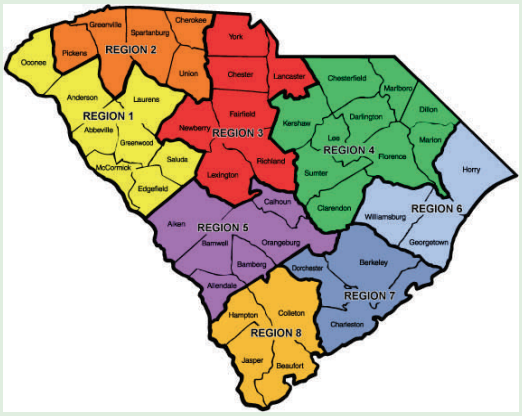
South Carolina Influenza Surveillance Report

2010-11 Influenza Season Summary

SC 2010-11 Influenza Season in Review

With the 2010-11 influenza season we saw the return of the "traditional" influenza season. Unlike the previous season in which the majority of illness was seen in September and October, all influenza surveillance system components indicated peak activity during the month of February. Influenza like illness activity peaked in the first week of February at 7.03%. Fever/flu syndrome activity and influenza associated hospitalizations were highest in mid-February.

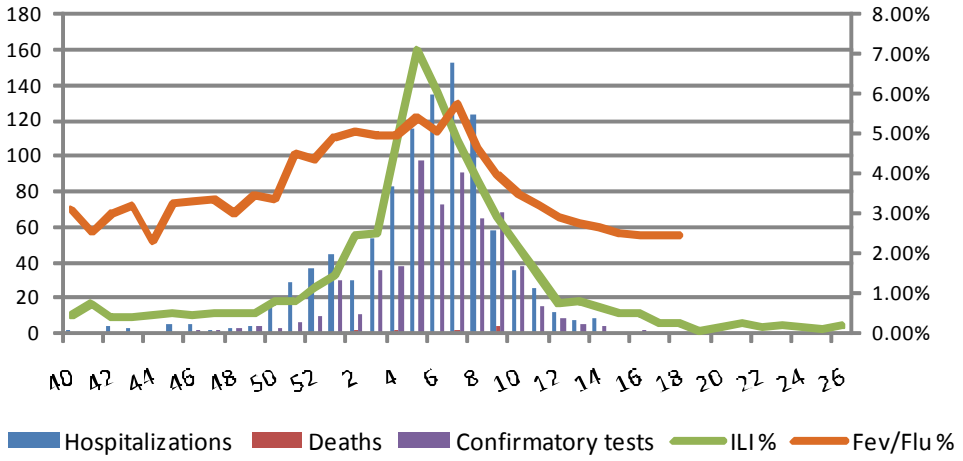


From October 3, 2010 to July 2, 2011, 616 positive influenza cultures, RT-PCRs, DFAs, and IFAs were reported in SC. Twenty influenza associated deaths and 996 influenza associated hospitalizations were reported. Influenza A H1N1, A H3N2, and B co-circulated throughout the season with the predominant strain varying by week. This is in contrast to the 2009-10 season in which 90% of positive specimens identified in SC were 2009 H1N1. The trends observed in SC during 2010-11 were similar to those seen nationally.

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 and submit specimens for testing by culture through ILINet and the voluntary viral culture network. All data are current as of July 2 (MMWR week 26).

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

Fig 1: Lab confirmed influenza hospitalizations, deaths, and positive confirmatory tests, fev/flu syndrome % and ILI % by MMWR Week



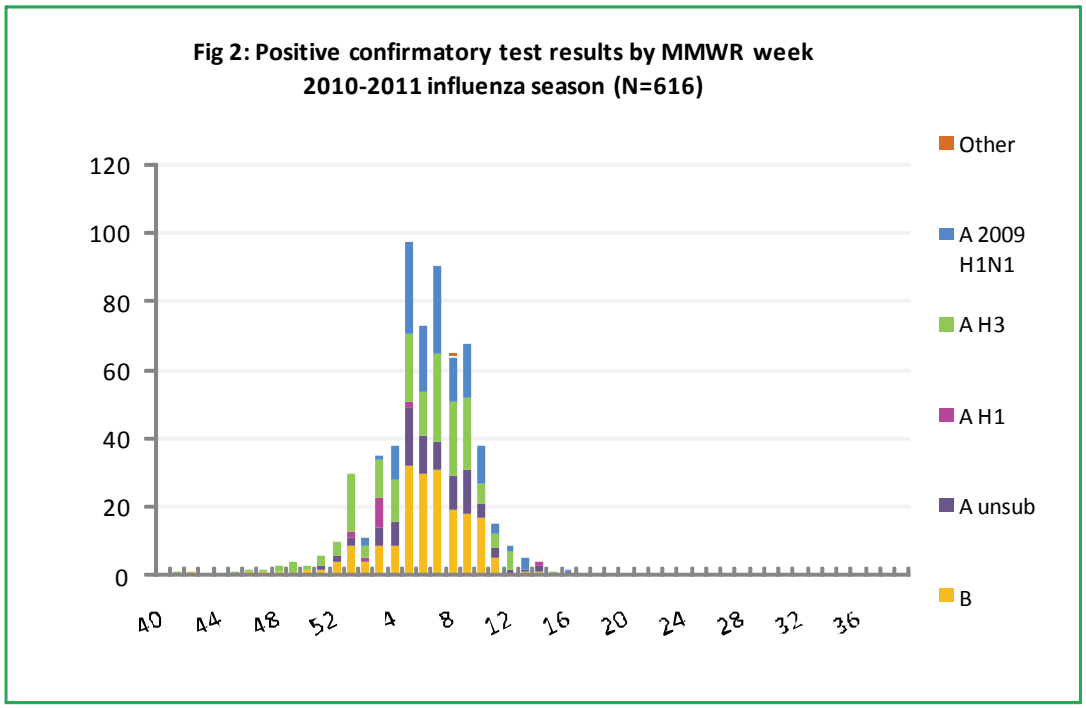
Inside this issue:

Summary	1
Laboratory reporting	2
Rapid test reporting	4
ILINet reporting	5
Hospitalization and death reporting	6
National data	7
Google Flu Trends	7

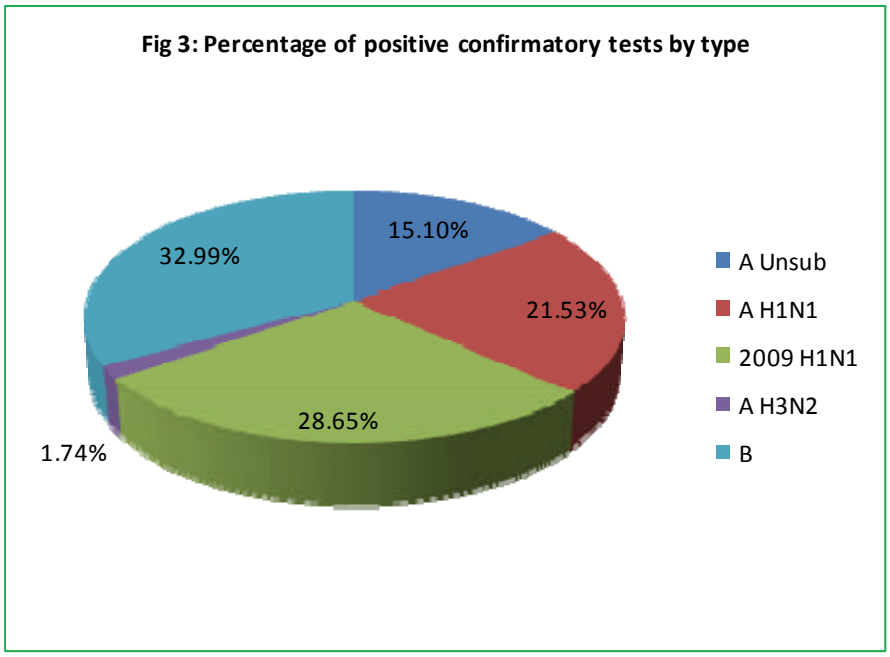
Laboratory reporting

In SC, laboratories are required to report positive influenza cultures, RT-PCRs, DFA, and IFAs. Reports are received from the Bureau of Labs (BOL), clinical, and commercial laboratories. In addition, a voluntary network of approximately 100 providers submit specimens for viral culture testing by the BOL.

From October 3, 2010 to July 2, 2011, BOL tested 835 specimens for influenza. Of these, 350 (42.4%) positives were identified in SC residents. During this time, 266 positive specimens were reported by other clinical and commercial labs. Clinical and commercial labs only report positive specimens.

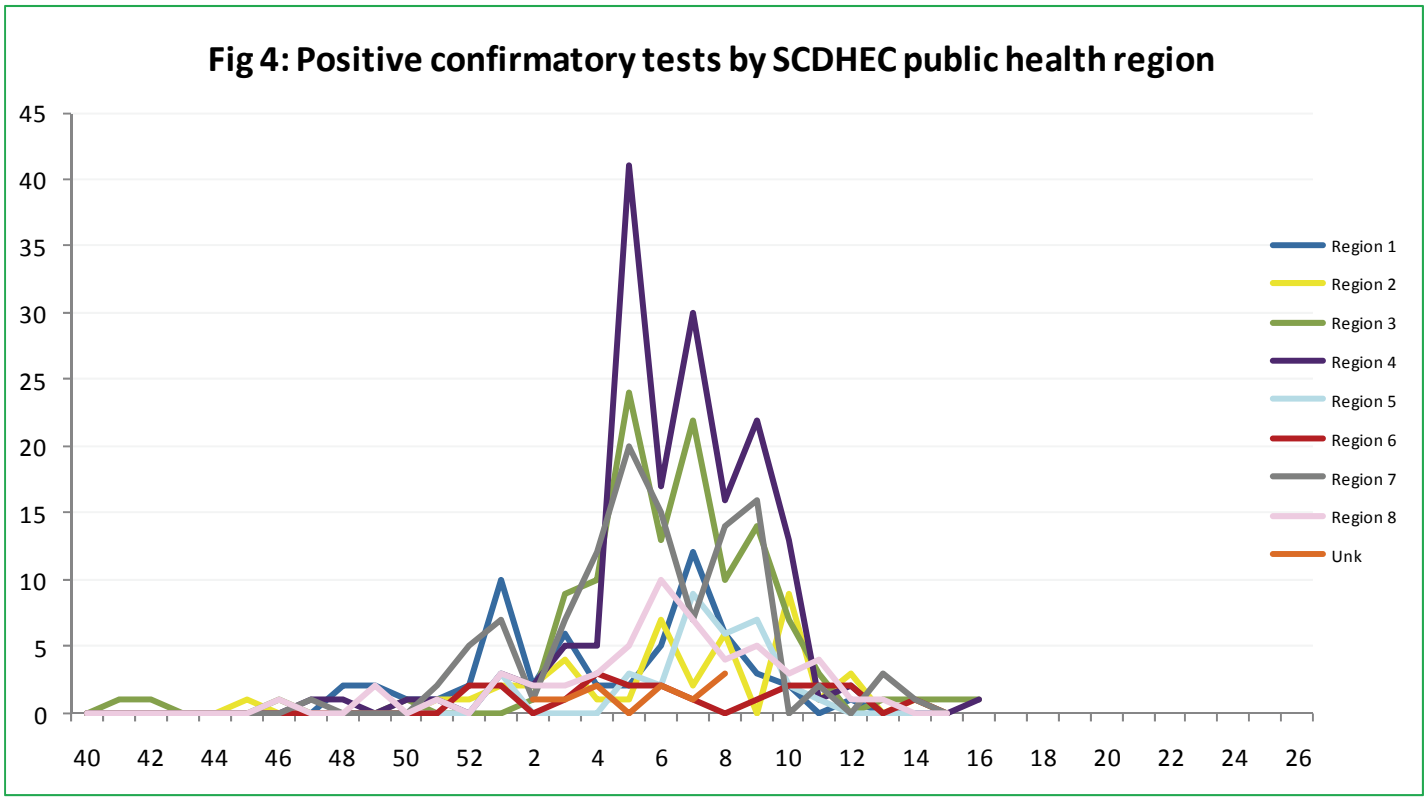


Of the total positive influenza specimens, 197 were influenza B (32.0%), 180 were A H3N1 (29.2%), 134 were 2009 A H1N1 (21.8%), 15 were seasonal A H1N1 (2.4%), and 89 were A unsubtyped (14.4%). There was one reported co-infection with influenza A H3N2 and influenza B (denoted as other in Fig 2).



The distribution of reported positive confirmatory tests by MMWR week is presented in Figure 2. The greatest number of positive confirmatory tests during a single week were seen in week five. The second and third highest numbers were seen in weeks six and seven. Figure 3 shows the percentage of positive confirmatory tests by influenza type/subtype. All influenza virus types co-circulated throughout the season. Approximately 33% of all positive specimens were influenza B. 2009 H1N1 accounted for nearly 29% of all positive specimens.

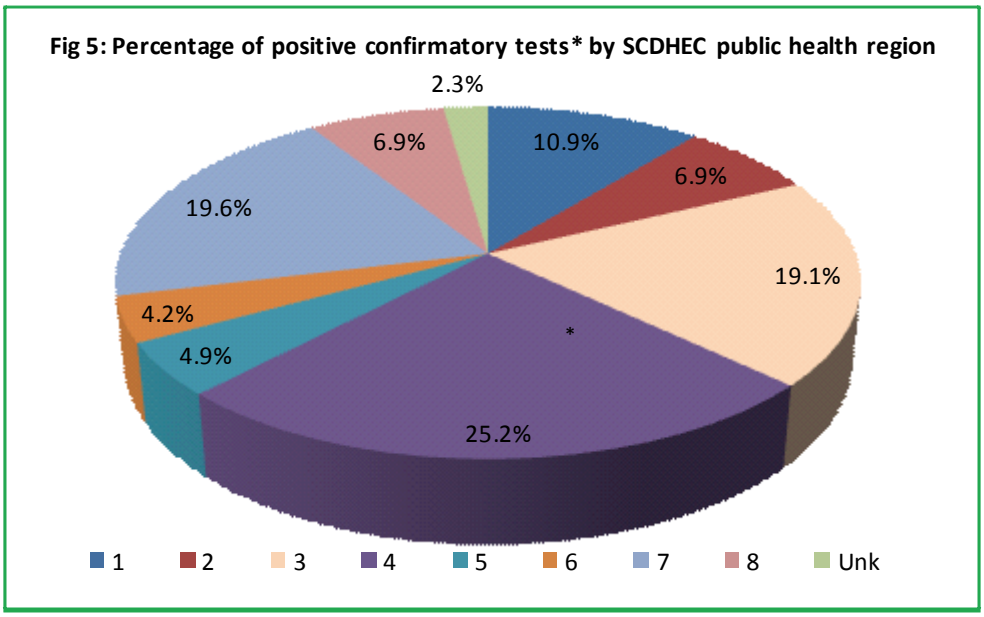
Laboratory reporting



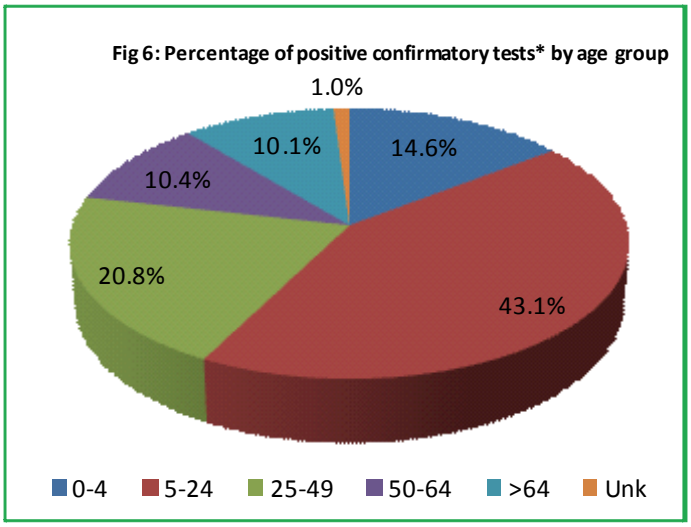
Positive confirmatory tests by MMWR week and DHEC public health region are presented in Figure 4. Regions 3 and 4 experienced increases and decreases at similar time points during the season. Regions 3, 4, and 7 saw their highest number of positive tests in a single week during week five. Regions 1 and 5 saw their highest number during week seven.

The percentage of positive confirmatory tests for the season by DHEC public health region is presented in Figure 5.

Figure 6 (page 4) shows the percentage of positive confirmatory tests by age group. The largest percentage of positive tests were seen in individuals age 5-24 (43.1%), followed by those 25-49 (20.8%) years old.



Laboratory reporting



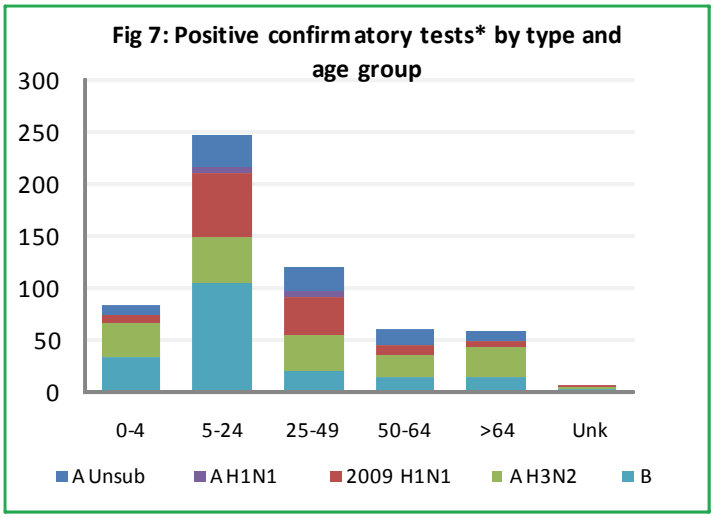
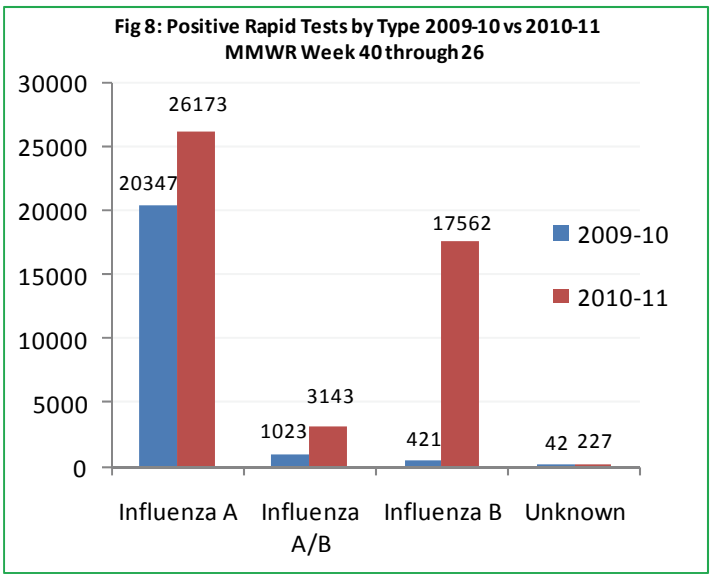


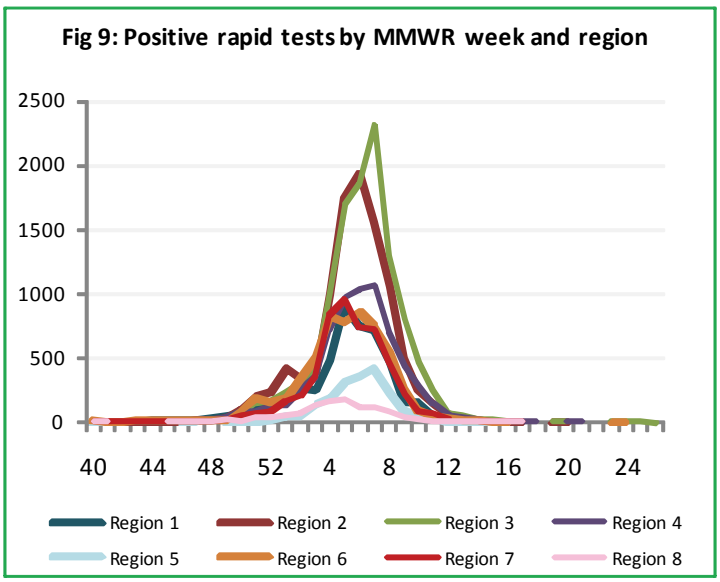
Figure 7 shows the number of positive confirmatory tests by type/subtype and age group. For children age 0-4, 79% of positive specimens were influenza A H3N2 and influenza B. Children and adults age 5-49, accounted for 80% of all 2009 H1N1 cases, with 50% of those being in 5-24 year olds. Among those age 50-64, 35% of positive specimens were influenza A H3N2. In those older than 64, 53% of positive specimens were influenza A H3N2.

Rapid antigen test reporting

Each week providers report the total number of patients with positive rapid tests by type. A total of 47,105 positive rapid antigen tests were reported from October 3, 201 to July 2, 2011. This compares to 21,833 for the time period during the 2009-10 season.

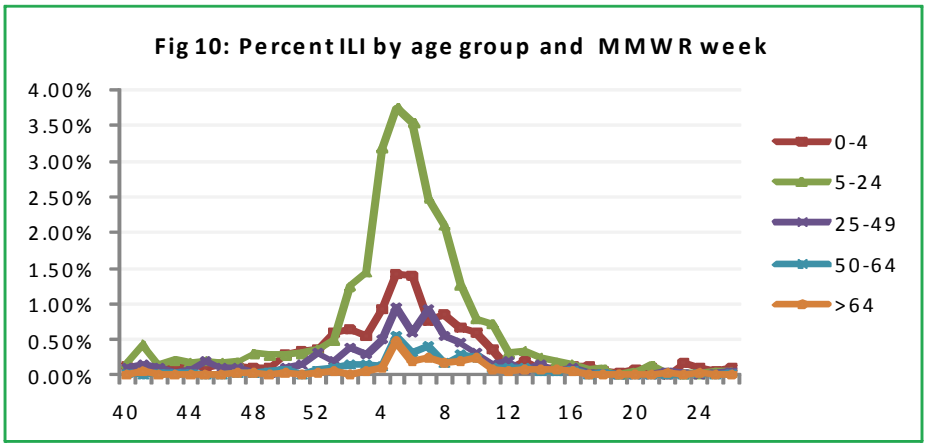
Figure 8 shows the total number of positive rapid antigen tests by type for the 2009-10 and 2010-11 seasons. During the 2009-10 season, 98% of positive rapid tests were influenza A. During the most recent season, 56% were influenza A and 36% were influenza B. Figure 9 shows total number of positive rapid tests by MMWR week and region.





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

During the 2010-11 influenza season, an average of 37 providers were enrolled in ILINet. Of these, 33 (89%) reported at least once during the season. Fourteen (37.8%) of these providers reported at least half of the season (19 weeks).



Of the 256,861 total visits to sentinel providers, 4,267 patient visits for ILI were reported. Of these, 967 (22.7%) reports were in 0-4 yr olds, 2,189 (51.3%) in 5-24 yr olds, 609 (14.3%) in 25-49 yr olds, 289 (6.8%) in 50-64 yr olds and 213 (5%) 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 week 5. Of the total visits for ILI, 29.5% were in pediatricians, 20.6% in student health centers, 19% in urgent care centers, 17.6% in family practice centers, 12.6% in emergency medicine facilities, and less than 1% in internal medicine clinics.

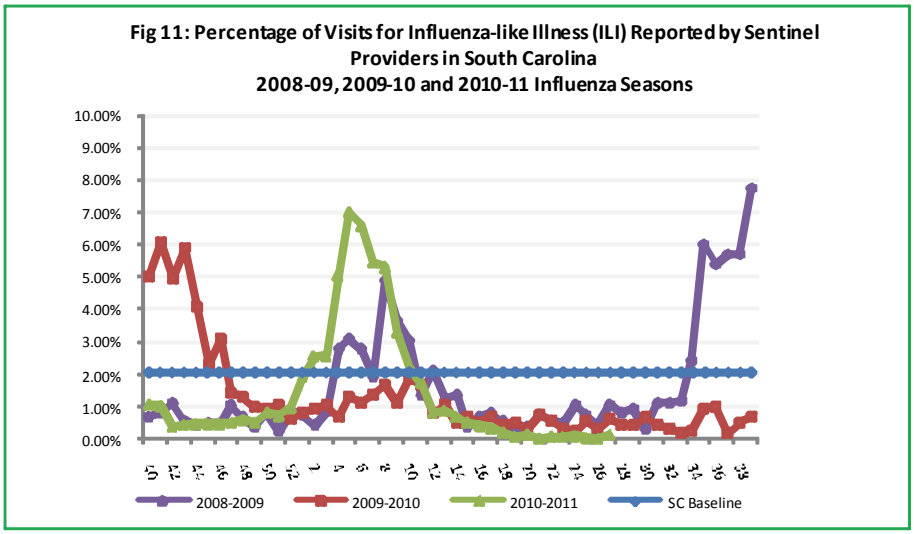
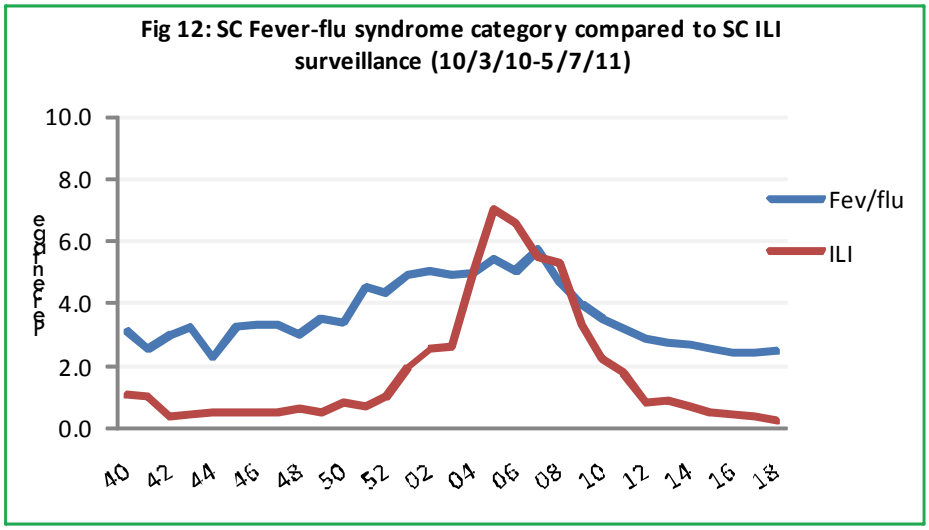


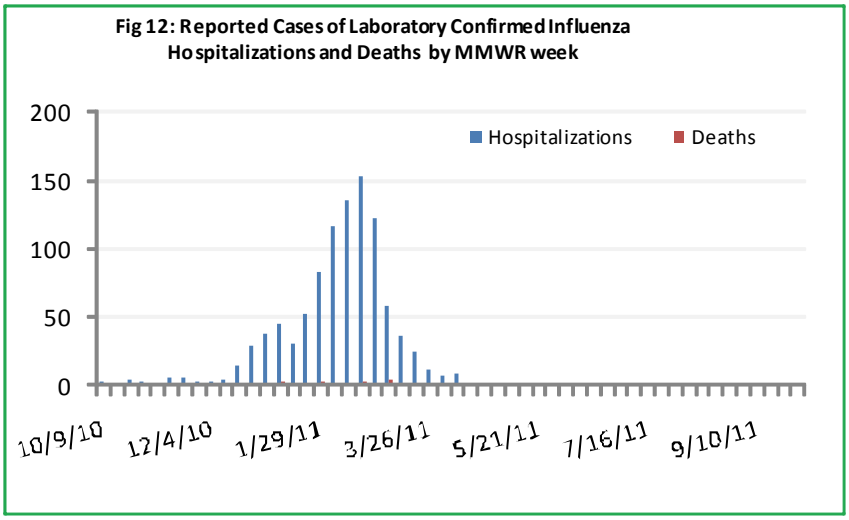
Figure 12 compares the 2008-09, 2009-10 and 2010-11 ILI percentages by MMWR week. The ILI distribution for the 2010-11 season was similar to the 2008-09 season, with its peak occurring slightly sooner (first week of February). Weeks 34-39 (Aug-Oct) of the 08-09 season and 40-46 (Oct-Nov) of the 09-10 season demonstrate the unusual pattern observed with the 2009 H1N1 virus strain.

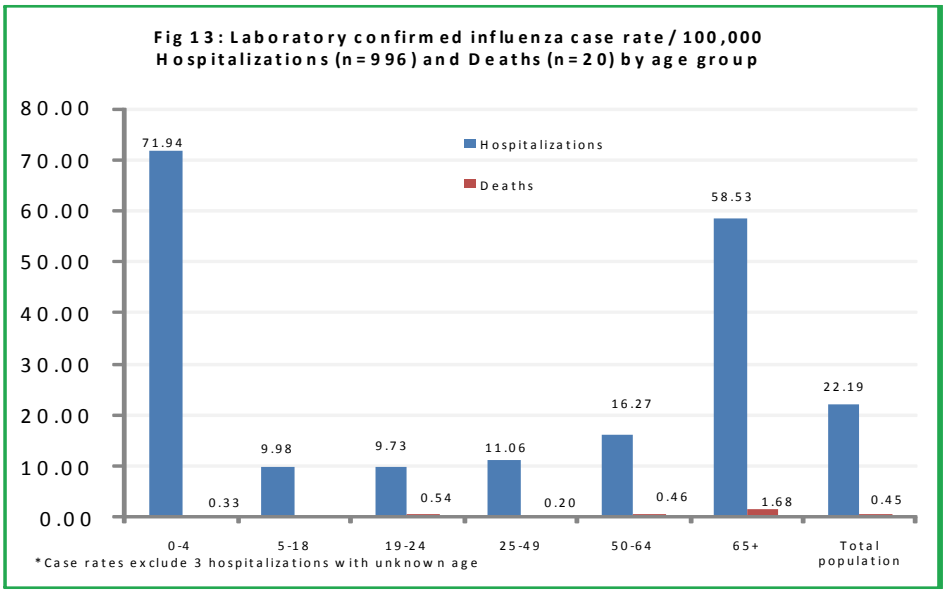
The hospital ED syndromic surveillance system classifies emergency department chief complaint data into appropriate syndrome categories. The fever-flu syndrome is compared to ILINet data weekly. Figure 12 shows the comparison of the fever-flu percentage and ILI percentage from October 2010 to May 2011 by MMWR week. On average, the fever/flu percentage remained above the ILI percentage, except during the peak weeks when the ILI percentage rose above 6%.



Laboratory confirmed influenza hospitalizations and deaths

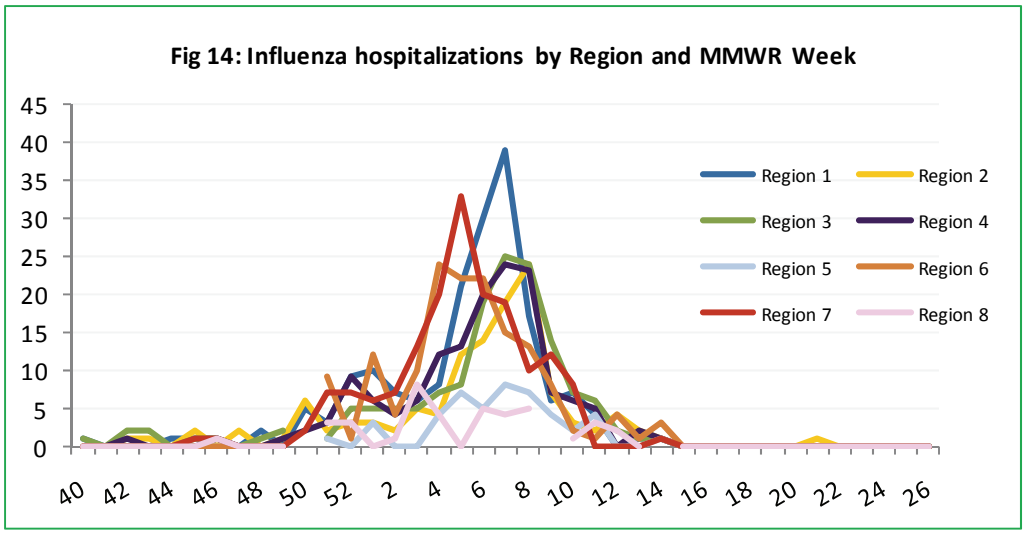
Laboratory confirmed influenza associated hospitalizations and deaths are reportable within 7 days. Lab confirmation includes culture, RT-PCR, DFA, IFA, and rapid tests. For deaths, this also includes autopsy reports consistent with influenza. From October 3, 2010 to July 2, 2011, 996 lab confirmed influenza hospitalizations and 20 deaths were reported. Lab confirmed hospitalizations and deaths by MMWR week are shown in Figure 12.





The greatest number of influenza hospitalizations were reported in mid-February. Therefore, initial illness onset likely peaked in early February.

Figure 13 shows the hospitalization and death case rate by age group. Children age 0-4 and seniors 65 and older had the highest hospitalization case rates. The latter group also had the highest death case rate. Figure 14 shows the number of influenza hospitalizations by MMWR week and region.

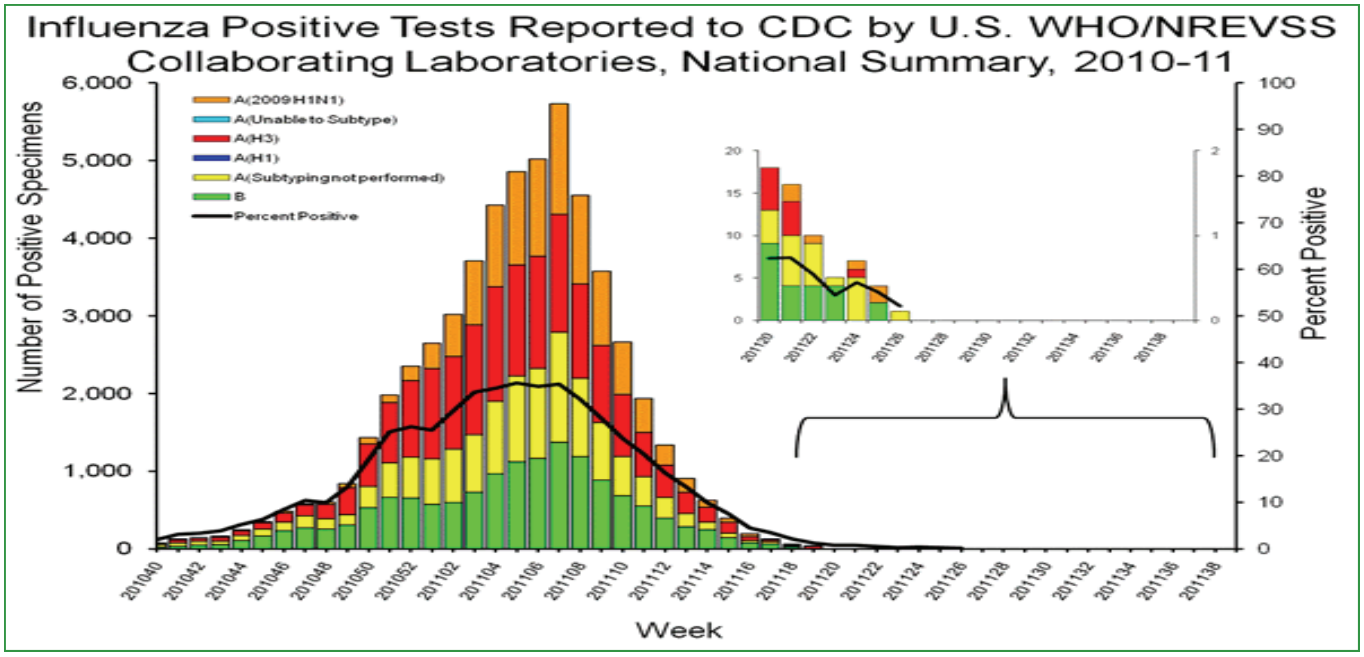


National influenza surveillance data

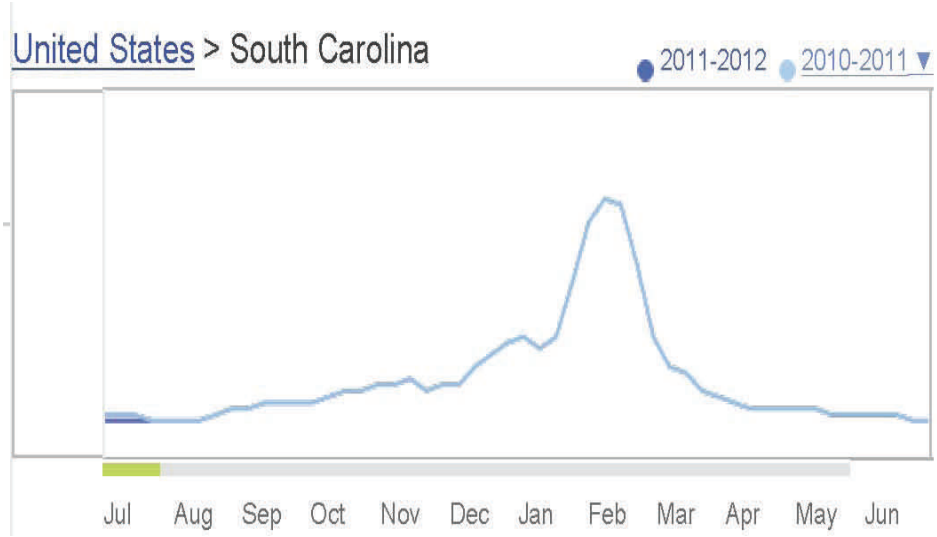
Nationally, 54,226 positive influenza specimens were reported from October 3, 2010 to May 21, 2011. Of these, 32.5% were A H3N2, 25.7% were influenza B, and 20.2% were 2009 H1N1. There were 11,737 (21.6%) influenza A for which subtyping was not performed. One hundred and five pediatric deaths were reported.

National aggregate reporting of hospitalizations and deaths continued on a voluntary basis during the 2010-11 season. From October 3, 2010 – May 21, 2011, 16,410 laboratory-confirmed influenza-associated hospitalizations and 311 laboratory-confirmed influenza-associated deaths were reported to the CDC. The graph below shows positive specimens identified by WHO and NREVSS labs from October 3, 2010 through May 21, 2011.

More information can be obtained at http://www.cdc.gov/flu/weekly/fluactivity.htm.



Google Flu Trends



Google Flu Trends uses aggregated Google search data to estimate current flu activity in near real-time. Google has observed a close relationship between the number of searches for flu-related topics and the number of people that actually have the flu. The graph to the left shows the number of influenza related searches from SC for July 2010 to July 2011. Influenza related searches peaked in mid-February, the same time in which the most flu was seen nationally and in SC.

We promote and protect the health of the public and the environment.

Bureau of Disease Control
Division of Acute Disease Epidemiology
1751 CALHOUN ST
COLUMBIA, SC 29201
PHONE: 803-898-0861
FAX: 803-898-0897

SC Influenza Surveillance

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 CHESS or using a DHEC 1129 card. To learn more about CHESS 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

- **Viral isolate network:** Participating providers receive culture media, packaging, processing and shipping labels in order to submit a subset of specimens to the BOL.
- **Outpatient influenza-like illness surveillance network (ILINet):** ILI is defined as fever (temperature of $\geq$100°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.

If you have questions about South Carolina influenza surveillance, please contact:
Chasisity Springs, MSPH
Influenza Surveillance Coordinator
Telephone: 803-898-0870
Fax: 803-898-0897
Email: springcb@dhec.sc.gov

This report contains data collected via SC's mandatory and voluntary surveillance components. Data current as of July 2, 2011 and are subject to change.