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EPI MONTHLY REPORT

MIAMI-DADE COUNTY HEALTH DEPARTMENT

Inside the Issue

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West Nile Virus Update: As of August 2012

Background:

West Nile Virus (WNV) is a mosquito-borne flavivirus that causes mild to severe illness. It was first introduced to the United States in 1999 in New York and reached Florida in 2001. Since its initial detection, human cases of WNV have been reported in all U.S. states with the exception of Alaska, Hawaii and Maine. Experts believe WNV is established as a seasonal epidemic in North America that flares up in the summer and continues into the fall. In Florida, WNV activity has been identified in all 67 counties. Since 1999, more than 30,000 people in the U.S. have been reported as becoming ill from WNV.

Current Situation in U.S.:

As of August 21, 2012, 47 states have reported West Nile virus infections in people, birds, or mosquitoes (Figure 1). A total of 1,118 cases of West Nile virus disease in people, including 41 deaths, have been reported to the Centers for Disease Control and Prevention (CDC). Of these, 629 (56%) were classified as neuroinvasive disease (such as meningitis or encephalitis) and 489 (44%) were classified as non-neuroinvasive disease. In Florida, a total of 13 cases (confirmed and probable) have been reported to the CDC.

The 1,118 cases reported thus far in 2012 is the highest number of WNV disease cases reported to the CDC through the third week in August since WNV was first detected in the U.S. in 1999. Approximately 75% of the cases have been reported from 5 states (Texas, Mississippi, Louisiana, South Dakota, and Oklahoma) and almost half of all cases have been reported from Texas.

Transmission and Symptoms:

Most often, WNV is spread by the bite of an infected mosquito. Mosquitoes become infected when they feed on infected birds; infected mosquitoes then spread WNV to humans and other animals when they bite. In a very small number of cases, WNV also has been spread through blood transfusions, organ transplants, breastfeeding and even during pregnancy from mother to baby. WNV is not spread through casual contact such as touching or kissing a person with the virus.

Approximately 80% of WNV infections are asymptomatic. In those people that do develop symptoms, most experience a mild illness termed West Nile Fever that is characterized by headache, fever, pain, and fatigue. Less than 1% of infected people develop the most severe form of disease, neuroinvasive WNV, which may involve meningitis and encephalitis and can cause irreversible neurological damage, paralysis, coma or death. Symptoms typically appear between 3 and 14 days after the bite of an infected mosquito. People over the age of 50 and individuals with weakened immune systems (especially transplant recipients and HIV infected individuals) seem to be at an increased risk for severe disease.

Treatment:

There is no specific treatment for WNV, and most mild infections are typically overcome with little or no medical intervention within a matter of weeks. Treatment of symptoms is common, and recent research has shown efficacy of retroviral drugs in treating severe neuroinvasive WNV patients. An effective vaccine has been developed for horses, however research for a human vaccine continues.

Prevention:

Prevention measures for WNV consist of community-based mosquito control programs that are able to reduce vector populations, personal protection measures to reduce the likelihood of being bitten by infected mosquitoes, and surveillance activities that characterize spatial/ temporal patterns in risk that allow health and vector control agencies to target their interventions and resources.

The easiest and best way to avoid WNV is to prevent mosquito bites.

- When you are outdoors, use insect repellent containing an EPA-registered active ingredient. Follow the directions on the package.
- Many mosquitoes are most active at dusk and dawn. Be sure to use insect repellent and wear long sleeves and pants at these times or consider staying indoors during these hours.
- Make sure you have good screens on your windows and doors to keep mosquitoes out.

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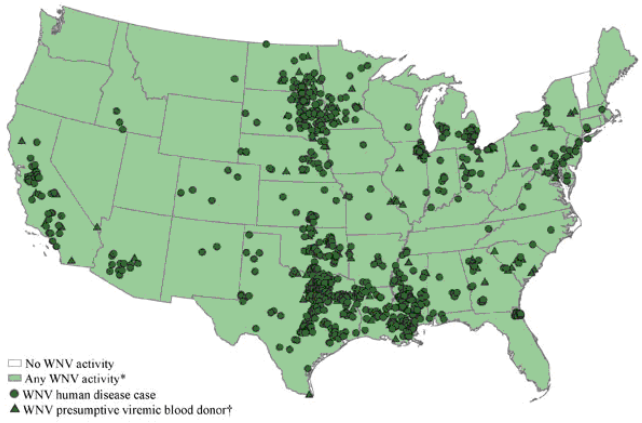
- Get rid of mosquito breeding sites by emptying standing water from flower pots, buckets and barrels. Change the water in pet dishes and replace the water in bird baths weekly. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they are not being used.

Figure 1

West Nile Virus Activity Reported to ArboNET, by State (As of August 21, 2012)



* Includes WNV human disease cases, presumptive viremic blood donors, veterinary disease cases and infections in mosquitoes, birds, and sentinel animals.
† Presumptive viremic blood donors have a positive screening test which has not necessarily been confirmed.
Centers for Disease Control and Prevention, http://www.cdc.gov/ncidod/dvbid/westnile/Mapsactivity/surv&control12MapsAnybyState.htm

References:

Centers for Disease Control and Prevention, Division of Vector-Borne Diseases, http://www.cdc.gov/ncidod/dvbid/westnile/index.htm

Florida Department of Health, http://www.doh.state.fl.us/environment/medicine/arboviral/WestNileVirus.html

Using #SocialMedia as a #SurveillanceTool in @Public Health

Martha Casero, MPH

The introduction of the Internet in the late 1960s brought us endless possibilities in the realm of technology. Today, in the United States alone, there are approximately 225 million people with access to the Internet, and an estimated 115 million individuals have user accounts in Twitter and Facebook. Looking at the past 10 years, the use of the Internet has changed significantly, and its technology has become integral to public health surveillance. Epidemiologists are finding that, as a growing proportion of people seek health-related information on search engines like Google and Yahoo, social networking sites such as Twitter, Facebook, chat-rooms, and blogs may serve as an additional tool for the early tracking of disease-related events throughout the world, while still maintaining traditional public health surveillance tools.[1-2]

Recent Research

Months after the earthquake in Haiti, researchers from Harvard Medical School tracked data from Twitter and HealthMap (an online surveillance tool) for the first 100 days of the cholera epidemic in Haiti. Their findings demonstrate that the first signs of the cholera epidemic could be seen in these data sources two weeks before official reports. It is possible that had there been early monitoring of the Web and social media, officials might have had an opportunity to respond faster to the cholera epidemic.

At Johns Hopkins, a team of researchers compared Google searches originating in Baltimore with the number of patients who showed up with flu-like symptoms at a local emergency room. The team found a high correlation between the Google searches in the community and the ER visits for that point in time.

Much like these two teams of researchers, many others have begun to explore the considerable potential of Internet-search-data and social networking sites for public health surveillance. Moreover, some have teamed up with Google and the Centers for Disease Control and Prevention (CDC) to further develop an online tracking tool for Dengue fever.[3]

Web-Based Data Sources

Outside from the traditional government communication channels, more public health agencies are relying on social media systems and web-based data sources for real-time data on outbreaks and emerging diseases.[4] HealthMap, for example, is an openly available public health intelligence system that compiles disparate data sources to provide a global overview of infectious diseases (Figure 1). Other publicly available web-based data sources include Google Insights for Search (Figure 2), which provides a visual representation of regional interest based on search terms people have entered into the Google search engine, and Google Flu Trends (Figure 3), which makes available near real-time estimates of flu activity around the world based on aggregated search queries.[5]

Advantages and Disadvantages

So what exactly makes the use of social media systems and web-based data sources such an interesting topic for public health surveillance? When it comes to outbreak detection and response, public health officials depend on accurate and timely data. As a growing number of people increase the use of mobile devices with capability to connect to the internet, their use of apps like Twitter, Facebook, and Outbreak Near Me (mobile app supported by HealthMap), timeliness and portability become key advantages of social media. This is particularly beneficial in the surveillance of foodborne diseases and bioterrorism events, where quick response is essential. While some of the limitations include the overall representation of the general population and the validity of the data, the benefits of using social media as a surveillance tool still outweigh some of the limitations.[6]

Conclusion

The use of social media and web-based data sources as surveillance tools in public health is a fairly new concept, which still requires further research and exploration. As technology continues to revolutionize social behavior and ways of thinking, embracing the use of the Internet and social media as an additional surveillance tool at the local level would simply enhance our surveillance systems by accelerating access to information on potential disease outbreaks.

References

1. Schmidt, C.W. (2012). Trending Now: Using Social Media to Predict and Track Disease Outbreaks. *Environmental Health Perspectives*, Vol. 120, No. 1: 30-33.
2. Wilson, K., and Brownstein, J.S. (2009). Early Detection of Disease Outbreaks Using the Internet. *Canadian Medical Association Journal*, Vol. 180, No. 8: 829-831.
3. Disease Sleuths Surf for Outbreaks Online. (2012, February 24). *National Public Radio (NPR)*.
4. Brownstein, J.S., Freifeld, B.S, and Madoff L.C. (2009). Digital Disease Detection – Harnessing the Web for Public Health Surveillance. *The New England Journal of Medicine*, Vol. 360, No. 21: 2153-2157.
5. Carneiro, H.A., and Mylonakis, E. (2009). Google Trends: A Web-Based Tool for Real-Time Surveillance of Disease Outbreaks. *Clinical Infectious Diseases*, (49): 1557-64.
6. Newkirk, R.W., Bender, J.B., and Hedberg, C.W. (2012). The Potential Capability of Social Media as a Component of Food Safety and Food Terrorism Surveillance Systems. *Foodborne Pathogens and Disease*, Vol. 9, No. 2: 120-124.

Figure 1: HealthMap.org

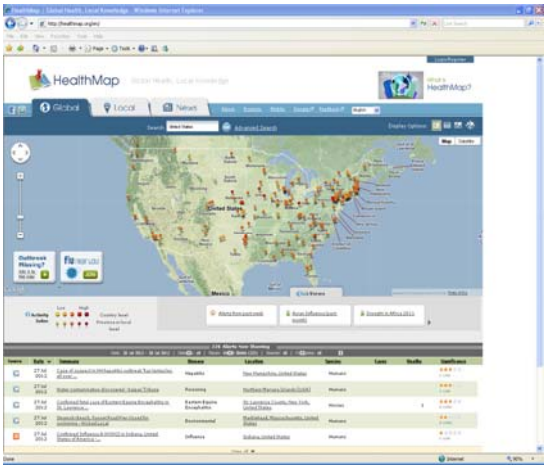


Figure 2: Google Insights for Search

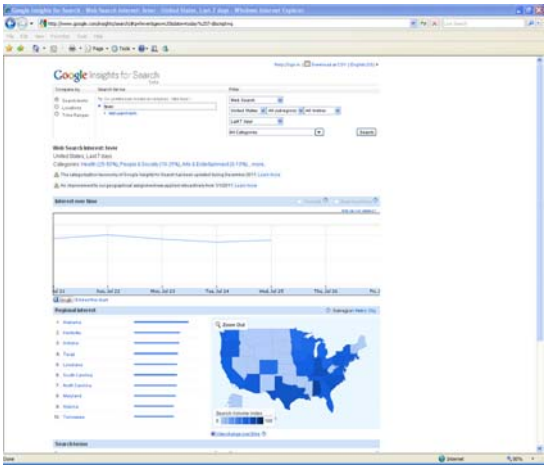
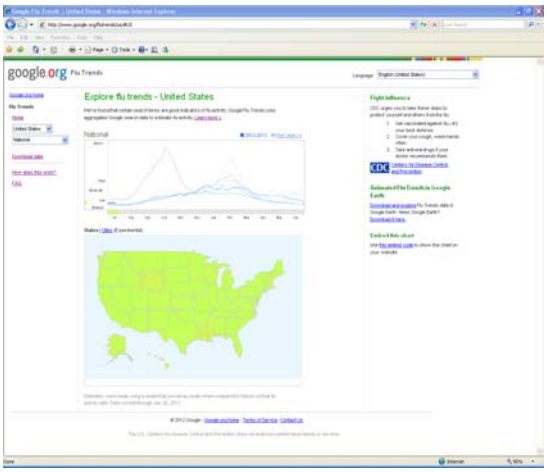


Figure 3: Google Flu Trends



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PARTICIPATE IN INFLUENZA SENTINEL PROVIDER SURVEILLANCE

The Miami-Dade County Health Department NEEDS Influenza Sentinel Providers!!

Sentinel providers are key to the success of the Florida Department of Health's Influenza Surveillance System. Data reported by sentinel providers gives a picture of the influenza virus and ILI activity in the U.S. and Florida which can be used to guide prevention and control activities, vaccine strain selection, and patient care.

- Providers of any specialty, in any type of practice, are eligible to be sentinel providers.
- Most providers report that it takes **less than 30 minutes a week** to compile and report data on the total number of patients seen and the number of patients seen with influenza-like illness.
- Sentinel providers can submit specimens from a subset of patients to the state laboratory for virus isolation **free of charge**.

For more information, please contact **Lakisha Thomas** at 305-470-5660.

TO REPORT ANY DISEASE AND FOR INFORMATION CALL:
Epidemiology, Disease Control & Immunization Services

Childhood Lead Poisoning Prevention Program 305-470-6877
Hepatitis 305-470-5536
Immunizations or outbreaks 305-470-5660
HIV/AIDS Program 305-470-6999
STD Program 305-575-5430
Tuberculosis Program 305- 575-5415
Immunization Service 305-470-5660
To make an appointment.....786-845-0550

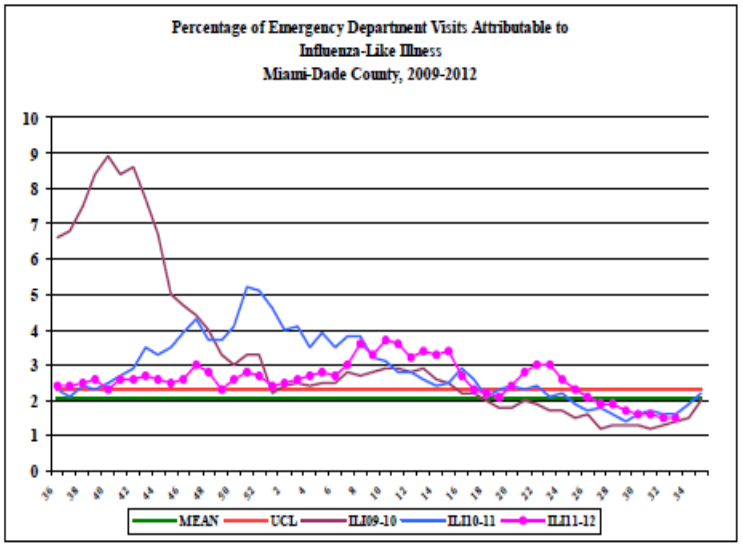
Miami-Dade County Health Department
EDC-IS Influenza/Respiratory Illness Surveillance Report

Week 33: 08/12/2012– 08/18/2012

Miami Dade County Health Department EDC-IS collects and analyzes weekly information on influenza activity in Miami-Dade County. On a daily basis, selected Miami-Dade County hospitals electronically transmit hospital emergency department data to the Miami-Dade County Health Department.

This data is then categorized into 11 distinct syndromes. The influenza-like illness (ILI) syndrome consists of fever with either cough or sore throat. It can also include a chief complaint of "flu". Each week, staff will determine the percentage of all emergency department visits that fall into the ILI category.

Influenza-Like-Illness, All Age



During this period, there were 20,498 ED visits; among them 303 (1.5%) were ILI. At the same week of last year, 1.6% of ED visits were ILI.

About the Epi Monthly Report

The Epi Monthly Report is a publication of the Miami-Dade County Health Department, Epidemiology, Disease Control & Immunization Services, The publication serves a primary audience of physicians, nurses, and public health professionals. Articles published in the Epi Monthly Report may focus on quantitative research and analysis, program updates, field investigations, or provider education.

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Miami-Dade County Monthly Report
Select Reportable Disease/Conditions
July 2012

Diseases/Conditions	2012 Current Month	2012 Year to Date	2011 Year to Date	2010 Year to Date
HIV/AIDS				
AIDS*	59	334	434	391
HIV	105	697	827	670
STD				
Infectious Syphilis*	33	195	182	212
Chlamydia*	792	5422	5007	4959
Gonorrhea*	208	1410	1317	1361
TB				
Tuberculosis**	4	45	71	87
Epidemiology, Disease Control & Immunization Services				
Epidemiology				
Campylobacteriosis	40	190	291	121
Ciguatera Poisoning	0	3	12	5
Cryptosporidiosis	1	13	11	6
Cyclosporiasis	0	1	2	1
Dengue Fever	4	9	5	18
E. coli, O157:H7	0	0	0	0
E. coli, Non-O157	0	0	0	0
Encephalitis (except WNV)	0	0	0	0
Encephalitis, West Nile Virus	0	0	0	0
Giardiasis, Acute	20	118	165	397
Influenza Novel Strain	0	0	0	20
Influenza, Pediatric Death	0	2	0	0
Legionellosis	1	8	9	5
Leptospirosis	0	0	0	0
Listeriosis	0	1	0	13
Lyme disease	0	6	0	2
Malaria	0	5	10	14
Meningitis (except aseptic)	6	14	18	13
Meningococcal Disease	2	11	10	13
Salmonellosis	62	256	253	199
Shigellosis	8	29	69	107
Streptococcus pneumoniae, Drug Resistant	5	46	56	106
Toxoplasmosis	0	2	0	1
Typhoid Fever	0	0	0	0
Vibriosis	0	3	1	0
West Nile Fever	0	0	0	0
Immunization Preventable Diseases				
Measles	0	0	0	0
Mumps	0	1	0	3
Pertussis	5	37	15	19
Rubella	0	0	0	0
Tetanus	0	0	0	0
Varicella	2	31	29	59
Hepatitis				
Hepatitis A	5	19	12	28
Hepatitis B (Acute)	1	14	3	15
Lead				
Lead Poisoning	12	52	94	140

*Data is provisional at the county level and is subject to edit checks by state and federal agencies.
** Data on tuberculosis are provisional at the county level.