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

Week 1: January 1 – January 7, 2017

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

Summary:

- The estimated influenza activity in Missouri increased to Regional[2].

- A season-to-date total of 4,151 laboratory-positive[3] influenza cases (3,415 influenza A, 660 influenza B, and 76 untyped) have been reported in Missouri as of Week 1. The influenza type for reported cases season-to-date includes 82% influenza A, 16% influenza B, and 2% untyped. One thousand three hundred and fifty-six laboratory-positive[3] influenza cases (1,213 influenza A, 131 influenza B, and 12 untyped) were reported during Week 1. Two laboratory-confirmed cases of influenza A (H3) were reported by the Missouri State Public Health Laboratory (MSPHL) during Week 1.

- 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 4.65% and 1.94% through ILINet and ESSENCE respectively.[4] The percentage of respiratory specimens testing positive for influenza in clinical laboratories also increased during Week 1.

- One influenza-associated death has been reported in Missouri, to date, this influenza season. During Week 52, 55 deaths involving Pneumonia and Influenza (P&I) were reported to the Bureau of Vital Records, resulting in a season-to-date total of 727 P&I associated deaths in Missouri.[5]

- Five 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 52. 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 Regional is defined as: Outbreaks of influenza or increases in ILI and recent laboratory-confirmed influenza in at least two but less than half the regions of the state with recent laboratory evidence of influenza in those regions.

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 $100^{o}F$ [$37.8^{o}C$] 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/2id9IB6. *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 1**
- **Reported Laboratory-positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Reported Rate per 100,000 Population, CDC Week 1**

Data Figures

Figure 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 1 (January 1 – January 7, 2017)

Influenza Type	Week 51	Week 52	Week 1	2016-2017* Season-to-Date
Influenza A	503	1,039	1,213	3,415
Influenza B	63	136	131	660
Influenza Unknown Or Untyped	12	22	12	76
Total	578	1,197	1,356	4,151

[†]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 1 (January 1 – January 7, 2017)

Age Group	Week 1 Cases	Week 1 Rate[‡]	2016-2017* Season-to-Date	2016-2017* Season-to-Date Rate[‡]
00-04	192	51	552	147
05-14	130	17	632	81
15-64	709	18	2,155	54
65+	325	35	811	87
Total	1,356	22	4,151	68

[†]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 1 (January 1 – January 7, 2017)

District	Week 1 Cases	Week 1 Rate[‡]	2016-2017* Season-to-Date	2016-2017* Season-to-Date Rate[‡]
CE	168	25	609	92
EA	441	20	985	44
NW	376	24	1,094	69
SE	68	14	273	57
SW	303	28	1,190	111
Total	1,356	22	4,151	68

[†]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*
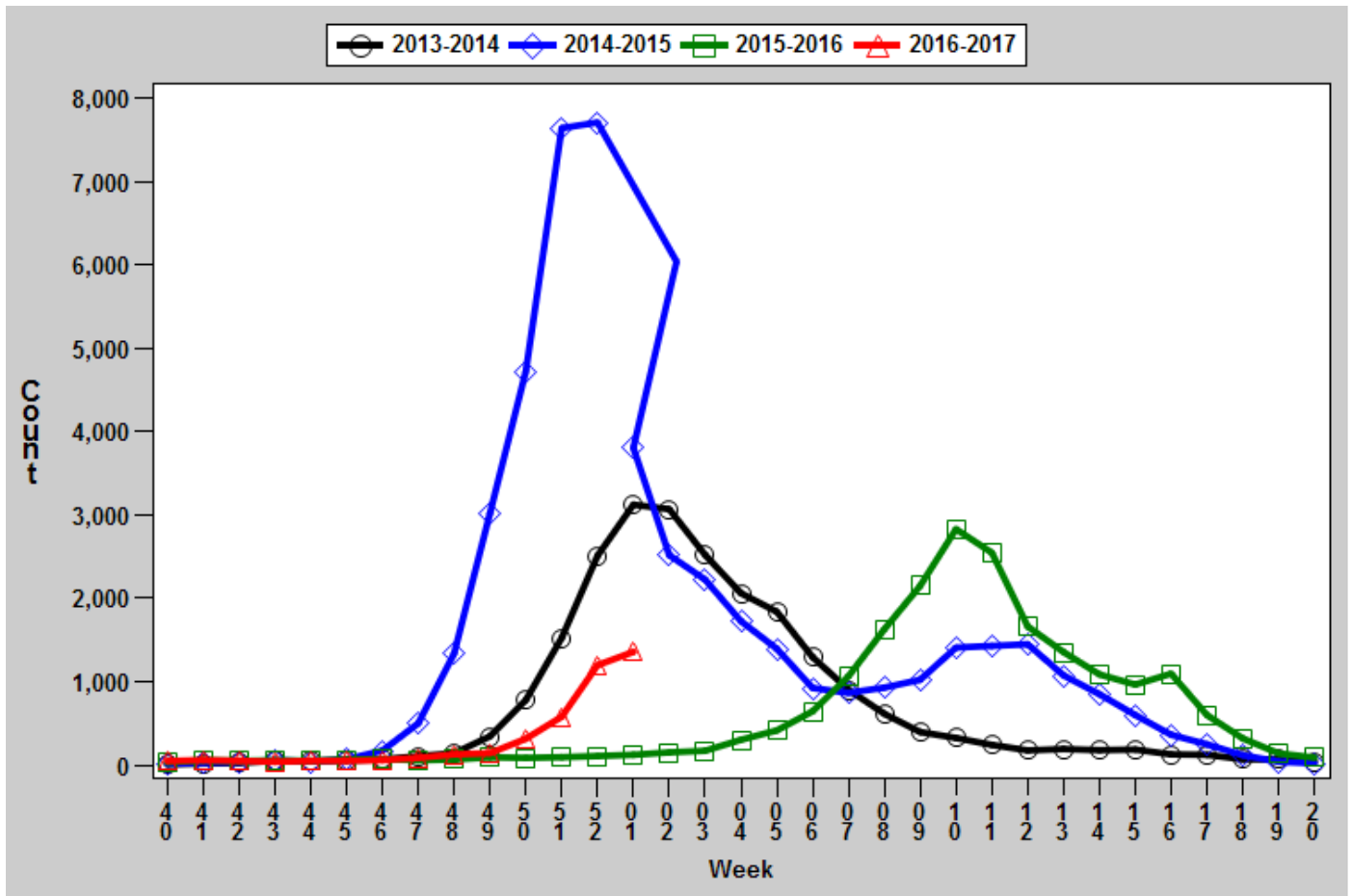
[†]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*2016-2017 season-to-date 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[†]
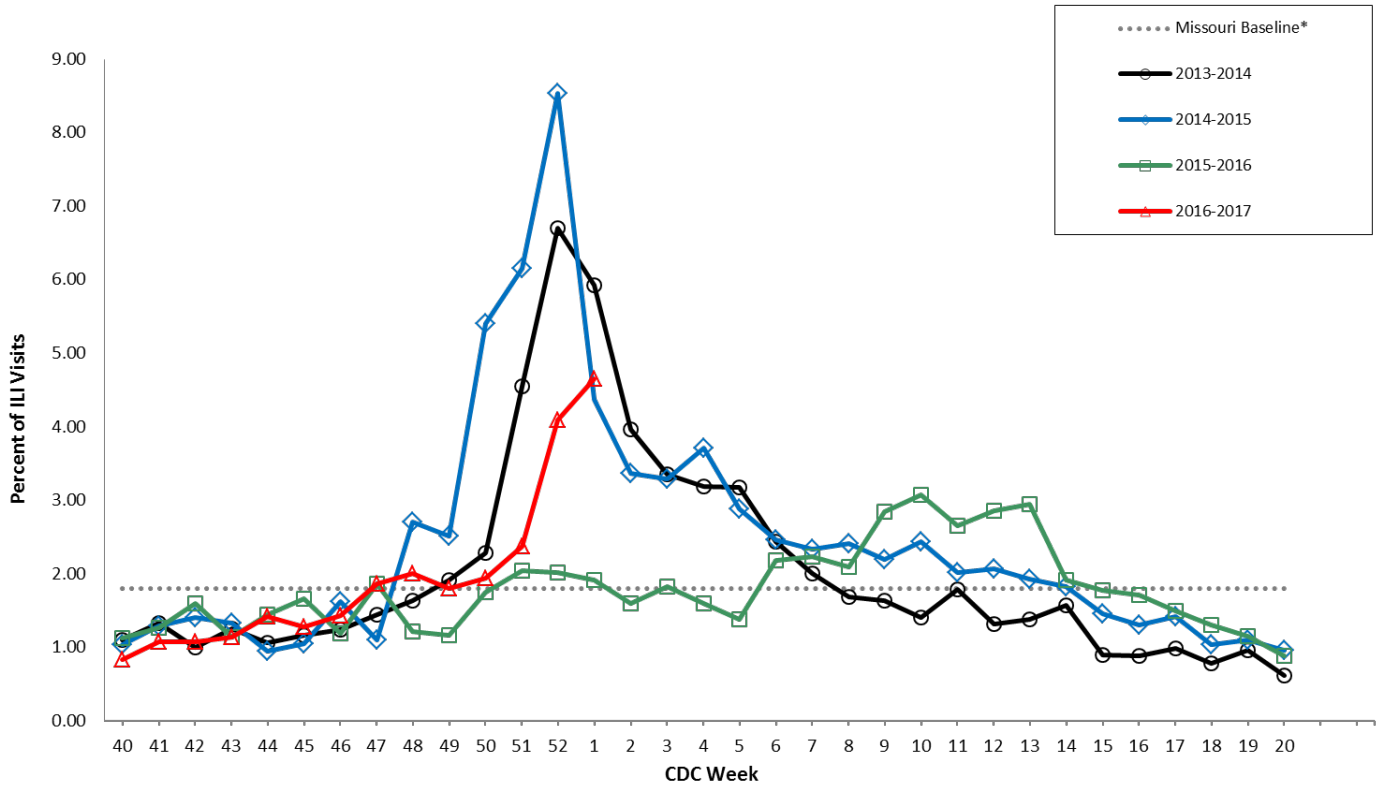
*The ILINet Region 7 (MO, IA, KS, NE) baseline is the mean percentage of patient visits for ILI during non-influenza weeks for the previous three seasons, plus two standard deviations. A non-influenza week is defined as periods of two or more consecutive weeks in which each week accounted for less than 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
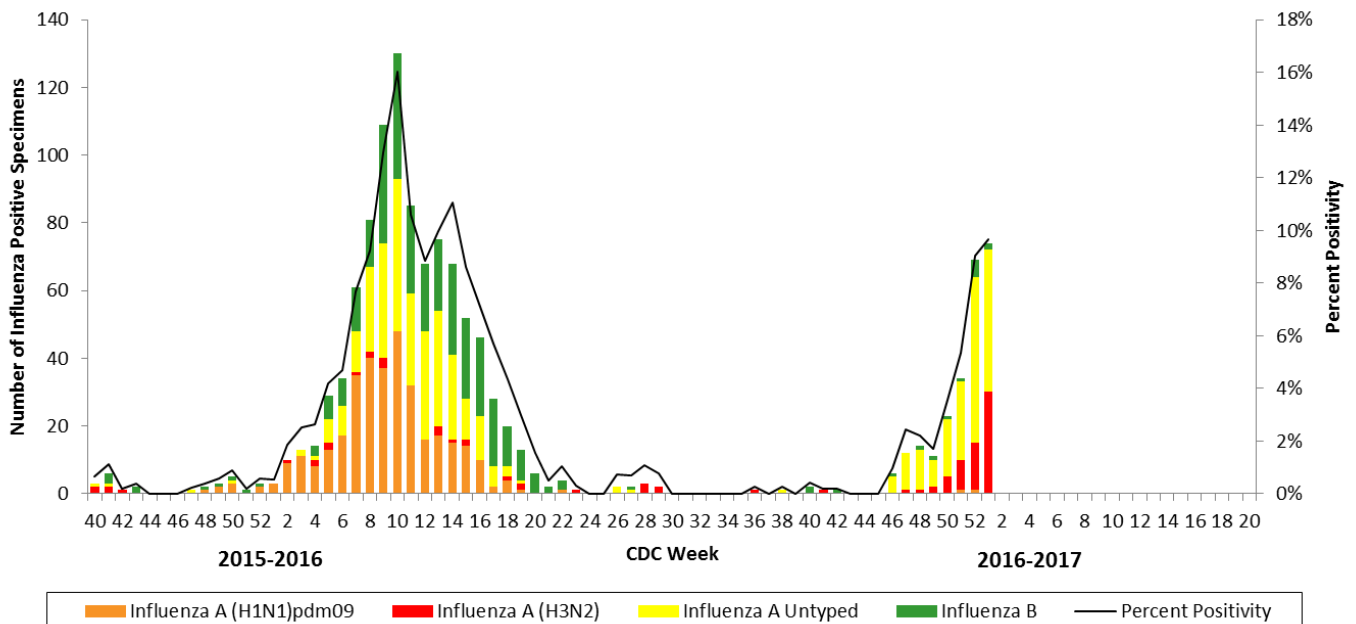
Data Source: National Respiratory and Enteric Virus Surveillance System (NREVSS), Centers for Disease Control and Prevention (CDC).
2016-2017 season-to-date through the week ending May 20, 2017 (Week 20).

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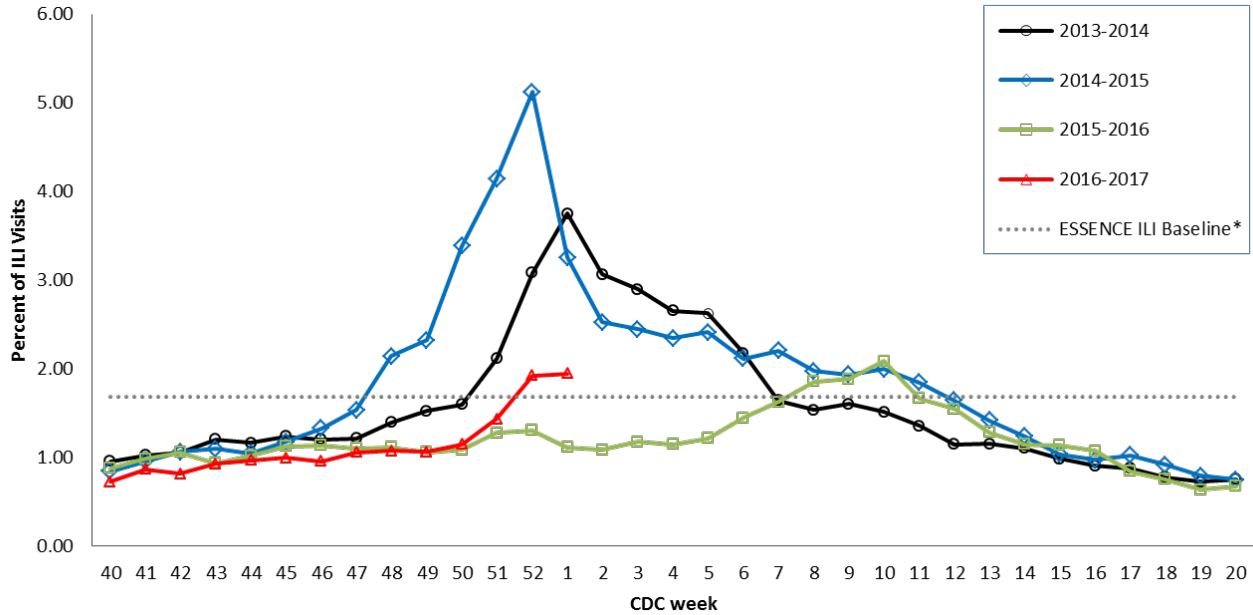

*The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2013-15) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.

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 1, 2017
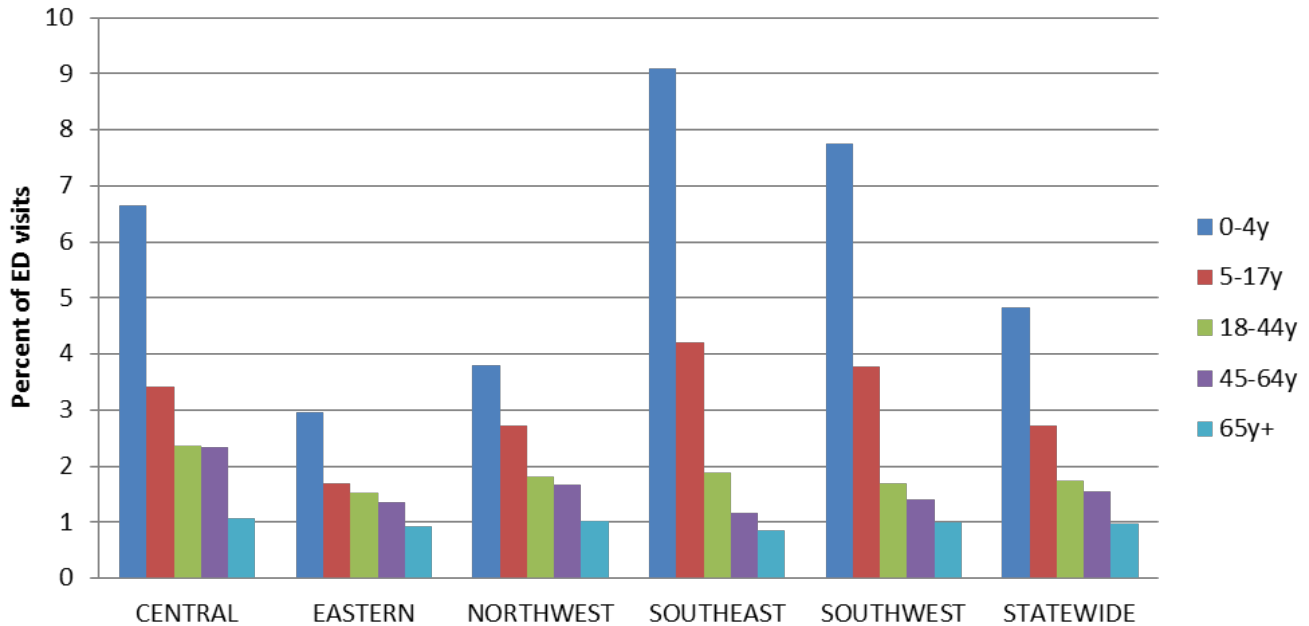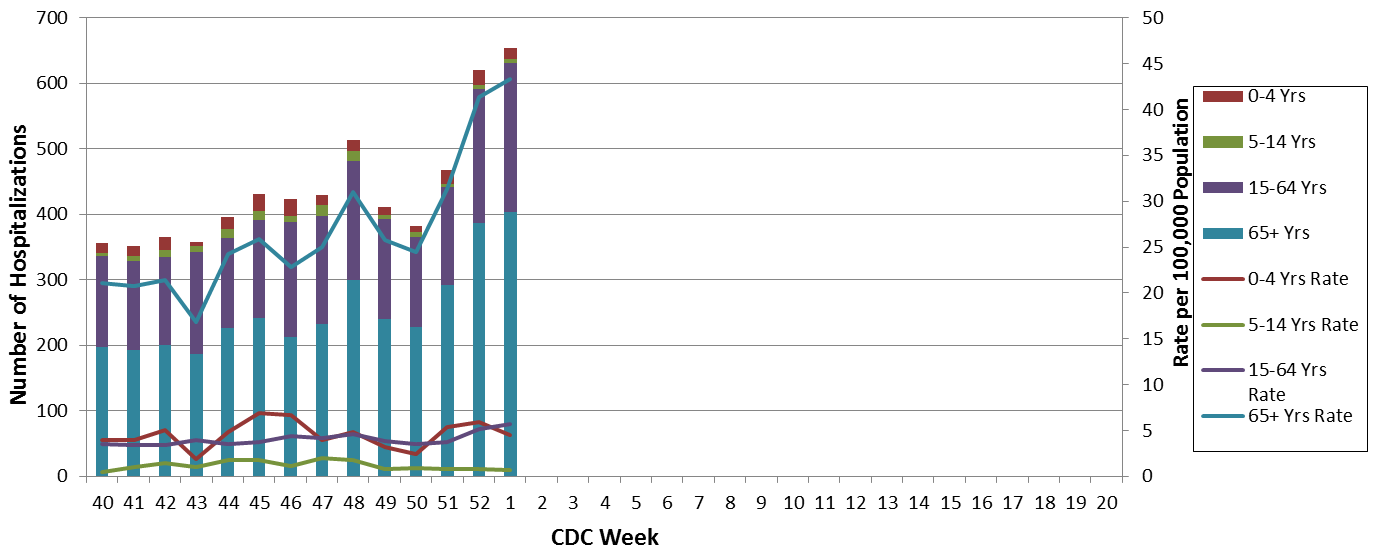

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.

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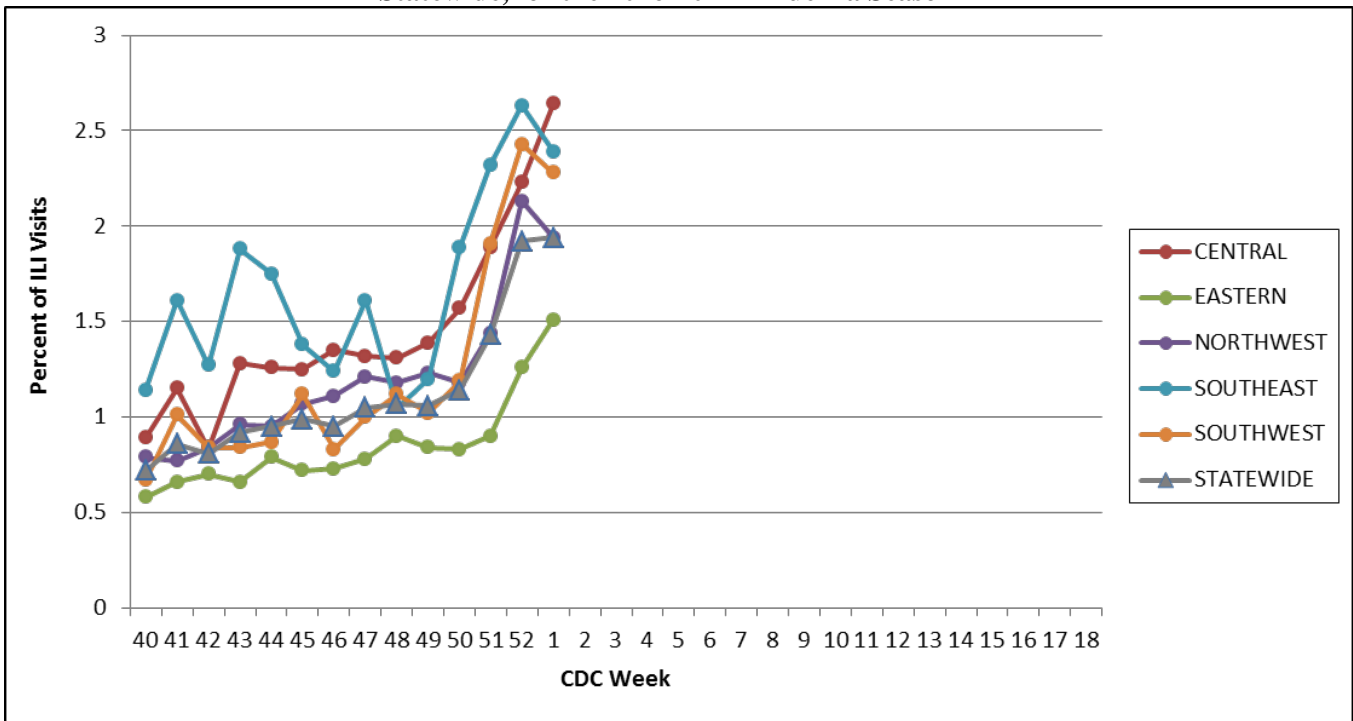
Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.

Figure 10. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, CDC Week 1, 2017

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/