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EPI Examiner

A Monthly Epidemiology Report

MAY 2009

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Monthly Report	762-3891

Edited by Lashawnda White, M.P.H.

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May Disease Summary

Confirmed and Probable notifiable disease cases were analyzed by date of event for this report (Table 2). Diseases were categorized as higher than expected using a two standard deviation threshold and as significantly higher than expected according to Pearson's chi-square test for fit of a distribution.

Haemophilus Influenzae was significantly higher than expected this month. Although there were only 4 cases, it's more than 3 times the 5-year average. Giardia was higher than the 5-year average although it didn't exceed the 2 standard deviation threshold, nor was it significantly higher. There were 37 confirmed H1N1 novel influenza cases, which is up from 7 last month. There was one reported case of vancomycin resistant staphylococcus, which is the second case this year. No other cases were reported in the last 5 years.

Salmonella continues to be significantly higher than expected. There were 43 confirmed and probable cases compared to the five year average of 26 cases. The majority of cases occurred in children and youth under the age of 18(60%), with infants under one years old, having the highest percentage of cases(19%) (Fig.1). Salmonella tends to be higher in summer months (Fig.2). See April's report for more info on Salmonella or go to www.cdc.gov/salmonella.

Fig.1 Salmonellosis by Age, Broward County, May 2009

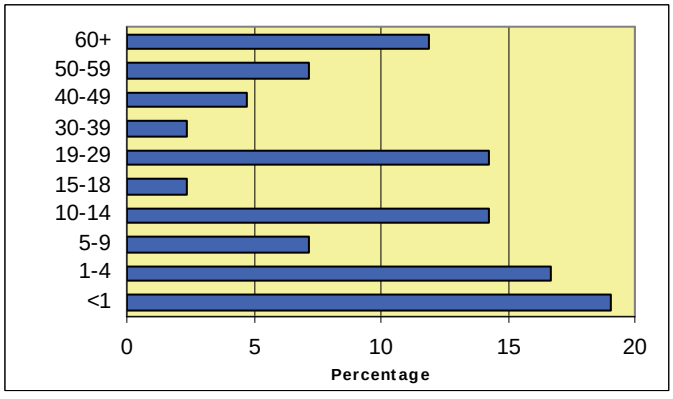
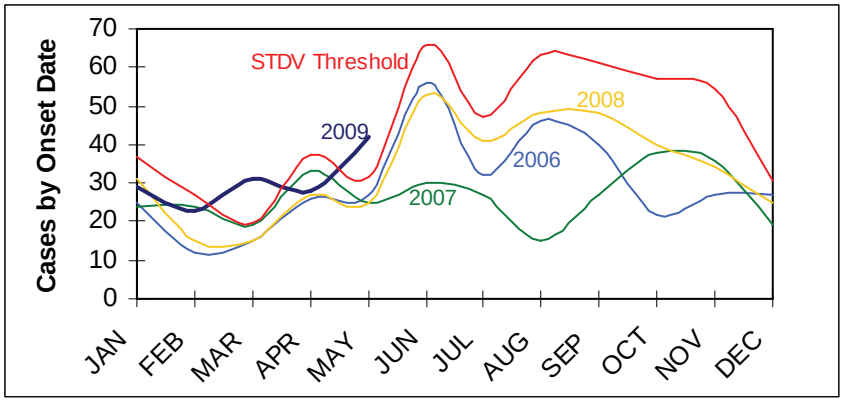


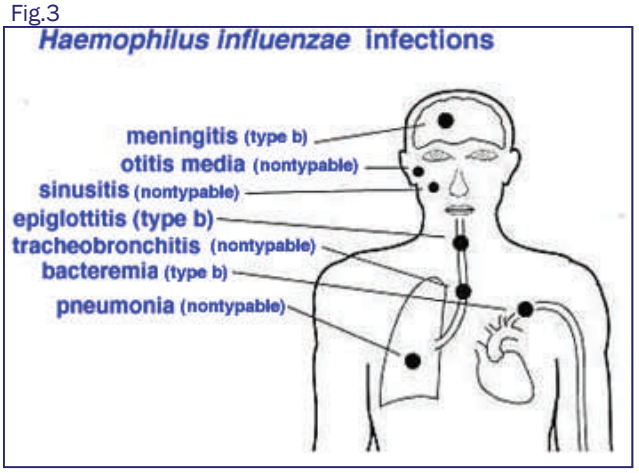
Fig.2 Salmonellosis by Month & Year, Broward County, May 2009



Haemophilus Influenzae

Haemophilus influenzae is a non-motile Gram-negative rod described first in 1892 by Richard Pfeiffer during an influenza pandemic. H. influenzae was mistakenly considered to be the cause of influenza until 1933, when the viral etiology of the flu became apparent. H. influenzae is responsible for a wide range of clinical diseases. There are 2 major categories of H. influenzae which are unencapsulated and encapsulated strains. Unencapsulated strains tend to be less virulent than encapsulated strains because their capsule allows them to resist phagocytosis and -mediated lysis in the non-immune host. Seven serotypes of the bacterium have been identified on the basis of capsular polysaccharides. H. influenzae type b is the most important serotype involved in meningitis. Non-typable (non encapsulated) strains are less invasive, but they are apparently able to induce an inflammatory response that causes disease. Vaccination with Hib conjugate vaccine is effective in preventing infection, and several vaccines are now available for routine use.

Fig.3



Signs and Symptoms

Disease caused by H. influenzae usually begins in the upper respiratory tract as nasopharyngitis and may be followed by sinusitis and otitis, possibly leading to pneumonia. In severe cases, bacteremia may occur, which frequently results in joint infections or meningitis. Invasive disease caused by Haemophilus influenzae type b can affect many organ systems (Fig.3). The most common types of invasive disease are pneumonia, occult febrile bacteremia, meningitis, epiglottitis, septic arthritis, cellulitis, otitis media, purulent pericarditis, and other less common infections such as endocarditis, and osteomyelitis.

Since H.influenzae causes various diseases, symptoms are varied as well. Symptoms may include a stiff neck, vomiting, cough, chills and fever, breathing difficulties, in some cases, chest pains. They can also be sore throat, dry mouth, headaches and body fatigue.

Transmission

The bacteria is transmitted through direct contact with respiratory droplets from nasopharyngeal carrier or case patient.

Diagnosis and Treatment

Clinical diagnosis of *H. influenzae* is typically performed by bacterial culture or latex particle agglutination. Diagnosis is considered confirmed when the organism is isolated from a sterile body site. In this respect, *H. influenzae* cultured from the nasopharyngeal cavity or sputum would not indicate *H. influenzae* disease because these sites are colonized in disease free individuals. However *H. influenzae* isolated from cerebrospinal fluid or blood would indicate a *H. influenzae* infection.

Virtually all patients treated early in the course of H. influenzae meningitis are cured. The mortality rate of treated infections is less than 10 percent, but nearly 30 percent of the children who recover have residual neurologic effects. Ampicillin has been the drug of choice, but presently over 20 percent of all strains of H. influenzae are resistant to ampicillin because of plasmid-mediated ß-lactamase production.

Continued on pg 3

Haemophilus Influenzae cont...

The recommended treatment for H. influenzae that produce ß-lactamase, is a third-generation cephalosporin or chloramphenicol. Amoxicillin, together with a substance such as clavulanic acid, that blocks the activity of ß-lactamase, has been unreliable in treatment of meningitis, although it is effective in treatment of sinusitis, otitis media and respiratory infections. Chloramphenicol was long considered the drug of choice for meningitis caused by penicillin-resistant H. influenzae, and it is still highly effective, but not without potential toxic side effects. Third-generation cephalosporins, such as ceftriaxone or cefotaxime, are effective against H. influenzae and penetrate the meninges well. Tetracyclines and sulfa drugs remain effective in treating sinusitis or respiratory infection caused by nontypable H. influenzae. Amoxicillin plus clavulanic acid (Augmentin) is effective against non type b ß-lactamase producing strains. Erythromycin is ineffective in treatment of H. influenzae infections.

PreventionThe best prevention for H.influenza type B is vaccinations, particularly in children who usually have a higher incidence of infection from the bacteria. This month all of Broward's cases were in adults over the age of 50.

Sources: http://www.textbookofbacteriology.net/haemophilus_4.html, http://en.wikipedia.org/wiki/Haemophilus_influenzae and http://www.cdc.gov/ncidod/dbmd/Diseaseinfo/haeminfluserob_t.htm

Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE)

On a daily basis, 15 Broward County hospitals automatically transmit de-identified electronic emergency department chief complaint data to the BCHD. Each chief complaint is placed into one of 11 syndrome categories using ESSENCE, a data management/analysis system developed by Johns Hopkins University in conjunction with the Department of Homeland Security. ESSENCE performs automatic data analysis, establishing a baseline with a 28-day average. Daily case data is then analyzed against this baseline to identify statistically significant increases. A yellow flag indicates a mild alert and a red flag indicates a high alert. Daily, a BCHD analyst evaluates all alerts to determine epidemiologic clustering by zip code, hospital visited, chief complaint, and the time visited at the ER.

Alerts for all hospital visits: 4 low, 2 high

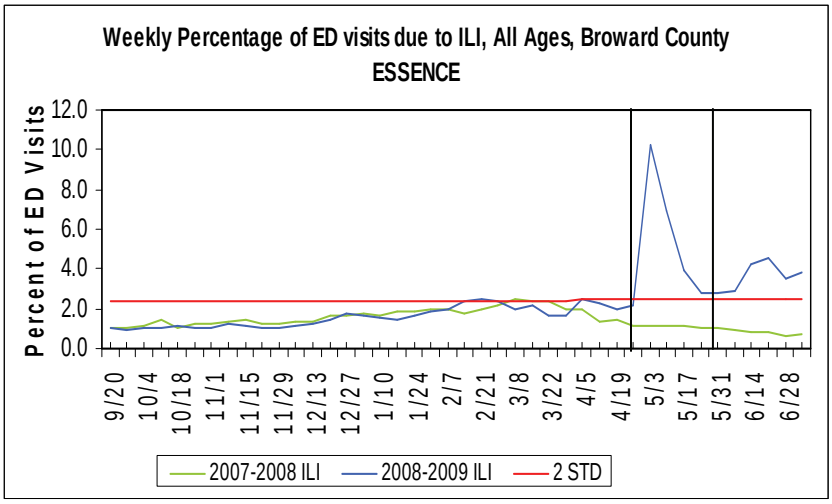
Table 1. Broward County ESSENCE Alerts, May 1 - May 31, 2009

	Syndrome										
Alert	Influenza like Illness	Botulism-like	Injury	Fever	Gastro-intestinal	Hemorrhagic Illness	Neurological	Rash	Respiratory	Shock/ Coma	Other
Low Level	0	0	0	1	1	1	3	0	1	3	1
High level	7	0	0	6	0	1	1	0	5	0	0

Broward County Influenza Surveillance

Psyche Doe, Influenza Coordinator

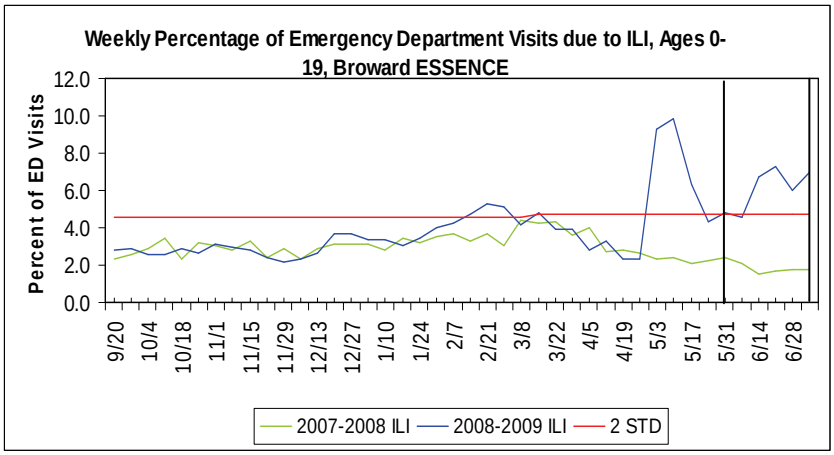
Fig.4



ILI incidence incurred a drastic spike that started-toward the end of April and peaked midway-through May, which exceeded well above the 2 standard deviation threshold. This increase was due to the introduction of the H1N1 Swine Flu Virus during this time period. There were 7 high level alerts in ESSENCE for ILI visits in Broward County.

Broward County Influenza Surveillance cont....

Fig.5



ILI incidence in youth and children continues to comprise the largest percentage of persons presenting to the Emergency Department in Broward County with ILI symptoms. ILI incidence among this age group also exceeded the 2 standard deviation during the end of April and all through May.

H1N1 Novel Influenza Update:

The number of Broward confirmed H1N1 Influenza cases that have been entered into Merlin as of June 1, 2009 are 29. The state of Florida has confirmed 197 cases of H1N1. The overall age ranges for confirmed and probable cases are 0 to 85 years old. The average age is 19, with a median age of 15. So far, the largest number of H1N1 confirmed and probable cases (more than 60% of cases) have been in persons between the ages of 5 years and 24 years old.

Broward County Health Department continues enhanced surveillance and outreach to physicians, hospitals, other health care professionals and community partners. Broward County Health Department is providing community outreach with recommended health precautions. Organizations may request information at: http://www.browardchd.org/SwineInfo.asp.

More information is provided at Broward County Health Department Information Line: (954) 467-4700

Florida Department of Health: www.doh.state.fl.us 1-800-342-3557

Centers for Disease Control and Prevention: www.cdc.gov/swineflu

PRECAUTIONS:

Broward County Health Department officials offer these recommendations for residents and visitors:

- As always, people with respiratory illness should stay home from work or school to avoid spreading infections, including influenza, to others in the community;
- Avoid close contact with people who are coughing or otherwise appear ill;
- Avoid touching your eyes, nose and mouth;
- Wash hands frequently to lessen the spread of respiratory illness;
- People experiencing cough, fever and fatigue, possibly along with diarrhea and vomiting, should contact their physician/health care provider;
- Cough or sneeze into a tissue or into your upper sleeve, not your hands and put your used tissue in the waste basket;

If you think you have influenza, please call your health care provider and discuss whether you need to be seen in their office, emergency department or stay home.

The Swine Flu virus is not transmitted by food and a person cannot get Swine Flu from eating pork products. The infection appears to spread from person to person.

Selected Reportable Communicable Diseases and Other Conditions Broward County Health Department

	May-09	Apr-09	YTD May-09	May-08	May-07	May-06	May-05	May-04	5-Yr Average (Expected #)
Animal Bite, PEP	0	0	0	1	3	1	5	0	2
Brucellosis	0	0	1	0	0	0	0	0	0
Campylobacteriosis	8	4	34	7	7	12	7	11	8.8
Cryptosporidosis	1	0	3	2	1	3	1	3	2
Cyclosporiasis	1	1	2	0	0	1	5	0	1.2
Dengue Fever	0	0	2	0	0	1	0	0	0.2
E.Coli, Shiga Toxin Producing	1	0	4	0	0	0	0	0	0
E. Coli NS	0	0	0	1	1	1	0	0	0.6
Giardiasis	9	8	41	4	2	7	4	9	5.2
Haemophilus Influenzae (Invasive)	5	2	16	2	0	1	3	0	1.2
Hepatitis A	1	4	18	0	1	3	3	1	1.6
Hepatitis B Acute	2	3	19	3	3	4	7	4	4.2
Hepatitis B Chronic	4	16	19	6	3	0	6	0	3
Hepatitis B HBsAg	1	5	130	4	4	3	4	7	4.4
Hepatitis C Chronic	0	1	325	123	171	84	154	131	132.6
Lead Poisoning	3	1	10	2	6	1	4	1	2.8
Legionellosis	1	2	4	2	2	0	0	1	1
Leprosy	0	0	0	1	0	0	0	1	0.4
Listeriosis	1	0	1	0	0	0	1	1	0.4
Lyme Disease	0	0	0	0	0	0	1	0	0.2
Malaria	0	0	10	0	0	0	0	1	0.2
Meningitis Group B Strep	0	0	0	1	0	0	0	0	0.2
Meningitis Other*	1	3	8	2	3	4	1	4	2.8
Meningitis Strep Pneumoniae	0	0	0	0	1	1	2	0	0.8
Meningococcal Disease	0	0	3	1	0	0	1	0	0.4
Mercury Poisoning	1	1	3	0	0	0	1	2	0.6
Mumps	1	0	1	0	0	1	0	0	0.2
Novel Influenza (Confirmed)	38	7	45	0	0	0	0	0	0
Pertussis	1	0	3	0	0	0	0	1	0.2
Salmonellosis	46	27	156	25	25	27	30	22	25.8
Shigellosis	10	6	22	1	51	5	11	15	16.6
Staphylococcus Aureus (GISA/VISA)	1	0	2	0	0	0	0	0	0
Streptococcal Disease(Invasive Group A)	3	6	13	2	5	4	3	3	3.4
Streptococcal Pnemoniae(Susceptible)	2	4	21	4	4	6	6	3	4.6
Streptococcal Pnemoniae(Drug Resistant)	5	7	44	6	2	10	7	2	5.4
Typhoid Fever	0	1	1	1	0	0	0	0	0.2
Varicella	7	4	26	8	17	0	0	0	5
Vibrio Other	0	0	0	0	0	0	2	0	0.4
Vibrio Vulnificus	0	0	0	0	0	0	0	1	0.2
Total	154	112	987	211	312	180	269	224	239.2

*Includes bacterial, cryptoccoccal, and mycotic meningitis

Data accessed on 6/31/09 from FL Merlin Communicable Disease Reporting System.

These diseases are significantly higher than expected for the month.