



# South Carolina 2009-10 Influenza Season Summary Report

## 2009-2010 Influenza Season in Review

What should have marked the end of a rather uneventful 2008-09 influenza season actually proved to be the start of the 2009 H1N1 pandemic. This new bug came to town in April, 2009, a time when influenza cases are typically dwindling in number. Unlike the typical H1N1 or H3N2, this new pandemic influenza virus was more severe in younger persons than in the elderly. Novel H1N1 persisted throughout the summer and ushered the 2009-10 season in with a bang. The influenza season peaked during early October and November. However, by mid February, which would typically mark the season's peak, the number of positive cases had decreased dramatically. The inconsistencies did not end there. 2009 H1N1 was the predominant circulating strain throughout the entire season. Very few cases of seasonal influenza H1N1, H3N2, and B were identified throughout the season.

### SC Influenza Surveillance At a Glance

#### Mandatory reporting

- Positive influenza culture, RT-PCR, DFA, and IFA
- Positive rapid antigen tests
- Lab confirmed influenza hospitalizations
- Lab confirmed influenza deaths

#### Voluntary reporting

- Viral isolate network
- Outpatient influenza-like illness surveillance network
- Syndromic surveillance

From October 4, 2009 to June 26, 2010, SC had a total of 904 positive influenza labs (culture and PCR) reported by the Bureau of Laboratories (BOL) and other commercial and clinical labs. One influenza B was identified. All other positive specimens were 2009 H1N1 (90%) and untyped influenza A (9.8%) viruses. During this time, there were 1,091 lab confirmed hospitalizations and 49 lab confirmed deaths in SC. Influenza-like illness activity peaked at 7.77% right at the start of the season.

The trends observed in SC were similar to those seen nationally. More than 74% of specimens tested by WHO and NREVSS labs were 2009 H1N1. Another 25% were influenza A viruses that were either untyped or unsubtypeable. Less than 0.5% of positive specimens were seasonal H1N1, H3N2, and B.

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

### Inside this issue:

Summary	1
Laboratory reporting	2
ILINet reporting	3
Rapid test reporting	4
Hospitalization reporting	4
Death reporting	4
SC Surveillance components	5
National surveillance data	6
Google Flu Trends	6

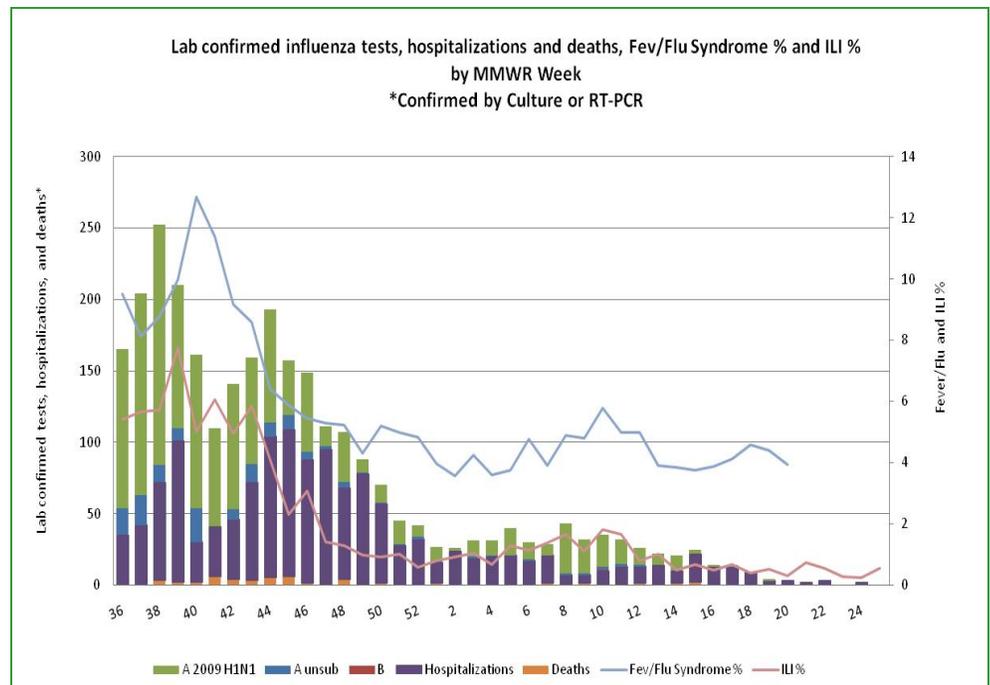


Figure 1

## Laboratory reporting

Figure 3: Reported positive isolates by age group (SC)

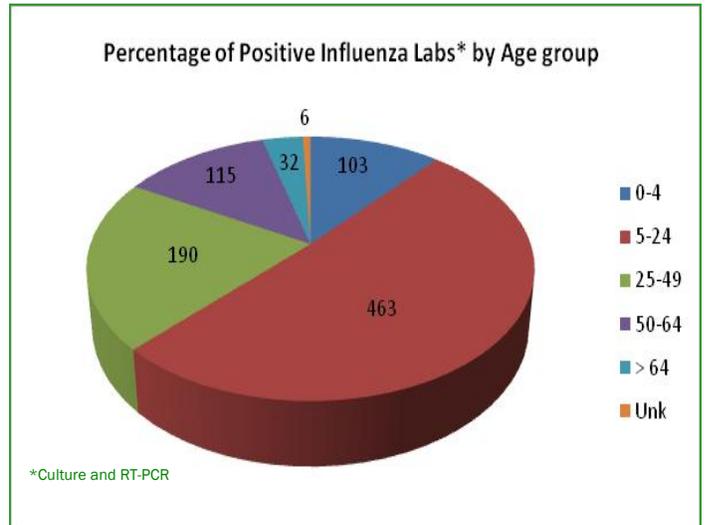
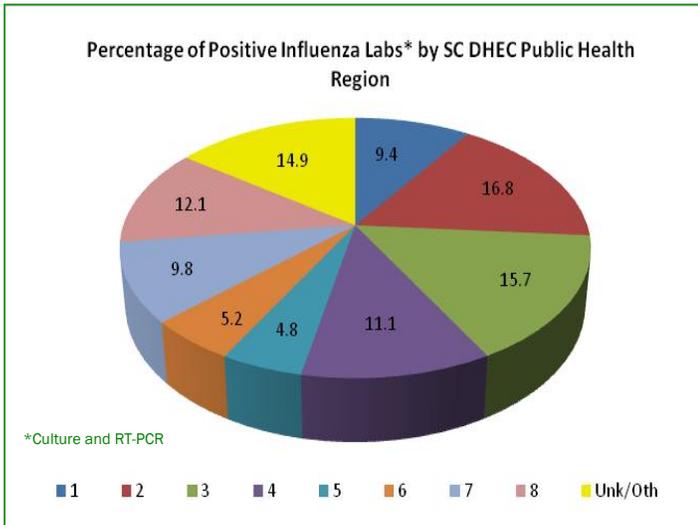


Figure 2: Reported positive isolates by SC DHEC public health region

In SC, laboratories are required to report positive influenza cultures, RT-PCRs, DFAs, and IFAs. RT-PCR, DFA, and IFA were added to the SC List of Reportable Conditions in 2010. Reports are received from the BOL and from commercial and clinical laboratories.

In addition, there is a voluntary network of approximately 100 physicians who submit specimens for viral culture testing by the BOL.

From October 4, 2009 to June 26, 2010, the BOL tested 2,378 specimens. Of these, 545 (22.9%) were positive. Commercial and clinical labs do not report the total number of specimens tested. However, 360 positive specimens were reported by these labs from October 4 to June 26. All subtyped influenza A specimens reported by the BOL and other labs were 2009 A H1N1. The BOL identified one influenza B.

The percentage of positive isolates by SC public health region is presented in Figure 2. Figure 3 shows the percentage of positive isolates by age group. The distribution of reported positive culture and RT-PCR specimens by MMWR week is presented in Figure 4.

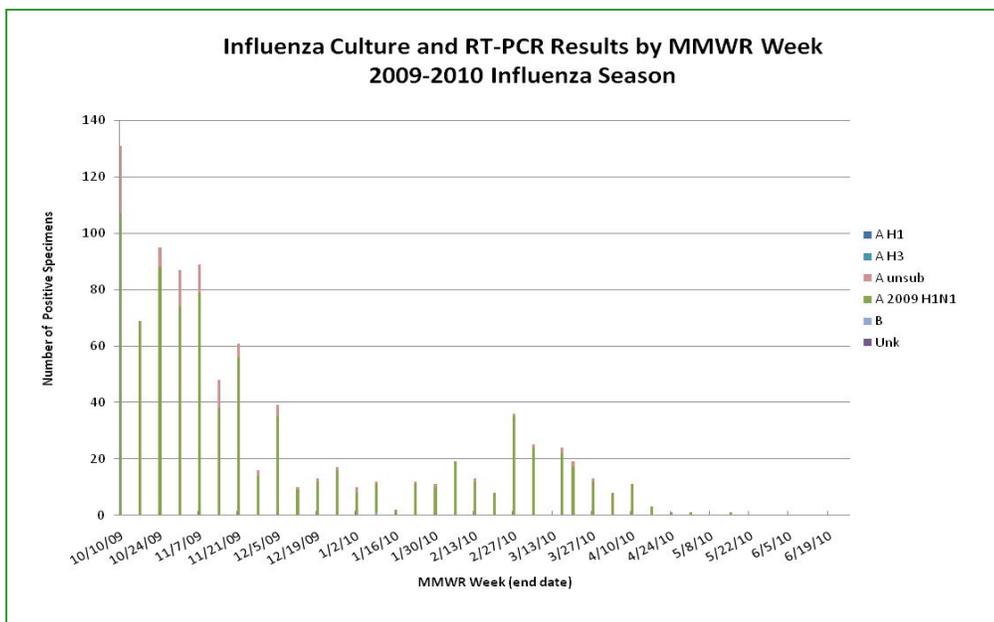


Figure 4: Reported positive isolates by MMWR week (N=904)

*“In April 2009 we experienced the first new pandemic influenza virus since 1968—a distant relative of the same A H1N1 “Spanish Flu” virus that attacked the world in 1918-1920.”*

*Dr. Jerry Gibson,  
State Epidemiologist*

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

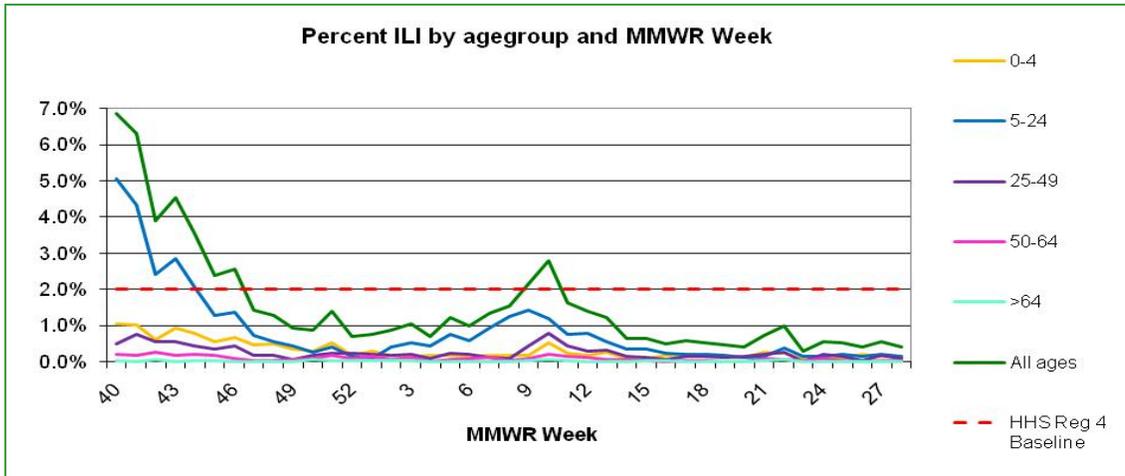


Figure 5: Percent ILI by age group and MMWR week

During the 2009-10 influenza season, an average of 70 providers were enrolled in ILINet. Providers may enroll or de-enroll at any point during the season. Forty seven providers (67%) reported at least once during the season. Twenty three (32.9%) providers reported at least half of the season (19 weeks).

Sentinel providers reported 318,341 total patient visits. 5,306 of these visits were for ILI. Of these, 1,061 reports were in 0-4 yr olds, 3,048 in 5-24 yr olds, 859 in 25-49 yr olds, 281 in 50-64 yr olds and 57 in individuals older than 64 yrs. The age distribution for ILI visits by MMWR week is presented in Figure 5.

Of the total visits for ILI, 30.4% were in student health centers, 24.8% in pediatricians' offices, 23% in urgent care centers, 18.1% in family practice centers, 3% in emergency medicine facilities, and less than 1% in internal medicine clinics. Figure 6 compares the 2008-09 and 2009-10 ILI percentages by MMWR week.

The hospital ED syndromic surveillance system classifies ED chief complaint data into appropriate syndrome categories. The fever-flu syndrome is compared to ILINet data.

Figure 7 compares the fever-flu percentage and ILI percentage from May 2009 to June 2010 by MMWR week.

Figure 6: Percentage of visits for by MMWR Week 2008-09 vs. 2009-10

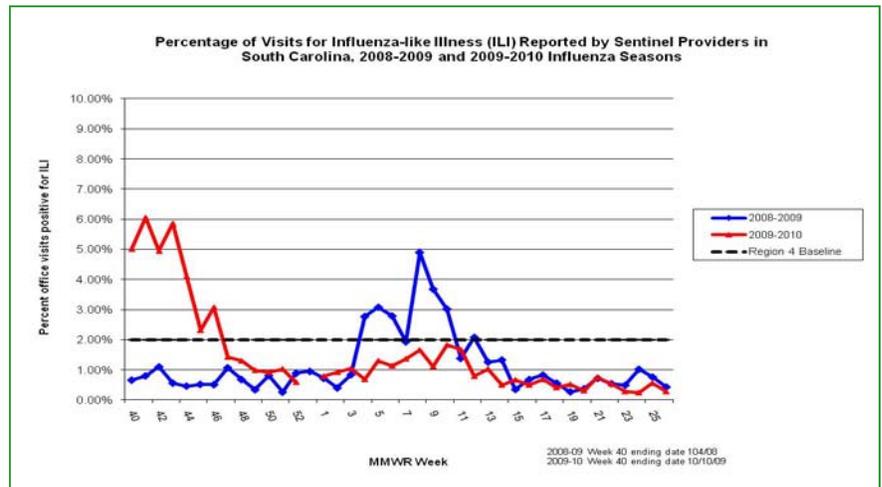
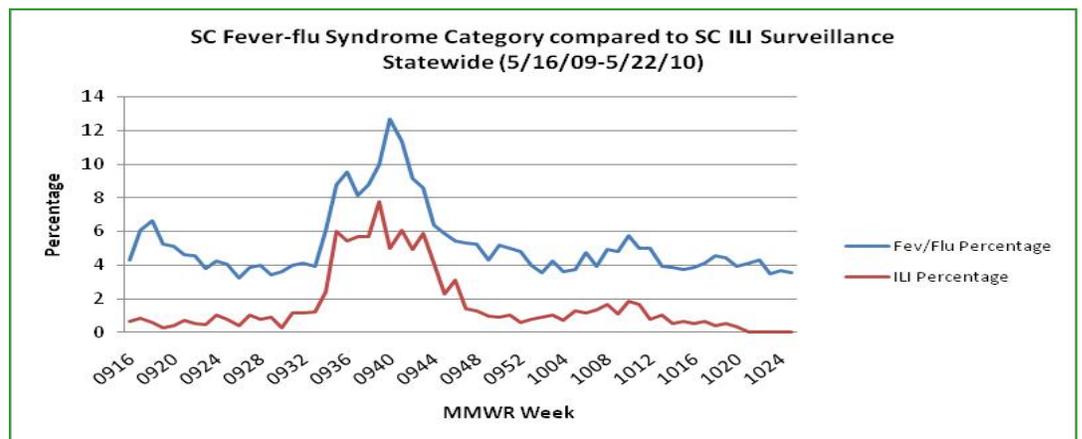


Figure 7: Fever-flu syndrome compared to ILI Percentages by MMWR Week



*ED syndromic data helps describe the population of individuals with ILI symptoms that visit SC hospital emergency rooms.*

## Rapid antigen test reporting

In SC, positive rapid antigen tests are reportable. Providers report the total number of patients with positive rapid tests by flu type. A total of 21,823 positive rapid antigen tests were reported from October 4, 2009 to June 26, 2010. This compares to 23,610 for this time period during the 2008-2009 influenza season. Ninety three percent of the positive rapid tests reported in 2009-10 were influenza A.

Figure 8 shows the total number of positive rapid antigen tests by type for the 2008-09 and 2009-10 seasons. These data are from the start of both seasons, MMWR week 40. through MMWR week 25.

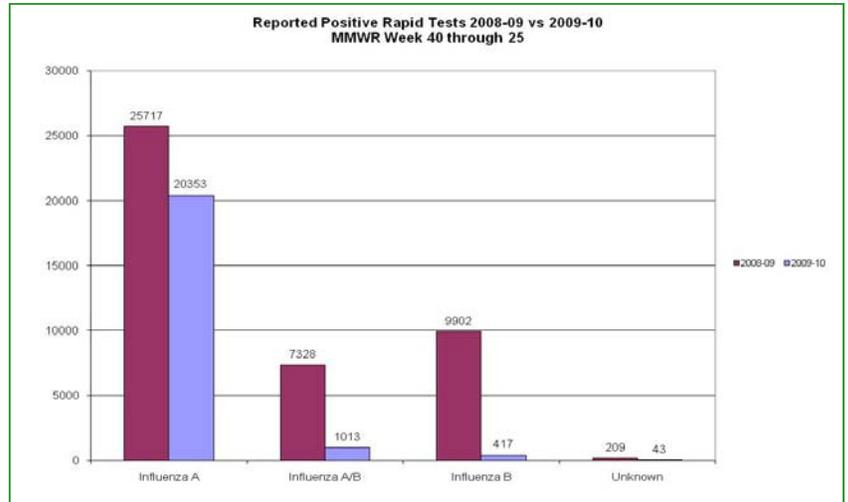


Figure 8: Positive rapid tests 08-09 vs. 09-10 (SC)

## Laboratory confirmed influenza hospitalizations

Laboratory confirmed influenza associated hospitalizations are reportable within 7 days. Laboratory confirmation includes culture, RT-PCR, DFA, IFA, and rapid test. From September 1, 2009 to June 26, 2010, 1,091 lab confirmed influenza hospitalizations were reported.

Nearly 22% of these were in children under the age of 5. The number of weekly influenza hospitalizations peaked at 103 during the first week of the season. Figure 9 shows the distribution of hospitalizations and deaths by MMWR week. The case rate by age group is shown in Figure 10. The 0-4 year old age group had the highest hospitalization rate (78.21), followed by 5-18 year olds (22.49).

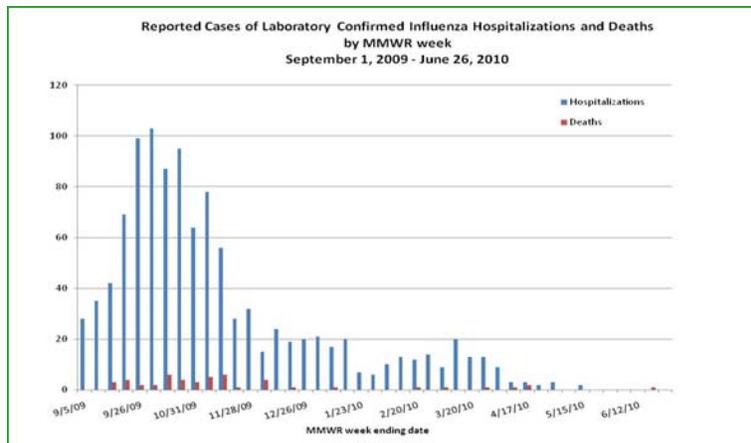
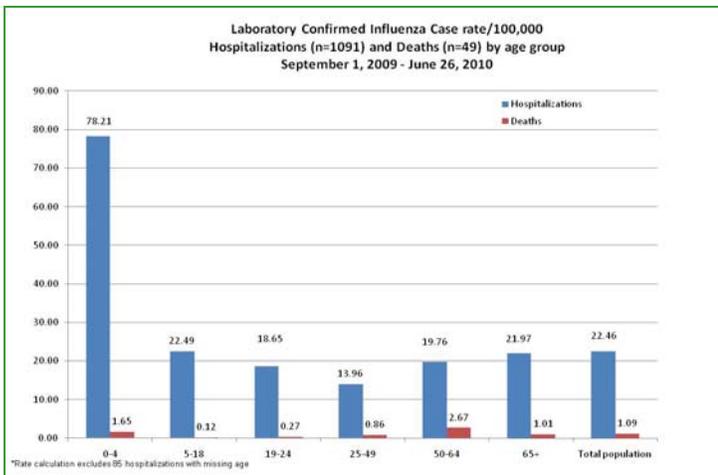


Figure 9: Lab confirmed hospitalizations and deaths by MMWR week 2009-10 (SC)

*Lab confirmed influenza deaths (by name) were added to the 2009 List of Reportable Conditions. Lab confirmed hospitalizations (aggregate totals) were added to the 2010 List.*

Figure 10: Lab confirmed hospitalization and death case rate 2009-10 (SC)



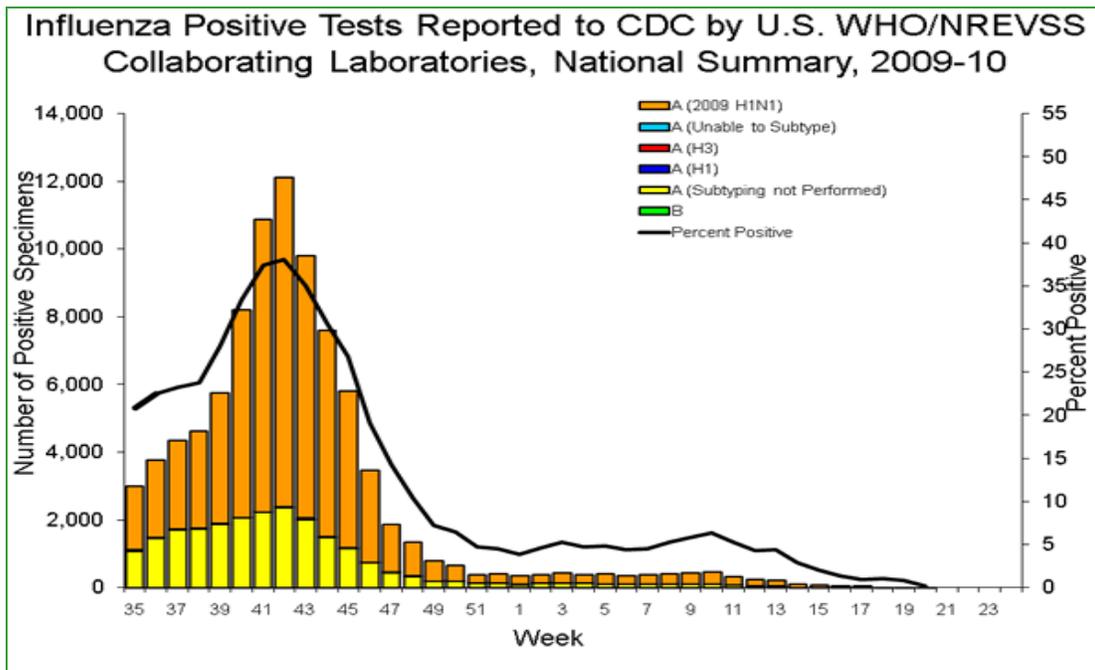
## Laboratory confirmed influenza deaths

Laboratory confirmed influenza associated deaths in all age groups are reportable within 7 days. Laboratory confirmation includes culture, RT-PCR, DFA, IFA, rapid test, or autopsy results consistent with influenza. From September 1, 2009 through June 26, 2010, 49 influenza associated deaths were reported. The majority (46.9%) of these were in adults age 50-64 years. Another 26% of deaths occurred in adults age 25-49. Figure 10 shows the hospitalization and death case rate by age group. The death case rate was highest (2.67) in the 50-64 age group. The 0-4 age group had the second highest case rate (1.65).

## National Influenza Surveillance Data

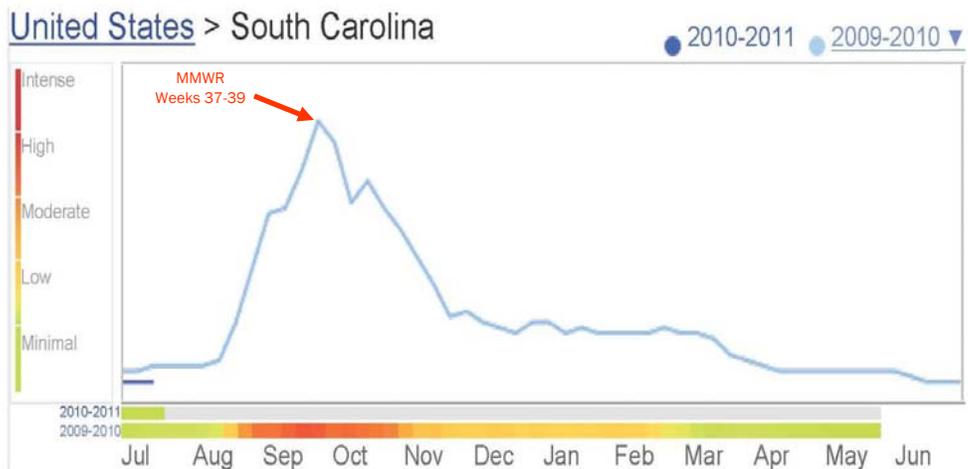
Nationally, 90,235 positive influenza specimens were reported from August 30, 2009 to May 22, 2010. Of these, the overwhelming majority, 66,873 (74.1%) were 2009 A H1N1. There were an additional 22,613 (25.1%) influenza A for which subtyping was not performed and 287 (.32%) influenza A that were unsubtypeable. There were 34 seasonal influenza A (H1N1), 71 A (H3N2), and 357 B. Two hundred and seventy six pediatric deaths were reported. From August 30, 2009 – April 3, 2010, 41,914 laboratory-confirmed influenza-associated hospitalizations and 2,125 laboratory-confirmed influenza-associated deaths were reported to the CDC. The graph below shows positive specimens identified by WHO and NREVSS labs from September 2009 through May 22, 2010.

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



## Google Flu Trends

Google launched a new tool which compared internet searches for flu-related topics with traditional flu surveillance systems. A close relationship between the number of people searching for flu-related topics and the number of people that actually have flu symptoms was observed. The graph to the right shows the trend of influenza related Google searches in SC for July 2009 to June 2010. July 2010 is also shown. Influenza related searches peaked from September to November, which coincides with the period in which the most influenza activity was observed nationally and locally.



# South Carolina Department of Health and Environmental Control

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

National and statewide influenza surveillance systems are used to describe geographic and temporal trends. These data give us a picture of where and when influenza is circulating as well as the types and strains that are circulating. It does not tell us how many people have influenza because not everyone that has influenza goes to the doctor or gets tested. In South Carolina, influenza surveillance consists of several mandatory and voluntary components. These influenza surveillance components are complementary and together provide useful information about influenza activity in SC.

### **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) 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  $\geq 100^{\circ}\text{F}$ ) 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 Influenza Surveillance Continues

The emergence of 2009 H1N1 prompted a swift and coordinated response by many. As a result, several new surveillance efforts were initiated on national and local levels. Some of these have been incorporated into routine surveillance, while others were only sustainable for a brief period. Locally, tremendous efforts were put forth by many individuals within SCDHEC and in external partner agencies.

Through special funding, SC was able to hire an H1N1 surveillance coordinator for each public health region and one for central office. Most of these dynamic individuals have moved on; however, their contributions will not be forgotten.

Special thanks to all who were involved in the 2009 H1N1 response and to those that may not have been directly involved, but whose contributions were also invaluable.

Even though influenza appears to have taken a break for the summer, surveillance efforts in SC continue. The identification of outbreaks of H3N2 during June and July in several states (<http://www.scdhec.gov/health/disease/han/docs/HAN-20100805-02.pdf>) highlights the importance of year-round influenza surveillance. The 2010-11 season officially begins on October 3, 2010.

For information on what and how to report: <http://www.scdhec.gov/administration/library/CR-009025.pdf>.

*If you have questions about South Carolina influenza surveillance, please contact the influenza surveillance coordinator, Chasisity Springs, MSPH*

*Telephone: 803-898-0870*

*Fax: 803-898-0897*

*Email: [springcb@dhec.sc.gov](mailto:springcb@dhec.sc.gov)*

This report contains data collected via SC's mandatory and voluntary surveillance components. Data current as of June 2010 and are subject to change.

Find us on the web: [www.scdhec.gov/health/disease/acute/flu.htm](http://www.scdhec.gov/health/disease/acute/flu.htm)