MARYLAND INFLUENZA SURVEILLANCE REPORT - FINAL

Prepared by the Division of Communicable Disease Surveillance, Office of Epidemiology and Disease Control Programs, Maryland Department of Health and Mental Hygiene.

- *The 2007-2008 Influenza Season peaked in Maryland sometime between February 10 and February 23*
- *Data from the Influenza Sentinel Provider Network showed that the 25 to 64 age group had the most number of office visits for influenza-like illness reported this season.*
- *The first season of the clinical laboratory surveillance network in Maryland mirrored other systems' findings.*
- *A total of 60 outbreaks of respiratory disease in institutional settings were reported to DHMH this season.*
- *A total of 808 hospitalizations associated with influenza were reported to the Emerging Infections Program (EIP) by 21 participating hospitals.*
- *The proportion of deaths in Baltimore from pneumonia and influenza was higher than data from the South Atlantic Region and the Nation, based on supplemental data from the 122 Cities Mortality Reporting System.*
- **All data collected helps estimate where and when influenza is active, not "how bad" is the circulating virus.**

MAY 26, 2008

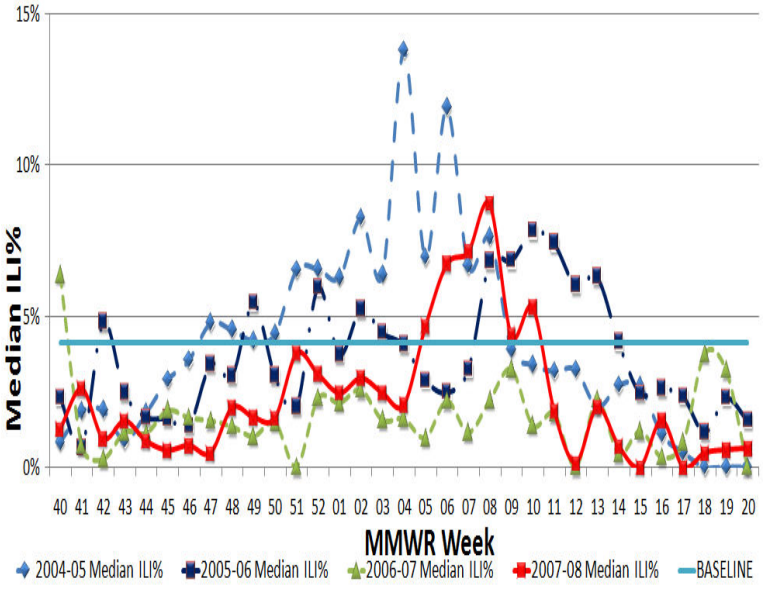
INSIDE:

INFLUENZA-LIKE ILLNESS (ILI) REPORTS

Approximately 2,400 health care providers in the US are part of the Influenza Sentinel Providers Surveillance Network run by CDC in cooperation with State Health Departments. Sentinel providers report the number of visits to their practices for ILI (fever and cough/sore throat). This data is used to estimate influenza activity based on the symptoms of patients who visit a health care provider but may not be tested for the flu.

This season, a total of 32 providers signed up to be sentinel providers in Maryland. Of these providers, 12 reported their information more than half of the weeks in the season. Five providers reported at least once during the season. The remaining 15 did not report.

A total of **5,176 visits for ILI were reported to DHMH** this season. Of these, **the 25 to 64 age group had the most visits at 1,982 (38.3%).** The peak number of ILI visits was reported on week 6 (Feb. 3 - Feb. 9) when 459 visits for ILI were reported by 13 Sentinel Providers. **The peak median ILI percent was observed on week 8 (Feb. 17 - Feb. 23)** when a median ILI of 8.7% was reported by 11 Providers.



Median ILI Percent by MMWR Week for the 2004-2005 to 2007-2008 Influenza Seasons in Maryland

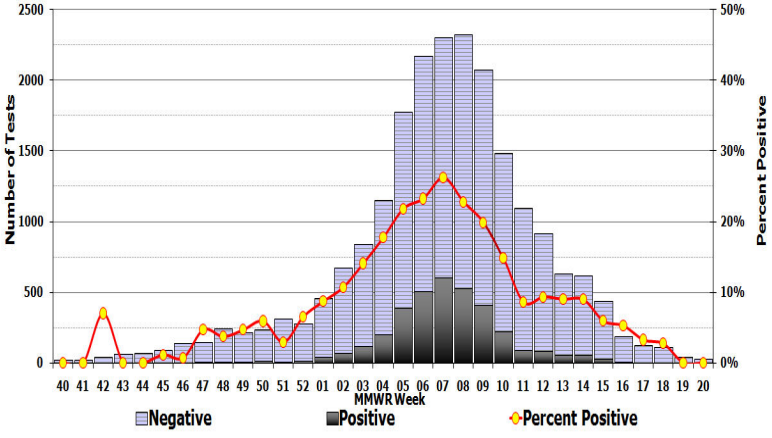
For more information on the Influenza Sentinel Provider Network, please visit http://www.cdc.gov/flu/weekly

LAB REPORTS - RAPID TESTS

A total of 32 clinical laboratories participated this year as sentinel laboratories. They provided information on results of rapid influenza antigen tests on a weekly basis. These tests are performed at clinical labs. Unlike reference tests, rapid tests have a lower level of accuracy in detecting influenza, and some do not differentiate between influenza types and/or sub-types.

Weeks 7 and 8 (Feb. 10 - Feb. 23) showed the greatest level of influenza activity according to this data. **The highest proportion of positive rapid tests, 26.2%, was observed on week 7**, while the highest number of tests performed, 2324, was observed on week 8.

All cases with positive rapid tests counted as confirmed cases after Dec. 4, 2007.



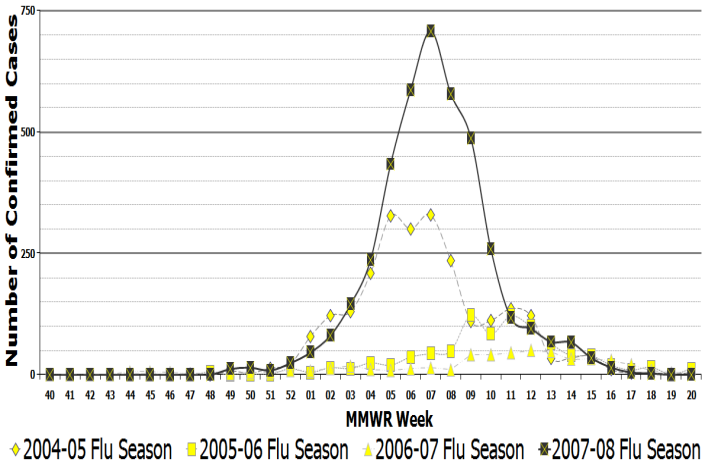
Number of Rapid Influenza Antigen Tests, by Result, and Percent Positive, in Maryland, 2007-2008 Influenza Season

CONFIRMED INFLUENZA CASES

Each influenza season, after the DHMH Laboratory confirms an influenza case by using a reference test (PCR, Viral Culture), both rapid and reference test results are counted as "lab confirmed" influenza cases for surveillance purposes.

This season, the first case was identified on December 4, 2008. All reports of flu tests before then were not counted as confirmed cases for surveillance purposes.

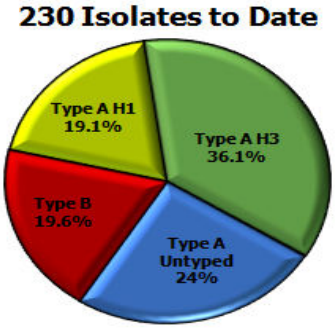
The number of confirmed cases through this surveillance system is not intended to represent all cases of influenza in Maryland. Many people with influenza do not seek medical care, or, if they do, are not tested for influenza. Also, not all clinical laboratories participated in the influenza surveillance system. The information gathered is only used to detect the geographic location of cases and to estimate the level of flu activity in Maryland.



Number of Confirmed Influenza Cases (Rapid Lab Confirmed + Reference Lab Confirmed) in Maryland for the 2004-2005 to 2007-2008 Influenza Seasons by MMWR Week

DHMH LABORATORY ISOLATE TYPING AND SUB-TYPING

"...one isolate of Solomon Islands H1N1 Strain was found to have resistance to Oseltamivir (Tamiflu)."



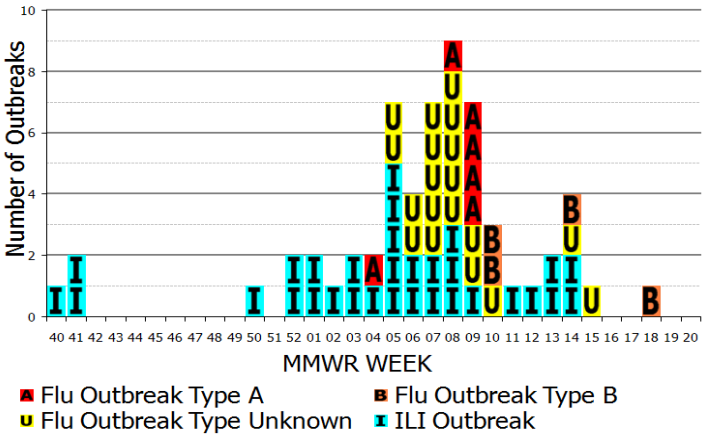
Number of Isolates by Type and Sub-Type from DHMH Laboratory, 2007-2008 Influenza Season.

The DHMH Laboratories Administration performs reference testing on samples submitted from various sources like clinical laboratories and physician's offices. These tests include virus culture, which is known as the "gold standard" when it comes to flu testing. A polymerase chain reaction test is used to detect the virus and its type and sub-type. (Influenza presents in three types, A, B, and C. Influenza Type A can be further sub-typed into H and N groups.)

This season a total of 230 specimens submitted were positive for influenza. At the request of CDC, influenza isolates were sent to CDC labs for further testing such as virus strain identification. CDC notified DHMH that one isolate of Solomon Islands H1N1 Strain was found to have resistance to Oseltamivir (Tamiflu). This is the first year that these resistant viruses are isolated in the US. Additionally, the following strains were found to have been circulating in Maryland this season:

- Type A Solomon Islands (H1N1)
- Type A Brisbane (H1N1)
- Type A Brisbane (H3N2)
- Type A Wisconsin (H3N2)
- Type B Florida

For more information on the types of influenza viruses, visit http://www.cdc.gov/flu/about/viruses/types.htm



Number of ILI and Influenza Outbreaks by Outbreak Type and MMWR Week of Report in Maryland Reported to Maryland DHMH, 2007-2008 Influenza Season.

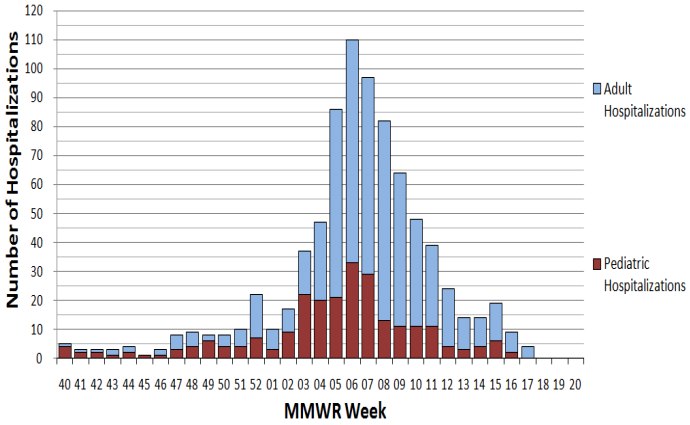
INSTITUTIONAL OUTBREAK REPORTS TO DHMH

The EDCP Division of Outbreak Investigations assists local health departments in the investigation of outbreaks of different etiologies. A total of 60 respiratory outbreaks in institutional settings (e.g. Long Term Care Facilities or Hospitals) were reported this season. Of these, 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 for confirmation.

The influenza outbreaks were caused by Type A viruses in 6 outbreaks, Type B viruses in 4 outbreaks, and the virus type could not be determined in 19 outbreaks. (Many rapid influenza test kits do not differentiate between types.)

For more information on outbreaks in Maryland, visit http://www.edcp.org/html/otbkhmpg.html

INFLUENZA HOSPITALIZATIONS REPORTED TO DHMH



Number of Hospitalizations Reported to DHMH, Pediatric and Adult, in Maryland, 2007-2008 Influenza Season.

The Emerging Infections program (EIP) at EDCP conducted surveillance this season on hospitalizations associated with influenza. Thirteen facilities in Maryland reported information to the EIP epidemiologist, Maya Monroe, on a weekly basis. Thirteen more agreed to provide data twice during the season, at the midpoint and the end of the season. Most of these facilities were in the Baltimore Metro Region, and **data submitted to EIP does not represent all hospitalizations for influenza in Maryland.**

This season, a total of **808 hospitalizations** were reported to EIP. Of these, **243 (30%) were children** under the age of 18, and **565 (70%) were adults**. The peak number of hospitalizations for both groups was seen during week 6 (Feb. 3 - Feb. 9).

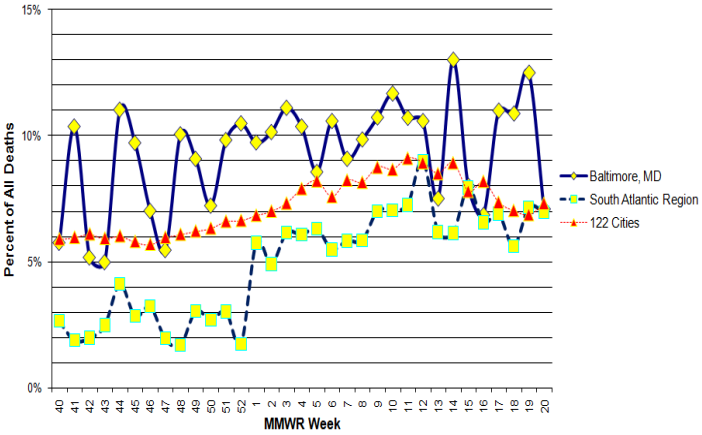
"...of 808 hospitalizations… 243 (30%) were children… and 565 (70%) were adults."

INFLUENZA MORTALITY DATA - 122 U.S. CITIES MORTALITY DATA

Vital statistics registrars from 122 U.S. cities compile summary mortality data and submit it to CDC by fax or email. In Maryland, Baltimore is the only participating city. Data on pneumonia and influenza deaths is used as part of the influenza surveillance efforts by CDC and DHMH.

This influenza season, a total of 496 deaths due to influenza and/or pneumonia were reported to CDC through this system. This represents 9.3% of all deaths reported this flu season.

Compared to national and regional data, reported deaths in Baltimore from pneumonia and influenza were proportionately higher. In cities in the region, 5% of all deaths reported this season were for pneumonia and influenza, and the national proportion was 7.3%.



Percent of All Deaths Due to Influenza and Pneumonia in Baltimore, the South Atlantic Region, and in the 122 Cities, 2007-2008 Influenza Season

For more information on the 122 Cities Mortality Reporting System, visit http://aspe.hhs.gov/datacncl/datadir/cdc2.htm

DID THE VACCINE REALLY FAIL?

News reports and rumors began circulating in February that the vaccine used in the United States was a "failure" or "not a good match". What happened?

The flu vaccine consists of three dead or attenuated virus strains, depending on the vaccine type (injected versus nasal mist). Two Type A, and one Type B. The main strains circulating a year ago were thought to be the ones that were going to be circulating this year, based on epidemiological and laboratory information available at the time that the decision was made on what to include in the vaccine. But influenza viruses are always mutating, or changing.

This past summer, in Brisbane, Australia, two new strains of Type A influenza were identified. These strains are "genetic variants", or "daughters", of the strains in the vaccine. By the time they were identified, it was too late to change the vaccine components. So the vaccine did not offer complete immunity against these strains. Instead, it offered "cross-protection", where the antibodies made by folks who took the vaccine would only partially help in eliminating the virus from their systems.

Interesting Web Links:

- CDC Flu Information: www.cdc.gov/flu
- WHO Flu Information: www.who.int/csr/disease/influenza/en
- MD Pandemic Flu Information: flu.maryland.gov
- FDA Information on the flu vaccine: www.fda.gov/CBER/flu/flu.htm

Healthy People Healthy Communities.

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WE'RE ON THE WEB!!!

WWW.EDCP.ORG

All information submitted to DHMH through the surveillance systems is voluntary. This data 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 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.

INFLUENZA IN A LOCAL AND GLOBAL CONTEXT

Influenza officially arrived in Maryland on December 4, 2007, when a confirmed case was identified. From that day on, activity increased all over the state, peaking some time between February 10 and February 23. Flu activity then went back to baseline levels the week of April 6th. DHMH reported to CDC that no influenza activity was detected since the week of May 4th.

As you may or may not know, influenza season is just now beginning in other parts of the world, particularly in the Southern Hemisphere. Countries like Australia, New Zealand, South Africa, Brazil, Chile, and Argentina are right now conducting their immunization campaigns in preparation for the flu season. Their peak activity is usually around July-August. And, many times, the virus strains and levels of activity they see are seen here in the United States during our flu season. (This was the case this season, where we saw a new strain first seen in Australia last summer, and we saw increased activity levels like those seen in New Zealand and Indonesia last summer.)

Unfortunately, many countries that need widespread flu vaccination, flu surveillance, and response to very active flu seasons lack the resources to meet these needs. Private and Public organizations are trying very hard to meet these needs in places like Africa and Southeast Asia, where natural and man-made disasters are taking attention and resources away from influenza prevention, treatment, and response.

Back in 1918, people in the United States were convinced that the war in Europe would not involve them, and it did. And it was that movement of troops from here to there and back that made the 1918-1919 pandemic so deadly. Today, hundreds of people can travel from one continent to the other in a matter of hours through aviation. Many of them land in airports in and around Maryland.

Please keep all this in mind next time you or someone in your care are offered the flu vaccine. Your decision to take the vaccine or not may have an impact on places near and far.

It's a small world after all!

"...natural and man-made disasters are taking attention and resources away from influenza prevention, treatment, and response."

Special Thanks To:

- Sentinel providers and their staff
- Sentinel clinical laboratory staff
- DHMH Lab Administration staff
- DHMH EDCP staff
- DHMH OP&R staff
- Hospital Infection Control Practitioners
- Everyone else who made this flu season's surveillance possible and, best of all, enjoyable!