



South Carolina Influenza Surveillance Report

2012-13 Influenza Season Summary

July 17, 2013

2012-2013

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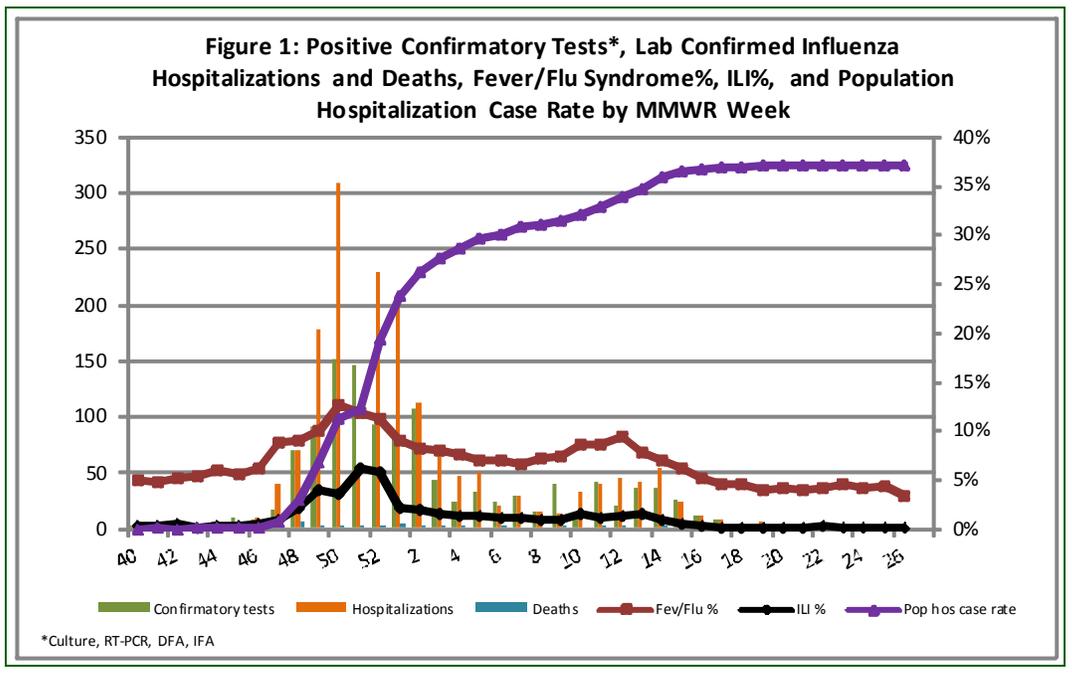
SC 2012-2013 Influenza Season in Review

After a record setting mild 2011-12 season, 2012-13 was yet another unusual season nationally and in SC. This past season was an active one which peaked early, affecting the most individuals in November and December. During this time influenza A H3N2 was the predominant circulating strain. In SC, we also saw a second “wave” in March. Influenza B emerged as the predominant strain during this wave.

This end of season report summarizes data received through SC’s mandatory and voluntary influenza surveillance systems. Reporting of lab confirmed influenza hospitalizations, deaths, positive confirmatory tests (culture, RT-PCR, DFA, IFA) and positive rapid tests is mandatory. Additionally, sentinel providers report influenza-like illness through the U.S. Outpatient Influenza-like Illness Network (ILINet). All data are current as of June 29 (MMWR week 26).

From September 30, 2012 to June 29, 2013, 1200 positive cultures, RT-PCRs, DFAs, and IFAs were reported in SC. There were 1720 influenza associated hospitalizations and 46 influenza associated deaths reported. Five of these deaths were in children under 18. Approximately 63,700 positive rapid detection tests were also reported.

Figure 1 shows the number of lab confirmed influenza hospitalizations, deaths, and positive confirmatory tests, ILI percentages and fever/flu syndrome by MMWR week for SC.



Laboratory reporting

In SC, laboratories are required to report positive influenza cultures, RT-PCRs, DFA, and IFAs. Reports are received from the DHEC Bureau of Labs (BOL), clinical, and commercial laboratories. From September 30, 2012 to June 29, 2013, BOL tested 571 specimens for influenza. Of these, 306 (53.6%) specimens were positive for influenza. During this time, 894 positive specimens were reported by other clinical and commercial labs. Influenza A viruses, particularly influenza A H3N2, were the predominant circulating

Figure 2: Positive Confirmatory Test Results by MMWR Week 2012-13 Season (N=1200)

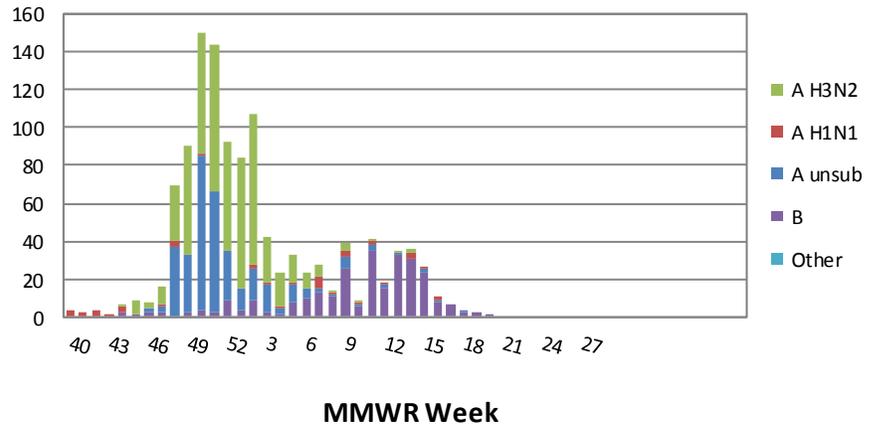
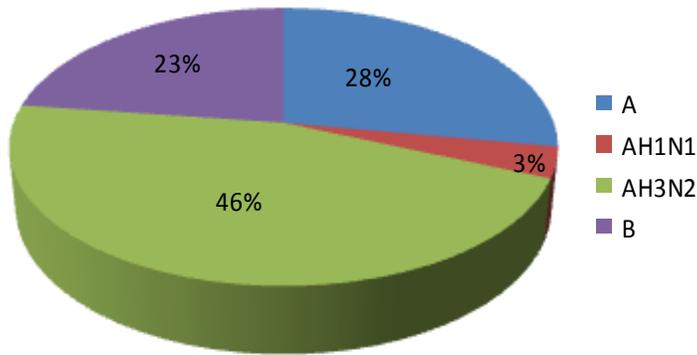


Figure 3: Percentage of Positive Confirmatory Tests by Type

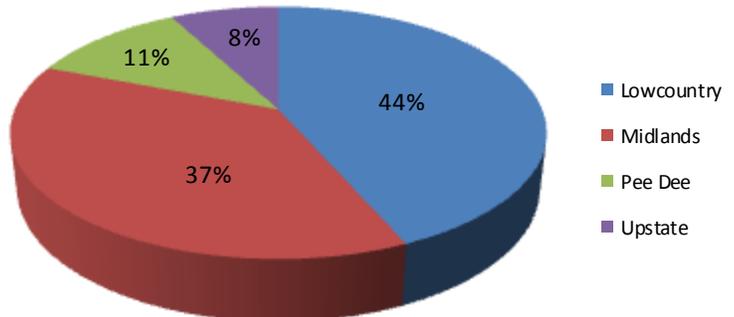


strain from November through January. Influenza B was the predominant strain from mid-January through the end of the season. The greatest number of positive specimens reported in a single week occurred during week 50 (mid-December).

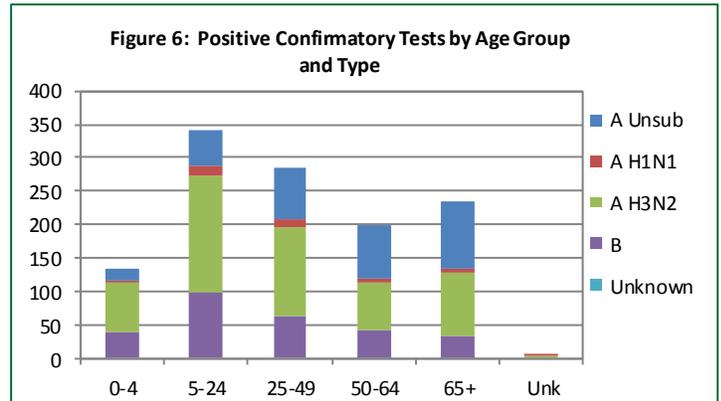
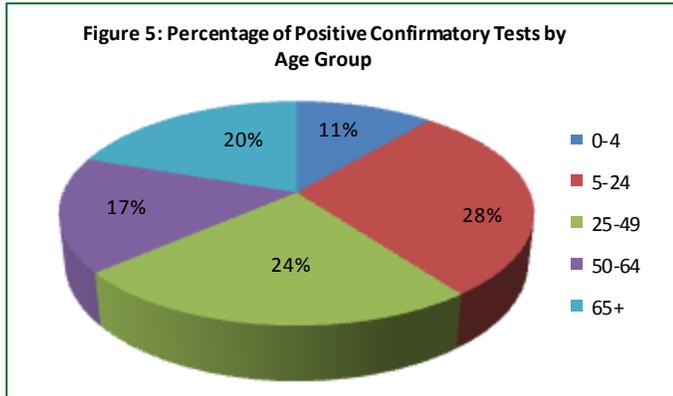
Of the total positive influenza specimens reported, 548(45.7%) were A H3N1, 332 (27.7%) were A unsubst, 274(22.8%) were influenza B, 43(3.6%) were A H1N1, and 3(.25%) were unknown subtype (Figure 3).

Figure 4 shows the percentage of positive confirmatory tests reported by DHEC public health region. Approximately 81% of all positive specimens were identified in counties in the Lowcountry and Midlands regions.

Figure 4: Percentage of Positive Confirmatory Tests by DHEC Public Health Region



Laboratory reporting

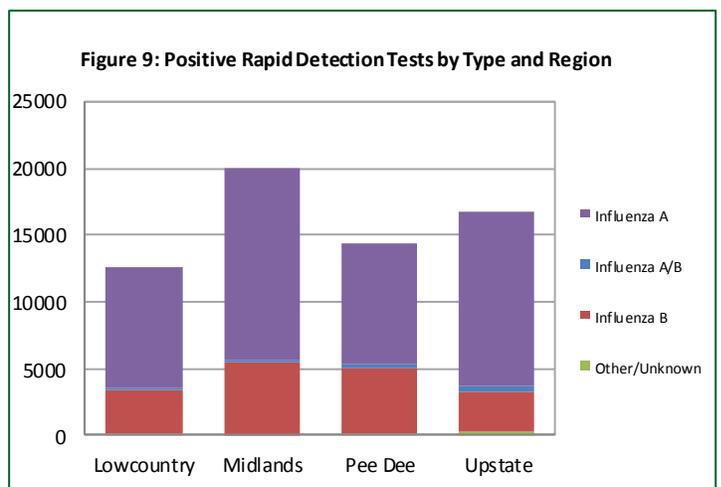
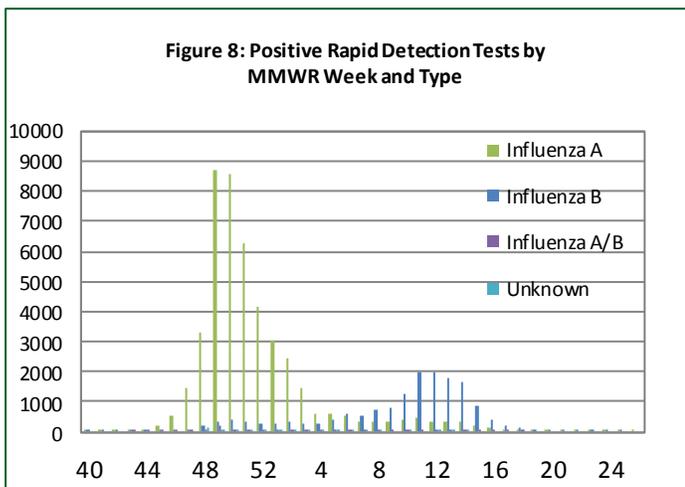
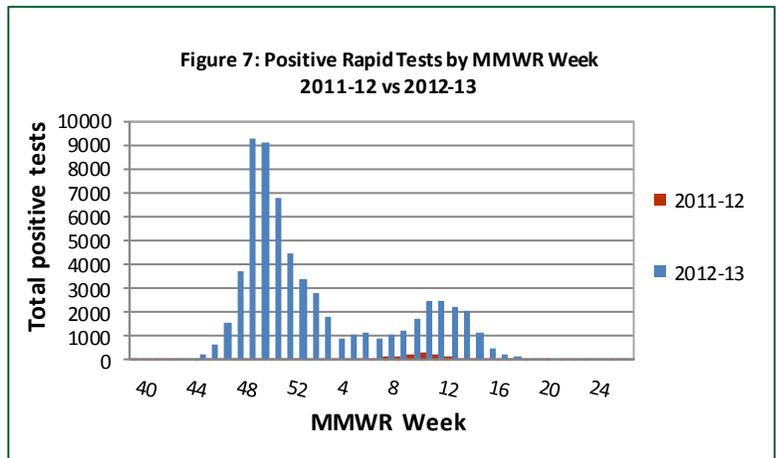


Figures 5 and 6 illustrate the percentage of positive confirmatory tests by age group and positive confirmatory tests by age group and subtype. The majority of positive tests were in those ages 5-24, followed closely by those 25-49 and 65 and older.

Rapid influenza detection tests

Each week providers report the total number of patients with positive rapid tests by type. A total of 63,700 positive rapid detection tests were reported from September 30, 2012 to June 29, 2013. This compares to 2,552 for the same time period during the 2011-12 season. Of the positive rapid tests reported in SC this season, 71.6% were influenza A, 26% were influenza B, 1.7% were influenza A/B, and less than 1% were unknown or other.

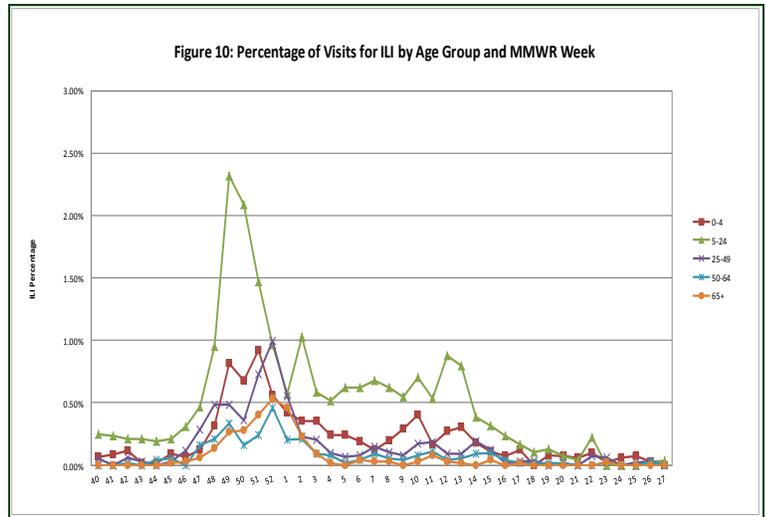
Figure 7 depicts positive rapid tests for the 2011-12 and 2012-13 seasons by MMWR week and shows the dramatic difference between the two seasons. Figure 8 shows positive rapid tests by type and MMWR week for the 2012-13 season. During the early portion of the season influenza A was the predominant circulating strain, whereas influenza B predominated during the second wave of the season. Figure 9 presents positive rapid tests by type and DHEC public health region.



U.S. Outpatient Influenza-like Illness Surveillance (ILINet)

During the 2012-13 influenza season, an average of 31 providers were enrolled in ILINet. Of these, 21 (67.7%) reported at least once during the season. Nineteen (61.3%) of these providers reported at least half of the season (20 weeks). Four providers reported more than 98% of the season, with two that reported every week!

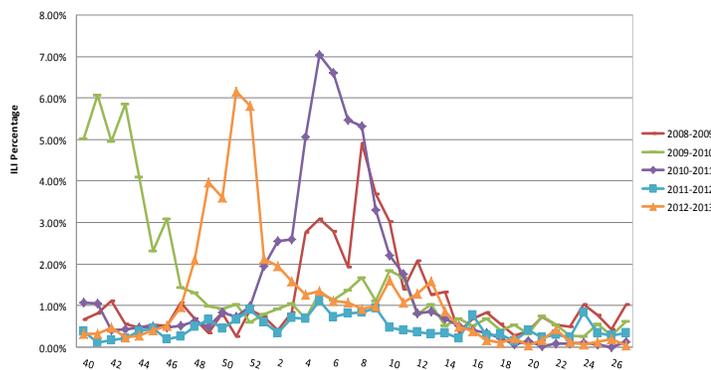
Sentinel providers reported 260,047 total visits this season, with 2,809(1%) patient visits for ILI. Of the ILI visits, 578 (20.6%) were in 0-4 yr. olds, 1,443(51.4%) were in 5-24 yr. olds, 406(14.5%) were in 25-49 yr. olds, 205(7.3%) were in 50-64 yr. olds and 177(6.3%) were in those older than 64 yrs. These percentages are very similar to those seen in the previous season. The age distribution for ILI visits by MMWR week is presented in Figure 10. All age groups experienced the highest ILI percentage of the season during the month of



December. Almost 32% of the total visits for ILI were in pediatric practices. Approximately 28.4% were in family practice centers, 20.9% in emergency medicine facilities, 17.4% in student health centers, and 1.4% in internal medicine clinics.

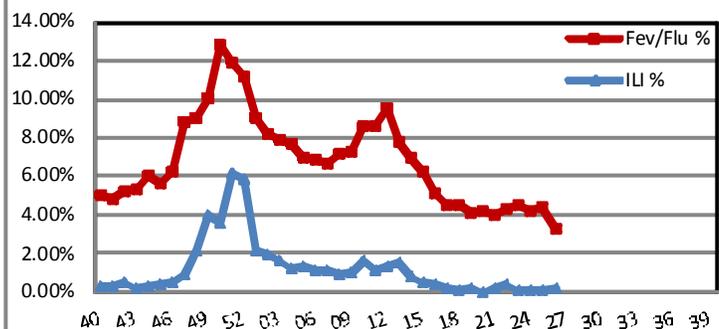
Figure 11 compares the 2008-09, 2009-10, 2010-11, 2011-12, and 2012-13 season ILI percentages by MMWR week. Each of the past five seasons has been unique. We saw the emergence of the 2009 H1N1 strain near the end of the 2008-09 season. Flu activity continued throughout the summer months and spilled over into the early portion of the 2009-10 season. The 2011-12 season was extremely mild, while the 2012-13 season was very active and experienced an early peak in December.

Figure 11: Percentage of Visits for Influenza-like Illness (ILI) Reported by Sentinel Providers 2008-2009 - 2012-2013 seasons



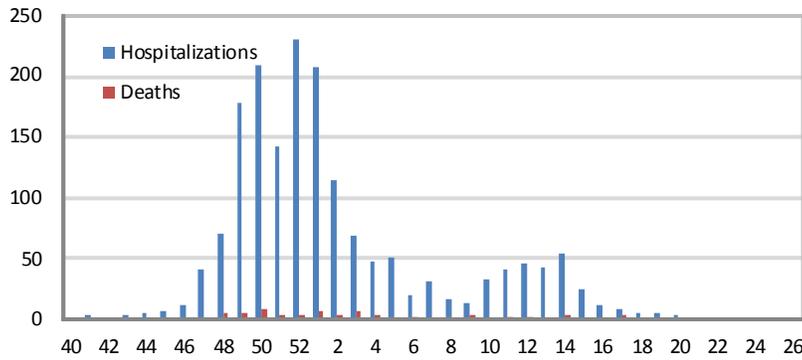
The hospital ED syndromic surveillance system classifies emergency department chief complaint data into appropriate syndrome categories. The fever-flu syndrome is compared to ILINet data weekly. Figure 12 shows the comparison of the fever-flu percentage and ILI percentage by MMWR week. The fever/flu percentage remained above the ILI percentage the entire season; however, the patterns are very similar. Both data systems showed increased activity in December and January and again in March, with peak activity in early December.

Figure 12: SC Fever Flu Percentage Compared to ILI Percentage September 30, 2012 - June 29, 2013



Lab confirmed influenza-associated hospitalizations and deaths

Figure 13: Reported Cases of Laboratory Confirmed Influenza Hospitalizations and Deaths by MMWR week
September 30, 2012-June 29, 2013



Laboratory confirmed influenza associated hospitalizations and deaths in all ages are reportable in SC. Lab confirmation includes culture, RT-PCR, DFA, IFA, and rapid tests. For deaths, autopsy reports consistent with influenza are also acceptable for confirmation. Hospitalizations are reported in aggregate form while deaths are reportable by name. From September 30, 2012 to June 29, 2013, 1720 lab confirmed influenza hospitalizations and 46 deaths were reported. This compares to 114 hospitalizations and 1 death reported in the previous season. Five pediatric deaths were reported. Lab confirmed hospitalizations and deaths by MMWR week are shown in Figure 13. The greatest number of influenza hospitalizations were reported

during the month of December and the early weeks of January, with the peak occurring during MMWR week 52. Figure 14 shows the hospitalizations and deaths case rates by age group. Children ages 0-4 and seniors 65 and older had the highest hospitalization case rates. The latter group also had the highest death case rate. This group accounted for 76.1% of influenza associated deaths and 46.7% of influenza hospitalizations.

Figures 15 and 16 show the percentage of influenza deaths by race and gender. The majority of reported deaths were in Caucasians (74%) and females (59%).

Figure 14: Laboratory Confirmed Influenza Case rate/100,000 Hospitalizations (n=1720) and Deaths (n=46) by Age Group
September 30, 2012 - June 29, 2013

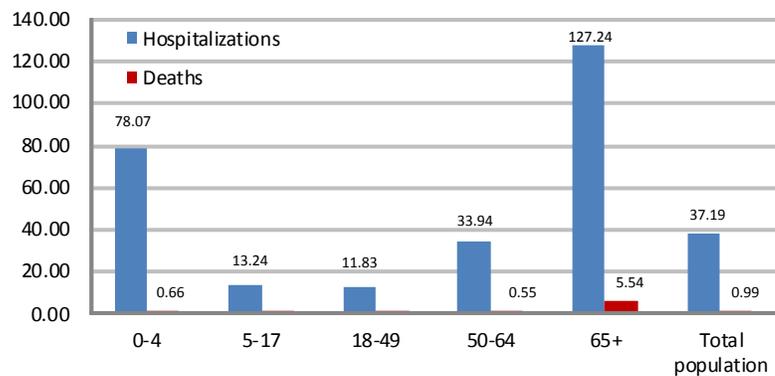
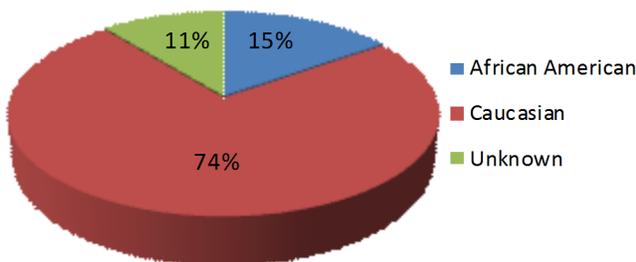
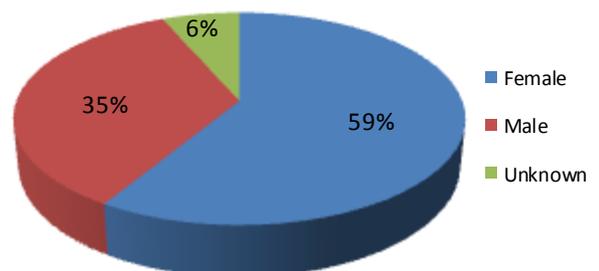


Figure 15: SC Influenza Deaths by Race (N=46)
9/30/12-6/29/13



SC Influenza Deaths by Gender (N=46)
9/30/12-6/29/13



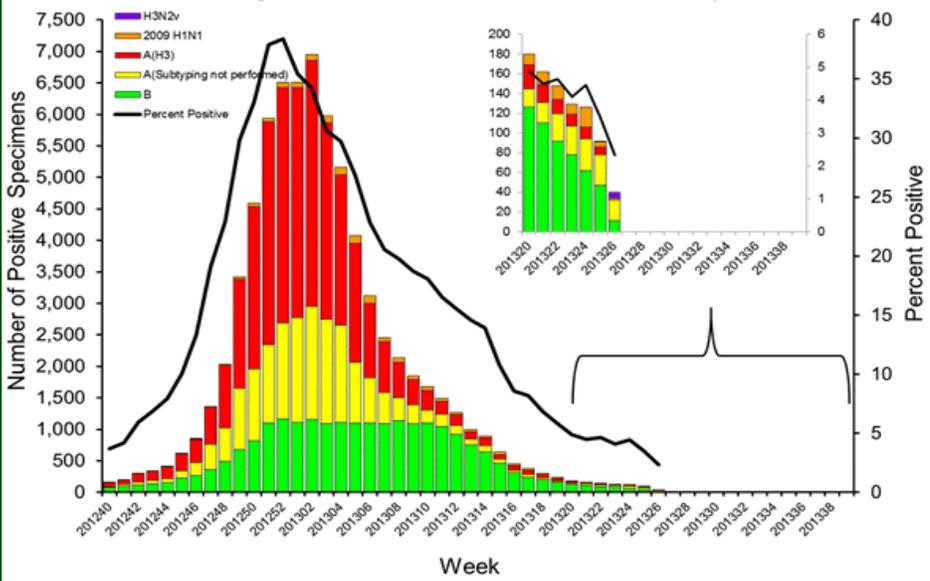
National Influenza surveillance

WHO and NREVSS collaborating laboratories located in all 50 states and Washington, D.C. report to CDC the number of respiratory specimens tested for influenza and the number positive by influenza type and subtype.

From September 30, 2012 to June 29, 2013, these labs reported 74,190 positive influenza specimens compared to 24,328 in the previous season. Of these positive specimens, 45.3% were A H3N2, 2.1% were A H1N1, and 29.7% were influenza B. Approximately 24% of positive specimens were influenza A unsubtype. One hundred fifty-four pediatric influenza deaths were reported nationally this season.

The Influenza Hospitalization Surveillance Network (FluSurv-NET) conducts all age population-based surveillance for laboratory-confirmed influenza-related hospitalizations in select counties in the Emerging Infections Program (EIP) states and Influenza Hospitalization Surveillance

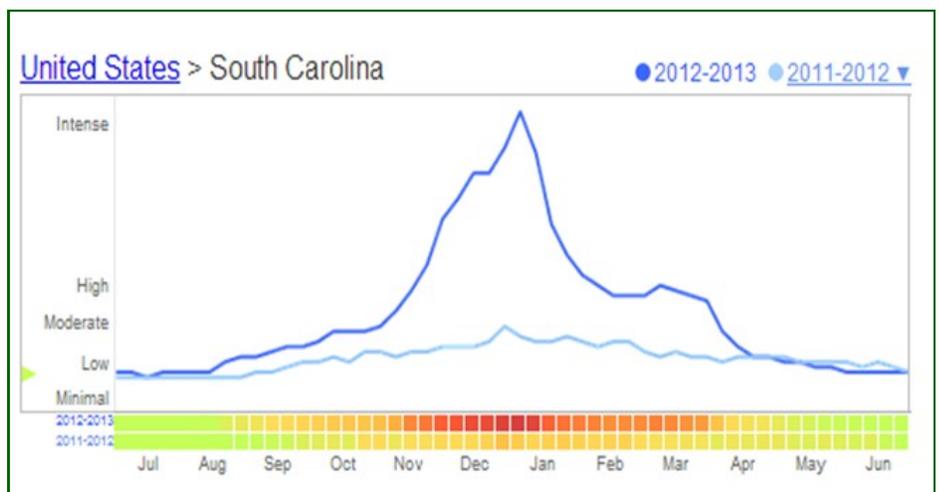
Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2012-13



Project (IHSP) states. Between September 30, 2012 and April 30, 2013, 12,343 laboratory-confirmed influenza-associated hospitalizations were reported. This is a rate of 44.3 per 100,000 population. The most affected group was those ≥ 65 years, accounting for about 50% of reported cases. Among all hospitalizations, 9,763 (79.1%) were associated with influenza A and 2,497 (20.2%) with influenza B. There was no virus type information for 48 (0.4%) hospitalizations. Among hospitalizations with influenza A subtype information, 3,809 (95.9%) were attributed to H3 and 151 (3.8%) were attributed to 2009 H1N1.

Google Flu Trends

Google has compared internet searches for flu-related topics with traditional flu surveillance systems and found a close relationship between the number of people searching for flu-related topics and the number of people that actually have flu symptoms. Data on flu-related Google searches are now used to estimate the amount of flu circulating each season. Google data for SC matches well with data obtained through SC surveillance systems and shows the heaviest activity from late November through January with a second “wave” in March.



South Carolina Influenza Surveillance Components

Mandatory reporting

- **Positive influenza culture, RT-PCR, DFA, and IFA:** Positive influenza culture results, RT-PCRs, DFAs and IFAs from commercial laboratories should be reported to DHEC within 7 days electronically via CHES or using a DHEC 1129 card. To learn more about CHES call 1-800-917-2093.
- **Positive rapid antigen tests:** Summary numbers of positive rapid antigen tests by type should be submitted to the regional health department weekly.
- **Lab confirmed influenza hospitalizations:** Summary numbers of lab confirmed (culture, RT-PCR, DFA, IFA, or rapid) influenza related hospitalizations should be reported to the regional health department weekly.
- **Lab confirmed influenza deaths:** Lab confirmed (culture, RT-PCR, DFA, IFA, or rapid or autopsy consistent with influenza) influenza related deaths in persons of any age should be reported to the regional health department weekly.

Voluntary reporting

- **Outpatient influenza-like illness surveillance network (ILINet):** ILI is defined as fever (temperature of $>100^{\circ}\text{F}$) plus a cough and/or a sore throat in the absence of another known cause. Sentinel providers submit weekly reports of the total number of patients seen in a week and the number of those patients with ILI symptoms by age group.
- **SC-DARTS:** This is a collaborative network of syndromic surveillance systems within South Carolina. The hospital ED syndromic surveillance system classifies ED chief complaint data into appropriate syndrome categories. These syndrome categories are then analyzed using the cumulative sum methodology to detect any significant increases. Syndromic reports are distributed back to the hospital on a daily basis.

If you have questions about South Carolina influenza surveillance, please contact:
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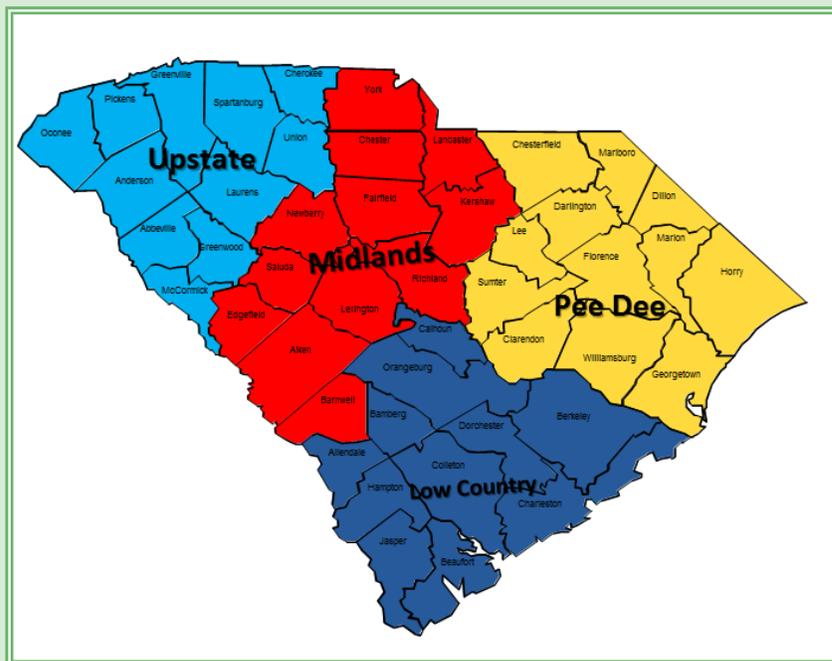
CDC urges you to take these steps to protect yourself and others from the flu:

- Get vaccinated against flu – it's your best defense.
- Cover your cough, wash hands often.
- Take antiviral drugs if your doctor recommends them.

South Carolina Department of Health and Environmental Control



**WE PROMOTE AND PROTECT THE HEALTH OF THE PUBLIC
AND THE ENVIRONMENT.**



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This report contains data collected through SC's mandatory and voluntary surveillance components. Data are current as of June 29, 2013 and are subject to change as reports are received.

Find us on the web: www.scdhec.gov/flu/flu-activity-surveillance.htm