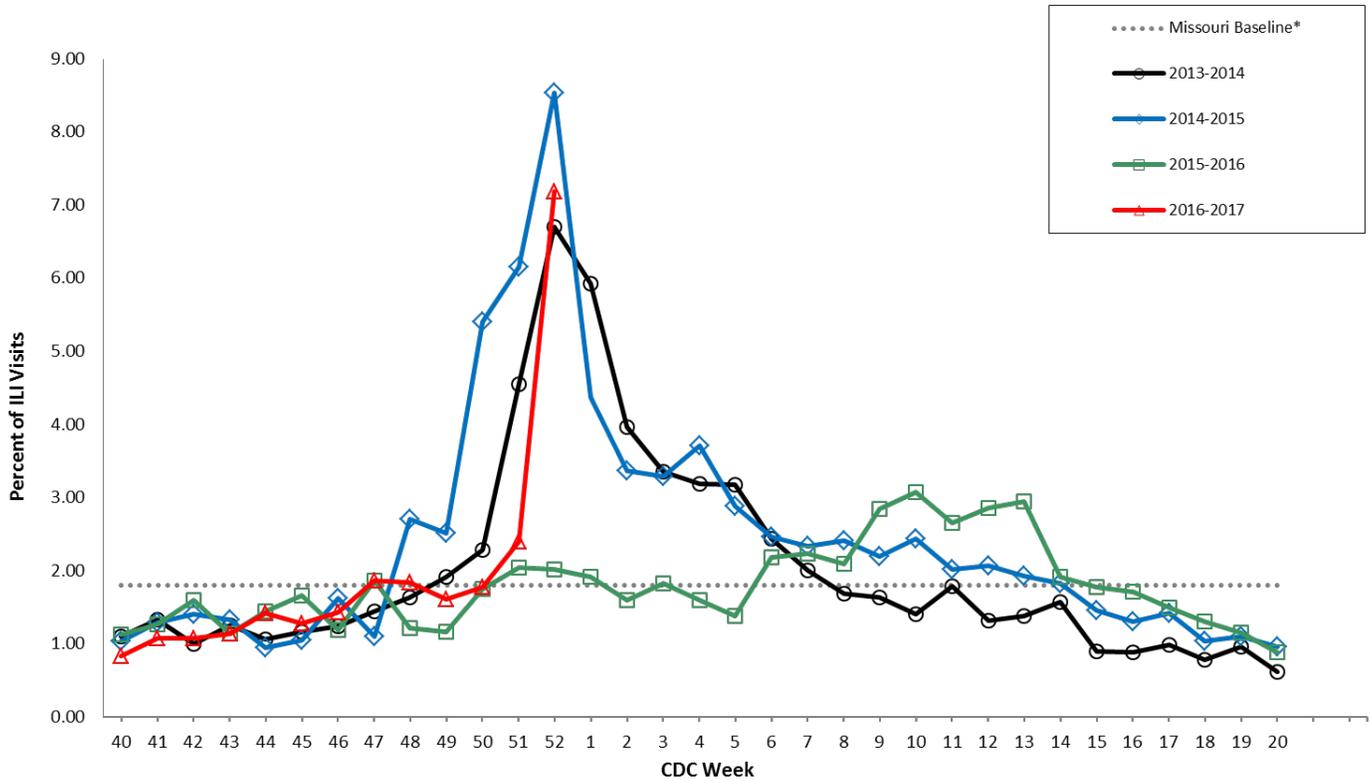

*The ILINet Region 7 (MO, IA, KS, NE) baseline is the mean percentage of patient visits for ILI during non-influenza weeks for the previous three seasons, plus two standard deviations. A non-influenza week is defined as periods of two or more consecutive weeks in which each week accounted for less than 2% of the season's total number of specimens that tested positive for influenza.

Data Source: U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Centers for Disease Control and Prevention (CDC).

[†]2016-2017 season-to-date through the week ending May 20, 2017 (Week 20). The 2014-2015 season had 53 weeks rather than the usual 52. The percentage of outpatient visits for ILI during Week 53 was 7.63.

Figure 6. Season-to-Date PCR (+) Tests for Influenza in Missouri
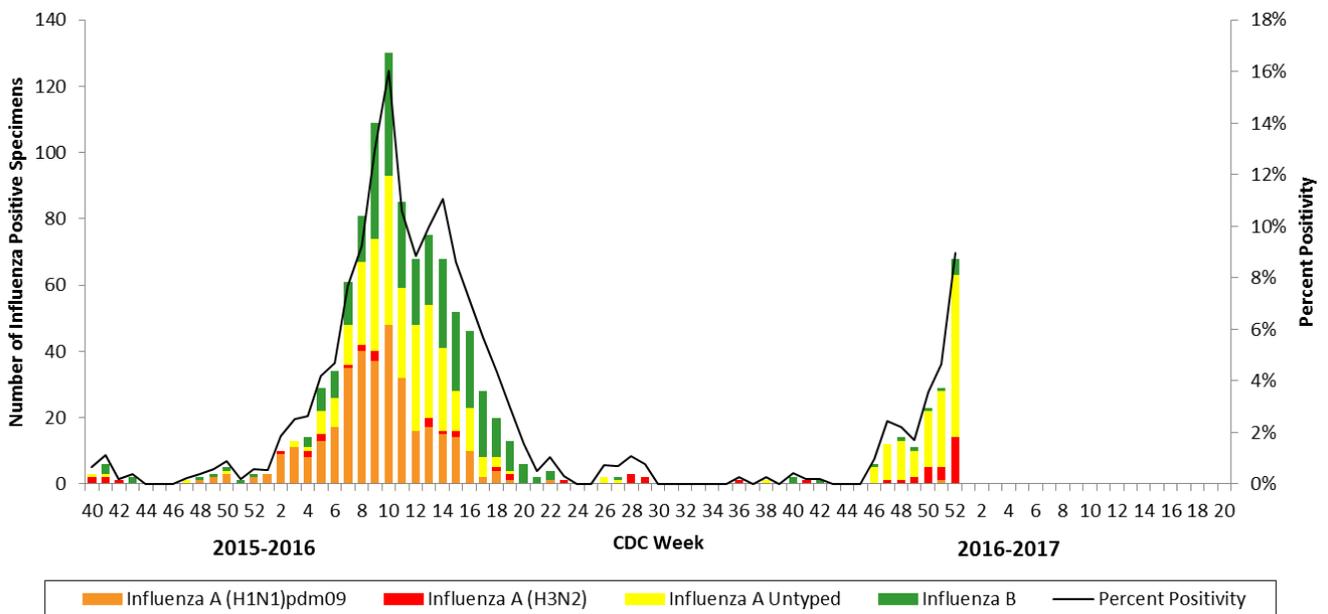
Data Source: National Respiratory and Enteric Virus Surveillance System (NREVSS), Centers for Disease Control and Prevention (CDC).
2016-2017 season-to-date through the week ending May 20, 2017 (Week 20).

Figure 7. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2013-2017 Influenza Seasons
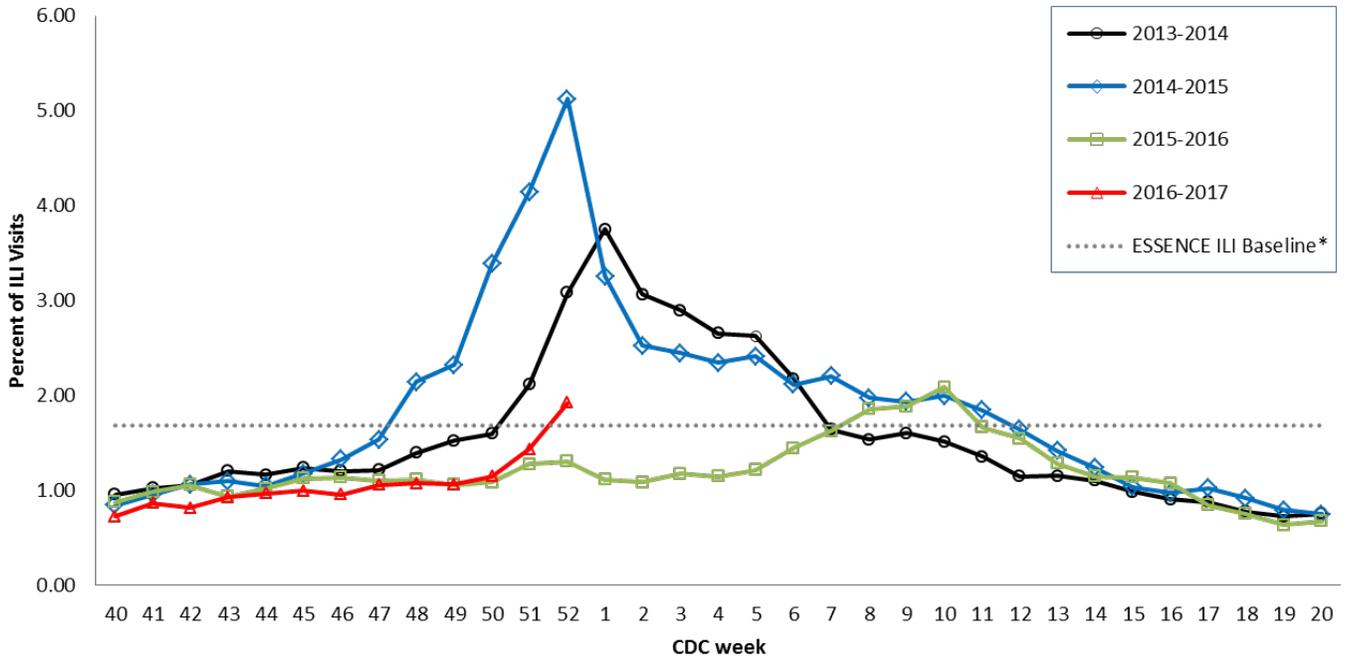

*The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2013-15) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.

†The 2014-2015 season had 53 weeks rather than the usual 52. The percentage of visits for ILI in ESSENCE participating hospitals during Week 53 was 4.3.

Figure 8. Percentage of Visits for Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, by Age-group, District and Statewide, CDC Week 52, 2016
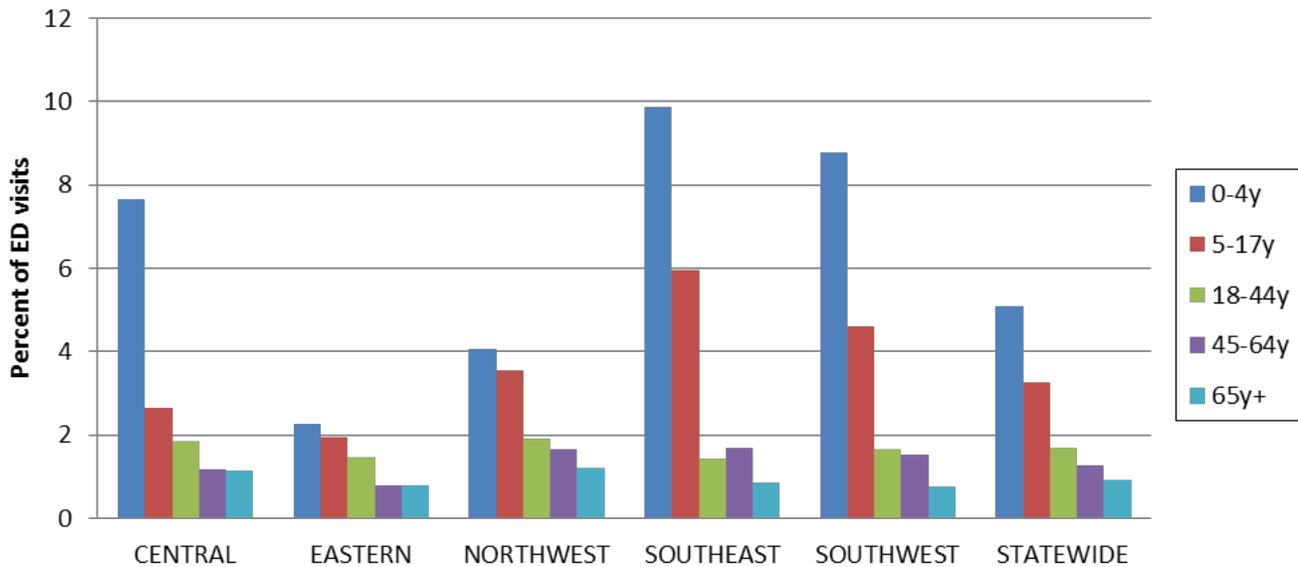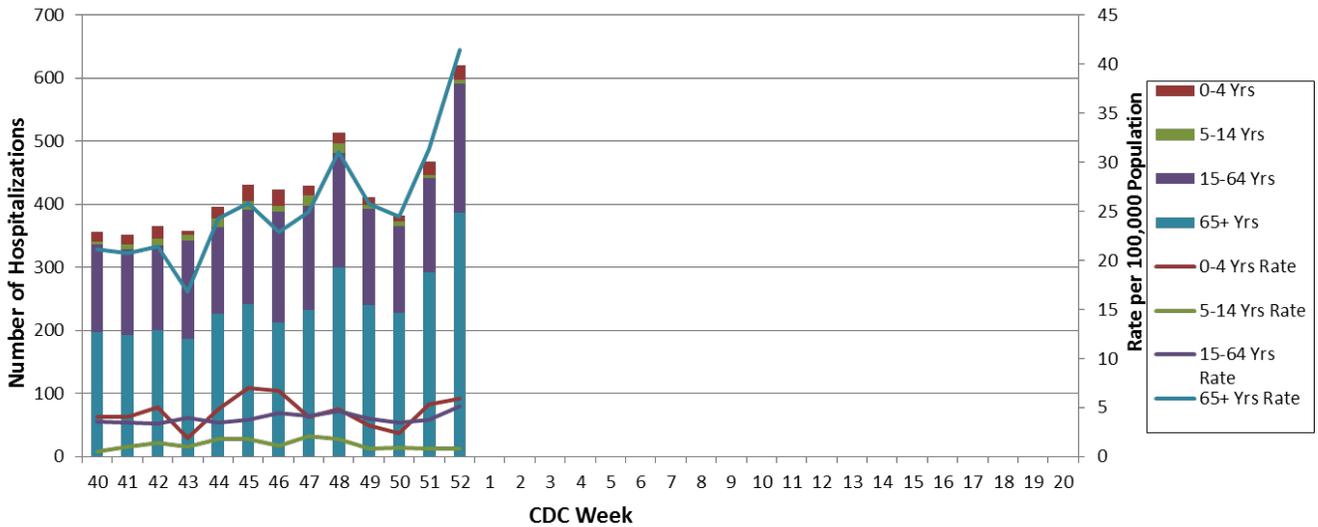

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.

Figure 9. Percentage of Visits for Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, by District and Statewide, for the 2016-2017 Influenza Season
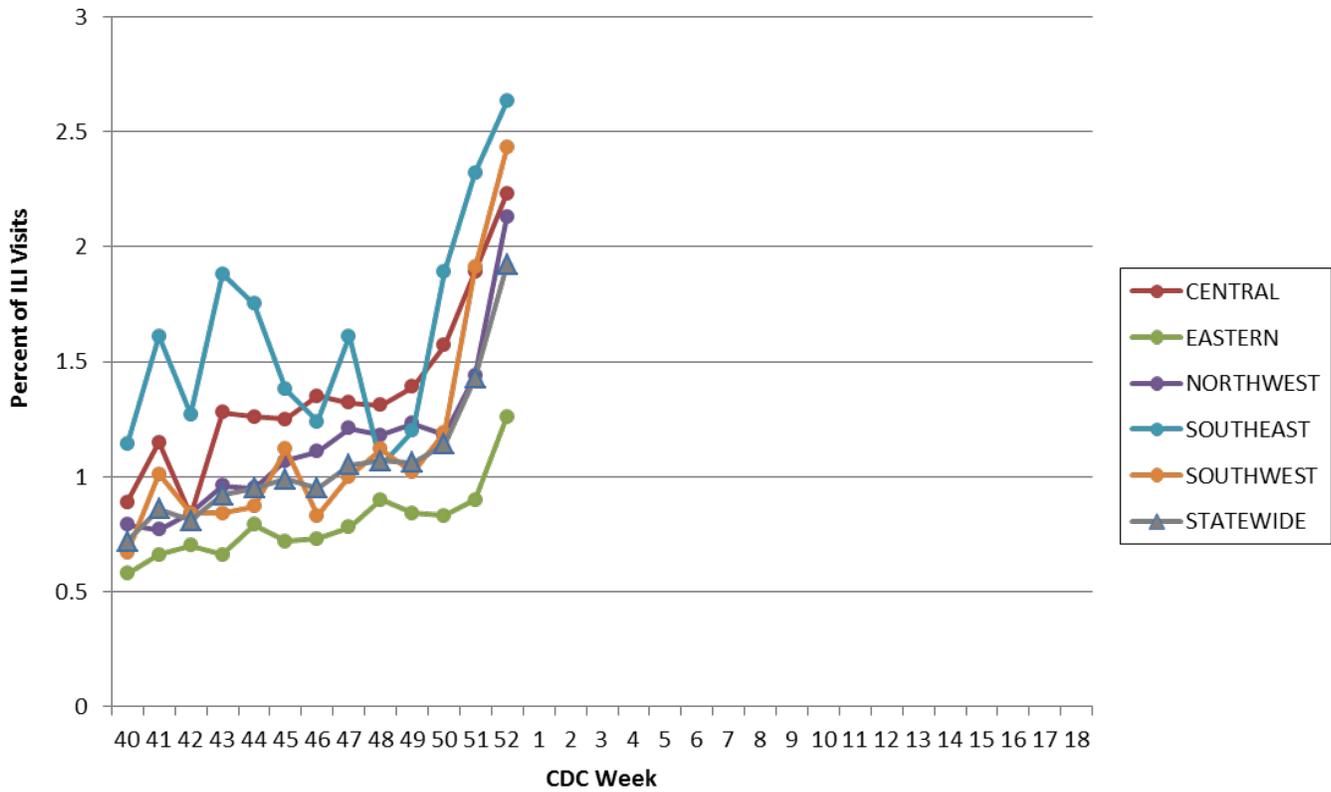
Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.

Figure 10. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, CDC Week 52, 2016

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

Additional Influenza Data Sources:

Centers for Disease Control and Prevention: National Influenza Surveillance (FluView)
http://www.cdc.gov/flu/weekly/fluactivitysurv.htm

The National Respiratory and Enteric Virus Surveillance System (NREVSS):
https://www.cdc.gov/surveillance/nrevss/

World Health Organization: International Influenza Surveillance:
http://www.who.int/influenza/surveillance_monitoring/en/