



Maryland Influenza Surveillance Report

2008-09 Influenza Season Summary

SYNOPSIS:

- The 2008-09 influenza season ran from September 28, 2008, to May 23, 2009.
- The **peak level of activity** was observed **between February 15 and March 7, 2009.**
- About **5,800 visits for ILI** were reported by sentinel providers from over 127,000 visits.
- About **5,400 lab-confirmed cases** were reported by collaborating laboratories from over 40,000 tests performed.
- About **500 hospitalizations** for influenza were reported by participating hospitals.
- Type B influenza and Type A (H1N1)-Seasonal influenza were the predominant strains this flu season. Type A (H1N1)-"Swine" influenza appeared toward the end of the regular flu season and, as of this report, accounted for about 10% of all isolates reported by the DHMH Laboratories Administration.

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INTRODUCTION

Influenza surveillance in the State of Maryland consists of the systematic collection of influenza-related data from different sources. In reading this report, please keep in mind several characteristics of our surveillance system. First, the true number of cases is unknown. We include results from laboratory testing (confirmed cases), but most people with influenza will not seek medical care and will not have a lab test done. Second, our system collects only limited information about severity of illness. The severity of influenza infection is based on many factors, like an individual's health status and access to health care, and the viruses' genetic makeup. Nevertheless, our tracking of hospitalizations and pediatric deaths helps us gauge, to some extent, the virulence of the circulating influenza viruses. The surveillance systems used in Maryland are:

- The **U.S. Outpatient Influenza-like Illness (ILI) Surveillance Network (ILINet)** collects information from over 2,400 sentinel providers across the nation. In Maryland, 20 sentinel providers submitted reports on the number of visits they received every week for ILI.
- The **Maryland Resident Influenza Tracking Survey (MRITS)** is a weekly survey where Maryland residents can report any flu-like symptoms. This system is aimed at assessing the incidence of ILI in a population that would otherwise not have contact with the healthcare system.
- A **network of 36 clinical laboratories** reports the number and results of rapid influenza tests performed on a weekly basis. The total number of tests gives a good estimate of the number of visits to that site for ILI, while the proportion of positives indicates when influenza is circulating and how many cases there are.
- The **Maryland Department of Health and Mental Hygiene (DHMH) Laboratories Administration** performs viral testing on specimens submitted from local health departments, hospitals, physicians' practices, clinics, and other sources. These tests include real-time PCR and viral culture, considered the "gold standard" in influenza testing. Specimens of interest are forwarded to the Centers for Disease Control and Prevention (CDC) for further testing if necessary.
- The **Division of Outbreak Investigation** receives reports of institutional outbreaks of influenza. Although influenza is not a reportable condition, outbreaks in hospitals, schools, long-term care facilities, and other such institutions are reportable in Maryland.
- The **Emerging Infections Program (EIP)** collected information from 21 participating hospitals in the Baltimore Metropolitan Region on the number of hospitalizations associated with influenza.
- The Office of Preparedness and Response (OP&R) also conducts ILI surveillance by looking at data entered into the **Electronic Surveillance for the Early Notification of Community-based Epidemics (ESSENCE)**.
- Baltimore City reports **deaths associated with pneumonia and/or influenza** each week, along with 121 other cities in the U.S.

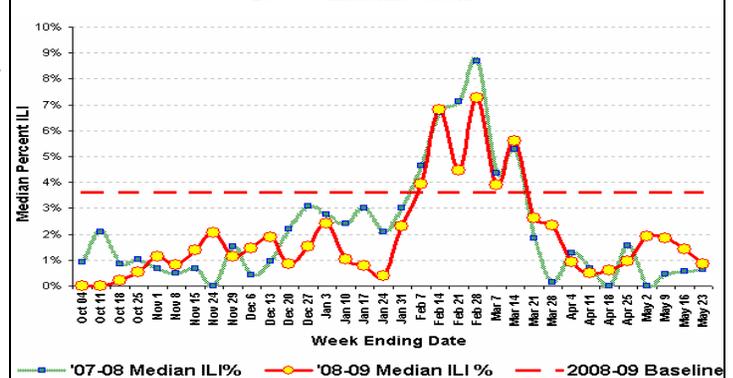
U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet)

During the 2008-09 influenza season, 20 sentinel providers actively participated in reporting the number of visits for ILI at their practices. A total of 5,766 visits for ILI were reported during the 2008-09 influenza season from a total of 126,967 total visits to sentinel providers.

The 5-24 age group accounted for 37% of ILI visits, followed by the 25-64 age group with 33% of ILI visits, then the 0-4 age group with 19% of ILI visits, and the over 65 age group with 11% of ILI visits.

The median percent of ILI visits was above the 3.6% baseline for six weeks between February 1 and March 14, 2009.

Median percent of visits to sentinel providers in Maryland by week, 2007-08 and 2008-09 influenza seasons.



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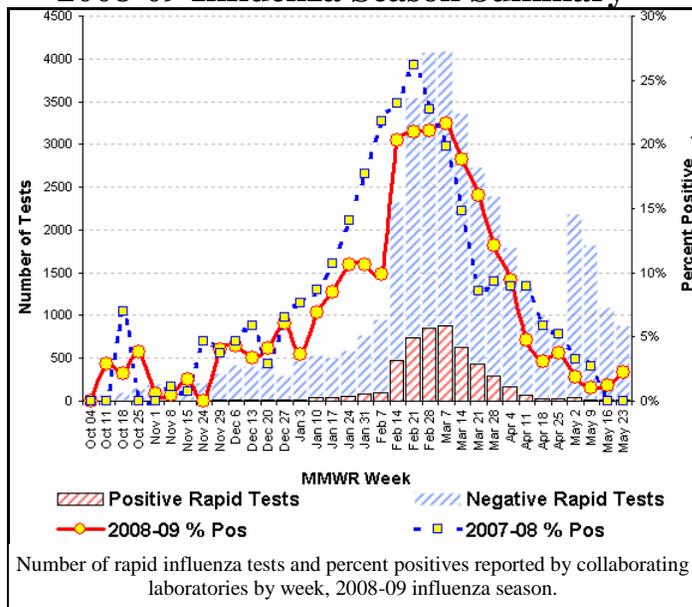
Reports From Sentinel Laboratories

A total of 36 laboratories actively participated in influenza surveillance during the 2008-09 season. These laboratories reported that 40,177 rapid tests were performed, including 5,118 (13%) positive results.

Type A influenza was detected in 18% of these samples; type B influenza in 12%. About 70% of the samples were not typed by the rapid influenza tests. The peak number of tests performed and positives detected was reported between February 15 and March 7, 2009. The peak percent positive of rapid tests was 22% on the week ending March 7, 2009.

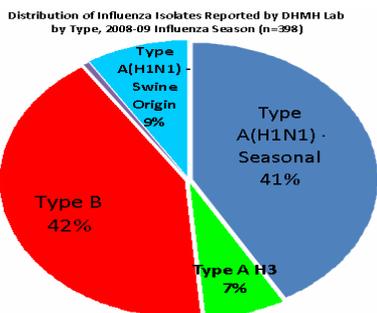
For purposes of influenza surveillance, positive rapid influenza tests are counted as lab-confirmed cases only after DHMH Laboratories report a positive influenza test by PCR and/or viral culture. This is because the positive predictive value (accuracy) of the rapid tests vary with the prevalence of the virus in the community. That is, when there is a low level of virus, more positive rapid tests will be false-positives. When there is a high level of virus, more positive rapid tests will be true-positives.

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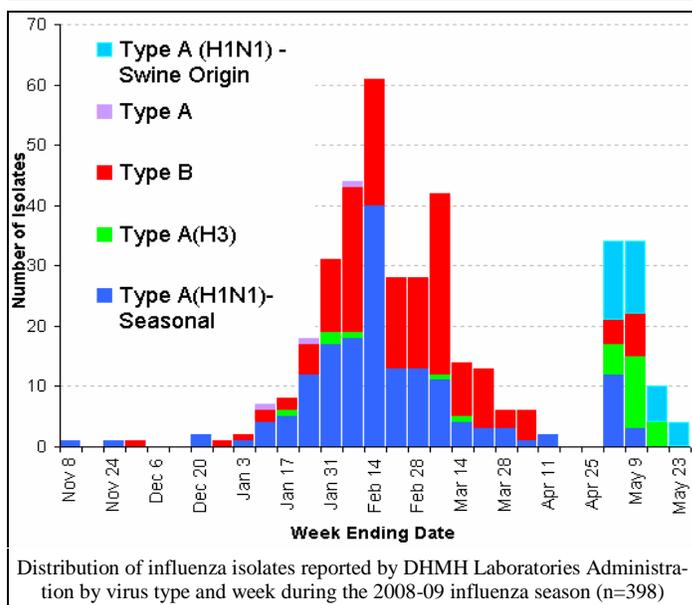


Reports From DHMH Laboratories Administration

A total of 1,323 PCR and/or viral culture tests were reported performed by the DHMH Laboratories Administration. Of these, 398 (30%) were positive. Among the positives, 167 (42%) were type B and 166 (41%) were type A(H1N1)-Seasonal. Type A(H1N1)-Swine Origin isolates began to appear on the week ending May 2, 2009.



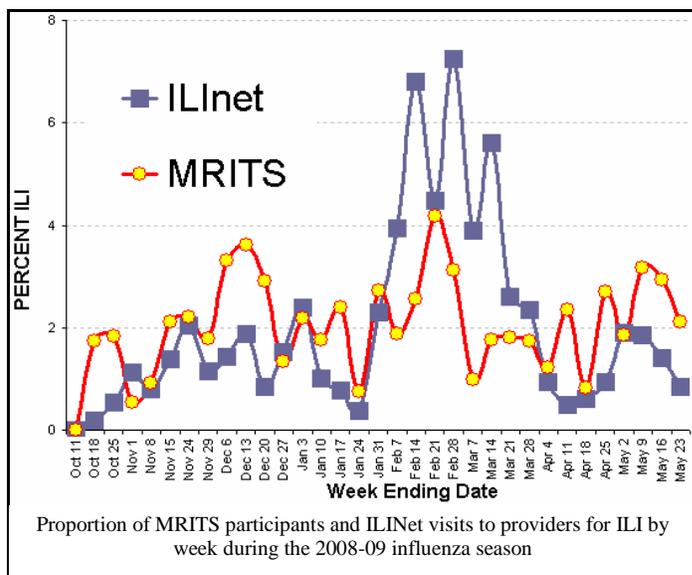
Distribution of influenza isolates by type reported by DHMH Laboratories Administration during the 2008-09 influenza season (n=398)



Maryland Resident Influenza Tracking Survey

A total of 695 Maryland Residents signed up to participate between October 5, 2008, and May 23, 2009. Participants were from every county in Maryland and Baltimore City. The average age of participants was 45 years (median 45 years), with some participants as young as 1 year of age and as old as 81 years of age. Over 45% of participants responded every week. A total of 182 (26%) participants reported flu-like symptoms at one or more points in the flu season. Collectively, those reporting flu-like symptoms reported missing 379 days of regular daily activities, like going to school or work, and 59 (32%) of those with flu-like symptoms reported seeking medical care.

The weekly percent of participants with flu-like illness followed the ILINet percent ILI closely, rising and falling in a near-parallel manner. The peak percent of MRITS participants reporting flu-like illness occurred during the week ending February 21, 2009. Similarly, the peak percent of ILI visits to sentinel providers occurred a week later, during the week ending February 28, 2009. Proportions of ILI among MRITS participants declined as the season progressed and then increased again with the onset of the H1N1 "Swine" flu.



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Emerging Infections Program (EIP) Reports

During the 2008-09 influenza season, a total of 499 hospitalizations were reported to by 21 participating hospitals. Of these, 241 (48%) were children under the age of 18 and 258 (52%) were adults.

The peak number of reported hospitalizations occurred during the week of March 7 to 13, 2009, with 79 hospitalizations.

Last season, 715 hospitalizations were reported by 21 hospitals. Of those, 199 (28%) were children under the age of 18 and 516 (72%) were adults. The peak during that season occurred about four weeks earlier than it did this flu season, when 100 hospitalizations were reported in one week.

FLU FACT:

Every year, **between 5% and 20%** of the U.S. population gets the flu, **an estimated 200,000** people are hospitalized with flu-related complications, and **about 36,000** people die from flu-related causes.

Division of Outbreak Investigation Reports

During the 2008-09 influenza season, a total of 35 outbreaks of respiratory disease were reported to the Division of Outbreak Investigation. Of these, 15 (43%) were outbreaks of pneumonia, 9 (26%) were outbreaks of influenza, 8 (23%) were outbreaks of influenza-like illness, and 3 (9%) were outbreaks of other respiratory conditions.

It must be noted that the six influenza outbreaks observed at the end of the season are associated with Type A(H1N1) - Swine Origin influenza, and were likely the result of enhanced surveillance for these cases in institutional settings such as schools.

Comparatively, during the 2007-08 influenza season, A total of 60 respiratory outbreaks in were reported. Of those, 29 (48%) were confirmed by lab testing as being caused by influenza. The other 31 (52%) were classified as ILI outbreaks only if influenza testing was unavailable. (Pneumonia outbreaks were not included in the analysis of the 2007-08 influenza season, but there were several reported.

\$4 trillion: World Bank Estimate Flu Pandemic Cost

ESSENCE ILI Reports

Surveillance of chief complaints from persons visiting emergency departments at hospitals participating in ESSENCE showed a peak in the percent of persons complaining of flu-like illness during the week ending February 28, 2009. That week, 4% of over 15,400 visits to participating Emergency Departments were for ILI.

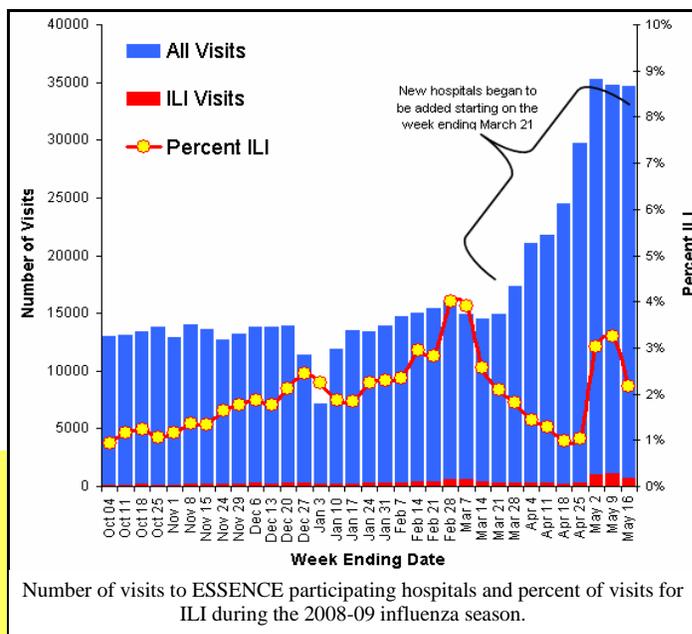
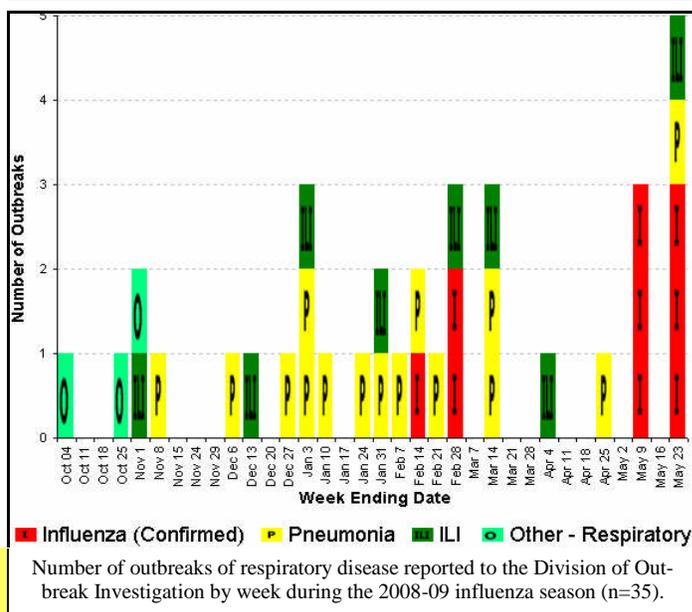
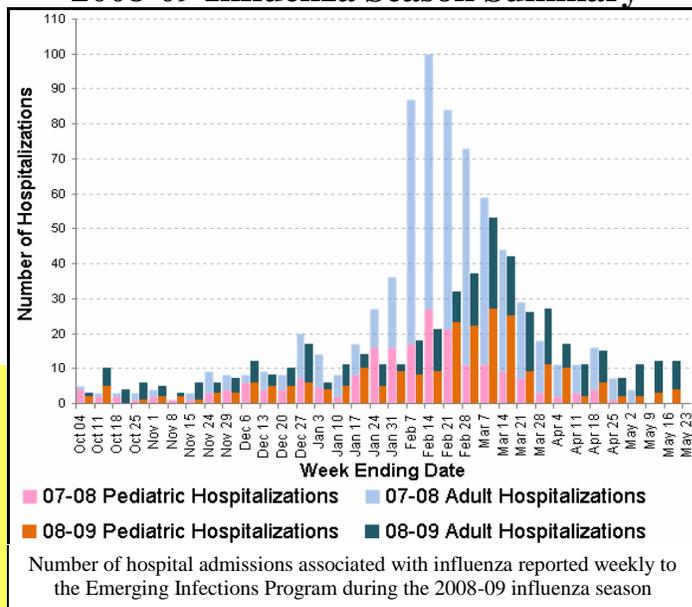
While the total number of visits and visits of ILI increased toward the end of the season, this was due to additional hospitals being included in the system. Also, the increase in the percentage of complaints of ILI toward the end of the season may be attributed to public concern over TypeA(H1N1) - Swine Origin influenza.

To read more about surveillance conducted by the Office of Preparedness and Response, please visit their web page at <http://bioterrorism.dhmd.state.md.us>.

FLU FACT:

You may be able to infect others beginning 1 day **BEFORE** you have flu symptoms and up to 5 days after becoming sick.

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**Division of Communicable
Disease Surveillance
Office of Epidemiology and
Disease Control Programs
Maryland Department of
Health and Mental Hygiene**

HEALTHY PEOPLE HEALTY COMMUNITIES

All information submitted to DHMH through the surveillance systems is voluntary. This information is used to estimate the geographic extent of flu activity, and not the virulence or pathogenicity of circulating viruses. This information is not intended for individual diagnoses.

ALL INFORMATION IS SUBJECT TO CHANGE AS MORE DATA IS SUBMITTED AFTER THE PUBLICATION OF THIS REPORT

If you have any questions about influenza surveillance in Maryland, or you would like to join our Influenza Sentinel Provider Network, please contact Rene F. Najera, MPH, Epidemiologist at the Division of Communicable Disease Surveillance in the Office of Epidemiology and Disease Control Programs.

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WE'RE ON THE WEB!!!

WWW.MARYLANDFLUWATCH.ORG

The Response That Will Not End

by Rene F. Najera, Flu Surveillance Coordinator

This is not the final flu report for the year, but it is a wrap-up of the influenza season that just ended. It is a good jump-off point as we head into the summer with the knowledge that H1N1 influenza ("Swine" Flu) is here to stay for the foreseeable future. It helps to put into perspective that, at the seasonal peak, over 900 lab-confirmed cases of influenza were reported to DHMH in just one week! And those are only the reported cases. Surely, there are many more that went unreported.

In last year's final flu report for the season, I wrote about how the world really is small after all. I wrote about how there are many countries that are lacking in infrastructure to address complex public health problems. One of those countries borders the United States. Mexico's experience with H1N1 influenza gave plenty of people in the U.S. sleepless nights and very long days, my colleagues at the Maryland Department of Health and Mental Hygiene (DHMH) and the 24 local health departments included.

During any regular flu season, one epidemiologist is enough to keep track of flu trends and report them to all who need to know. Beginning on April 24, 2009, many public health professionals were required to respond to H1N1 influenza,

around the clock, throughout the State. Many State agencies, like the DHMH Laboratories Administration, worked around the clock in their response. In fact, the lab folks deserve a lot of credit; they helped us know when the virus was here. The plans that have been in development for years were put into practice.

Many news sources have noted that the outbreak seems to be "subsiding" (<http://tinyurl.com/qrawlg>) or that the response is ending. Neither the outbreak nor our response to it have ended. Here at the Office of Epidemiology and Disease Control Programs, we continue to enhance and expand our influenza surveillance capabilities by recruiting sentinel providers, clinical laboratories, hospitals, and Maryland residents into our different surveillance systems. (For details of these systems, visit <http://marylandfluwatch.org>.) The systems that would usually wind down or stop around this time each year are now ready to function throughout the rest of the summer. Many divisions within DHMH will also continue to monitor this and many other public health challenges. And we will all continue to respond time and again to expected and unexpected challenges.

Google Flu Trends

A new and innovative system was launched by Google this flu season. The project analyzed terms used to search for flu information on the internet. Based on the terms used, computer engineers at Google were able to model (quite accurately) the level of flu activity in the country. They measured the peak at a similar point as our established surveillance systems, around the end of February.

