

## H1N1 Testing in America: End of the “Second Wave?”

Quest Diagnostics, the world’s leading diagnostic testing company, is uniquely positioned to provide insights into the impact of the 2009 H1N1 influenza virus (H1N1) on Americans. Quest Diagnostics is the only company in the U.S. that performs H1N1 laboratory testing and, through its Focus Diagnostics business, provides two H1N1 test kits that the FDA has authorized for emergency use by other qualified molecular laboratories.\*

In this Quest Diagnostics Health Trends™ Report, we summarize analyses of de-identified data from five of our laboratories that perform H1N1 flu testing. Our H1N1 tests, first released on May 11, 2009, report whether a patient’s specimen is positive for influenza A and/or H1N1. Our analysis supplements CDC reporting: [cdc.gov/flu/weekly/](http://cdc.gov/flu/weekly/).

The report that follows is based on 100 percent of our testing volume up until the seven days ending Wednesday, December 2, 2009, and about 95 percent of our testing volume for the seven days ending Wednesday, December 9, 2009. Weeks ending July 8, September 9, and December 2 include one holiday when testing volumes were reduced.

*\*These H1N1 tests have not been FDA cleared or approved. These H1N1 tests have been authorized by FDA under an Emergency Use Authorization (EUA). These H1N1 tests are only authorized for the duration of the declaration of emergency under section 564(b)(1) of the Act, 21 U.S.C. § 360bbb-3(b)(1). The declaration of emergency will expire on April 26, 2010, unless it is terminated or revoked sooner or renewed.*

### End of “Second Wave” of H1N1 Virus Activity May Be in Sight

Influenza viruses often circulate in waves of activity. Based on the company’s test data, two major waves of H1N1 influenza virus activity have affected the U.S. since the H1N1 virus was identified in the U.S. in late April.

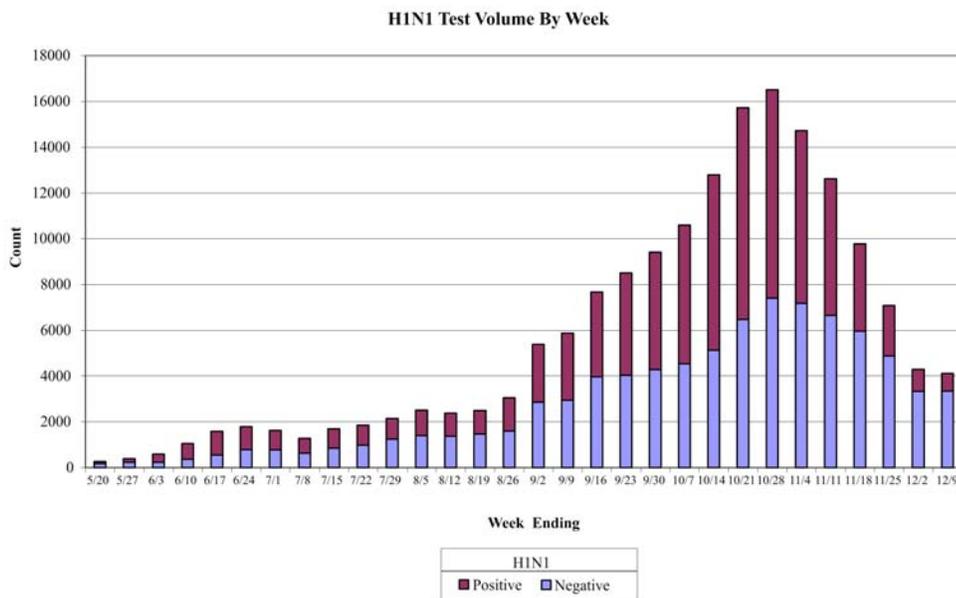
As the graphic below indicates, the first wave started in early May, following the discovery of the virus in the U.S. A second wave began in late August and peaked the week ending October 28. Between this peak week and December 9, testing rates fell by 75 percent. In the most recent week reported, December 9, testing rates were equivalent to volumes experienced in late August, when the second wave began.

The second wave was the most dramatic in terms of increased testing demand. It coincided with the beginning of the school season, when children across the U.S. congregated in classrooms – presumably passing the virus between one another and, eventually, family and other members of the community.

We have tested close to 170,000 de-identified patient specimens for the 2009 H1N1 influenza virus in the U.S. between May 11, 2009 and December 9, 2009. Our test data does not provide the basis for identifying the factors driving the recent decline in testing demand, although several possible explanations exist. These include previous infection of tens of millions of Americans with this influenza virus as well as H1N1 vaccinations, which have reduced the number of susceptible patients, and changes in physician test-ordering practices.

Our analysis also found that positivity rates have declined. About half of the total number of specimens tested to date has been positive for H1N1. By comparison, about 44 percent of specimens tested in November were positive for H1N1. For the first two weeks ending December 9, only 21 percent of specimens tested were positive for H1N1.

Nonetheless, the continued demand for H1N1 testing, coupled with the predominance of H1N1 over other influenza A strains – more than 98 percent of positive influenza A specimens tested were positive for H1N1 – indicate that H1N1 continues to be the predominant circulating influenza strain and a potential source of illness in the U.S.

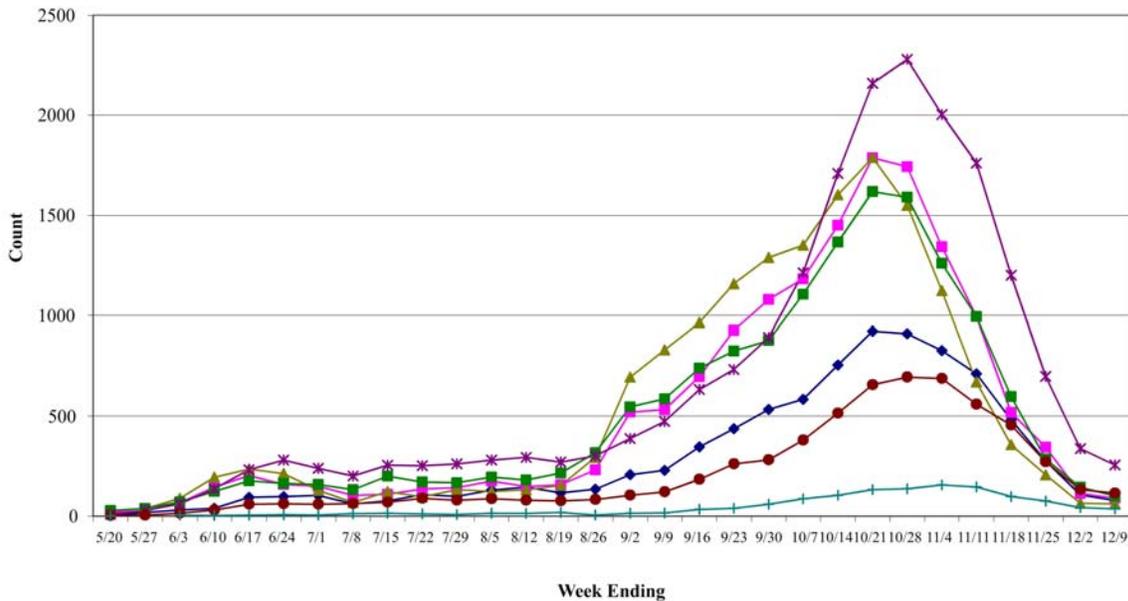


## Nearly Four in Ten School-age Kids Tested is Positive for H1N1

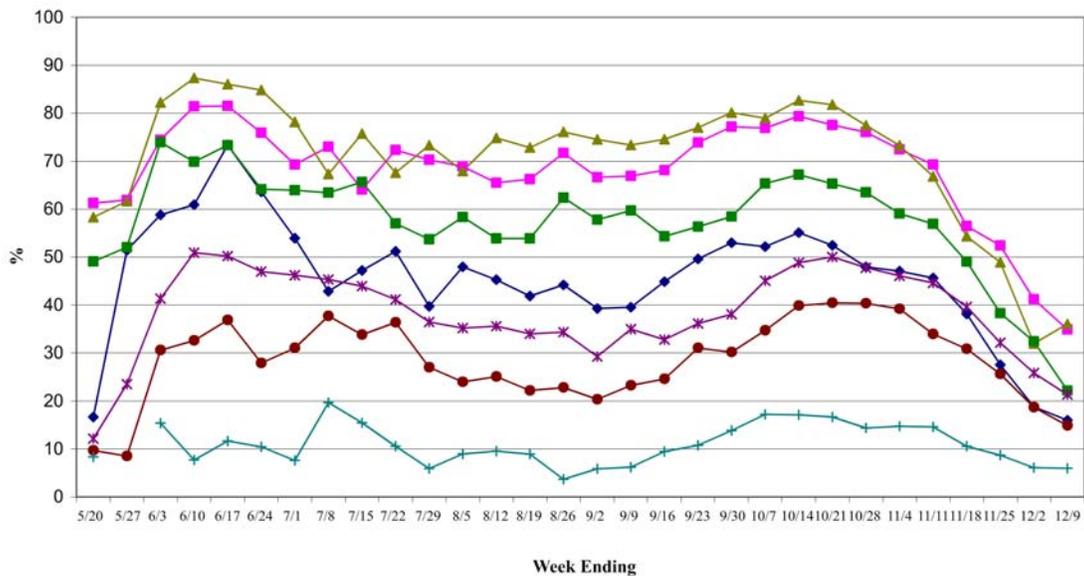
As school resumed across the nation in late August and early September, children ages five to 14 experienced a sharp increase in positive H1N1 results, according to our test data. As the first graphic below indicates, positive cases among adults and pre-school age children then increased – consistent with the behavior of past influenza viruses, which often spread from school children to the larger community. Yet, since the peak in late October, the number of specimens that tested positive for 2009 H1N1 influenza dropped in all age groups.

Positivity rates have also declined across all age groups. As the second graphic below indicates, children ages five to 14 continue to experience the highest percentage of H1N1 positive test results compared to negative results, with a positivity rate close to 40 percent. By comparison, nearly 80 percent of children in this age group tested positive for the virus in late October.

H1N1 Positive Cases by Age Group



Positivity Rate of H1N1 by Age Group



## H1N1 Positive Test Results Drop Nationally

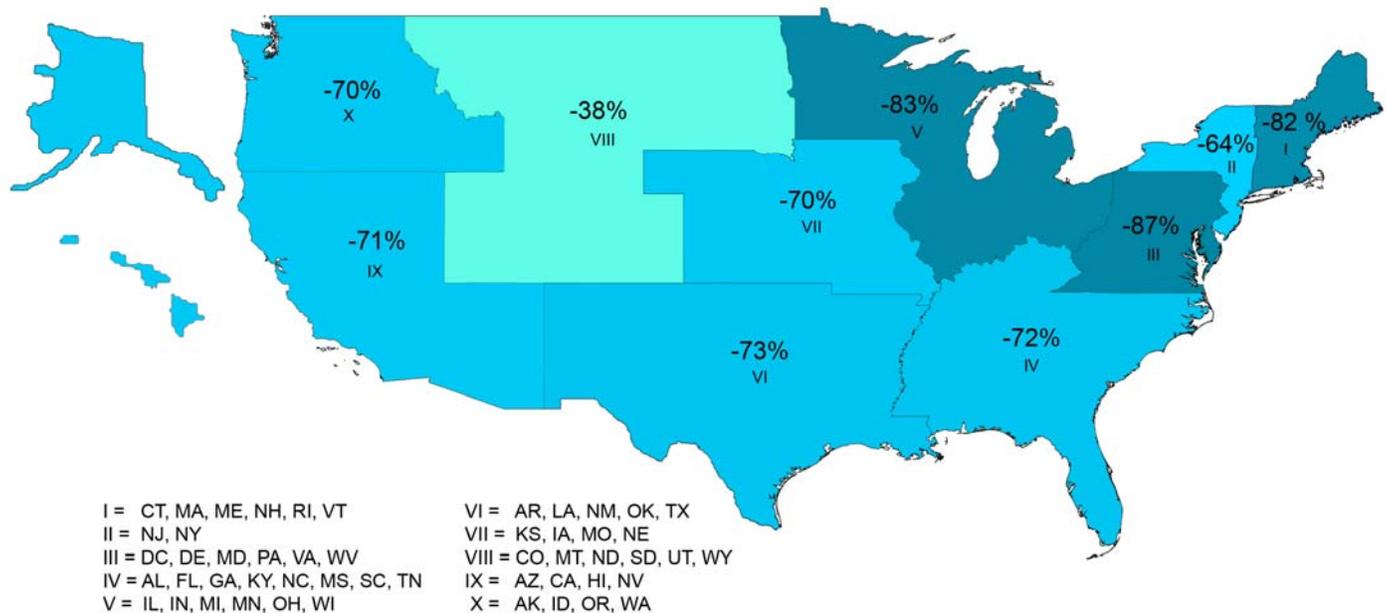
As the map below suggests, the number of positive test results for H1N1 has declined in recent weeks across the U.S. Every region but one experienced declines of 60 percent or more in positive test results during the two weeks ending December 9 compared to the two weeks ending November 25.

The most striking decline in positive test results occurred in the region comprised by Pennsylvania, Maryland, Delaware, the District of Columbia, and Virginia and West Virginia (region III on the map) where testing rates fell 87 percent during the two weeks ending December 9 compared to the prior two week period.

Our regional analysis is limited by our study's size: While most regions included thousands of specimens, regions VIII and X reflect results of fewer than 100 specimens tested in the most recent two weeks. In addition, our regional analysis depends on the availability of patients' geographic locations, and is based on approximately 85 percent of our total data.

Regional differences may be due to factors that include differences in test ordering practices by physicians and hospitals as well as changes in the spread of the virus. The declines across every region give further evidence that the second wave of H1N1 activity may be nearing a conclusion.

The regions characterized below are based on regional breakdowns provided by the U.S. Department of Health & Human Services. For more information, please refer to: [www.hhs.gov/about/regionmap.html](http://www.hhs.gov/about/regionmap.html).



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