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Epi Monthly Report

Age Group Differences in Influenza-Like Illness Observed From Emergency Department Visits in Miami-Dade County

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Introduction

The threat of pandemic and seasonal influenza has drawn attention to syndromic surveillance systems for early detection of influenza-like illness [1]. Since 2005, the Miami-Dade County Health Department has implemented ESSENCE to monitor emergency department data for ILI. This study describes ILI surveillance methods in Miami-Dade County.

The purpose of this study was to describe the usefulness of the ESSENCE syndromic surveillance system in determining age group differences for influenza-like illness (ILI) activity in Miami-Dade County.

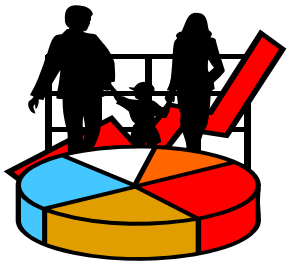
Methods

On a daily basis, eleven Miami-Dade County hospitals automatically transmit ER chief complaint data to the Office of Epidemiology and Disease Control. Complaints are categorized into one of ten clinical syndromes. The influenza-like illness (ILI) category includes a chief complaint of fever with either cough or sore throat. It can also include a chief complaint of "flu". Two methods are used to monitor ILI: daily surveillance and weekly surveillance. With the daily method, daily values for ILI are evaluated within the ESSENCE system using a 28-day Exponentially Weighted Moving Average (EWMA). This method is meant to detect acute events indicative of a possible outbreak. With the weekly method, an EWMA is calculated in SAS 9.1 using the weekly percentage of ILI visits . The threshold upper control limits for the EWMA (UCLE) are 2 and 3 σ above the mean. This method allows us to monitor long-term trends consistent with the start and end of the influenza season.

Results

During 2005 and 2006, weekly ILI surveillance showed that influenza activity began to increase in November 2005 (Week 46). Across all age groups, activity began to reach the UCLE between week 51 of 2005 and week 2 of 2006, peaking in February 2006 (Week 8-9, Figure 1). At this peak, ILI visits represented 4% of total ER visits. The onset of peak activity varied by age group. Among children, there was a gradual increase in August, when the percentage of visits exceeded the 2σ UCLE in week 34. The percentage of visits among children exceeded the 3σ UCLE between week 51 in 2005 and week 2 in 2006, peaking in February 2006 (Week 5-9, see Figure 2).

Among adults, there was a gradual increase in ILI beginning in December 2005. The percentage of visits exceeded the 2 and 3σ UCLE between week 51 of 2005 and week 2 of 2006, peaking in February 2006 (Week 6-8, see Figure 3). During the peak period, 6-



FLORIDA DEPARTMENT OF HEALTH

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7% of all ER visits among children and 0.7-0.8% of all ER visits among adults were for ILI.

Figure 1. EWMA: Weekly Percentage of ILI ER Visits Among All Age Groups in Miami-Dade County, 2005-2006

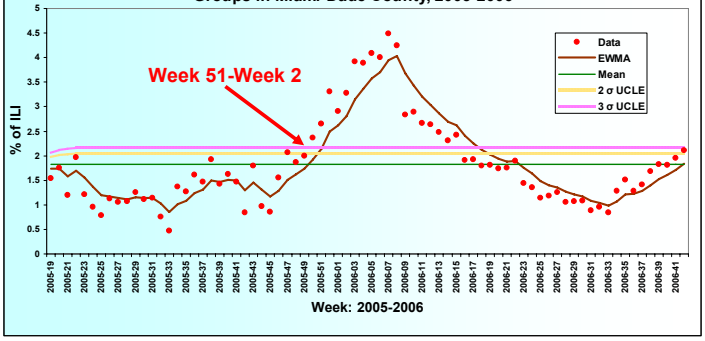


Figure 2. EWMA: Weekly Percentage of ILI ER Visits Among Children Aged 0-17 Years in Miami-Dade County, 2005-2006

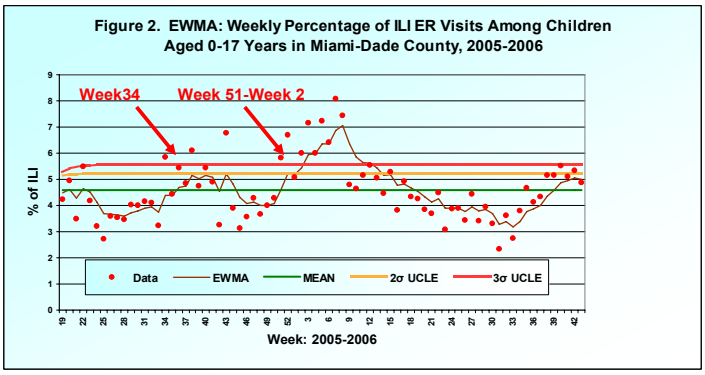
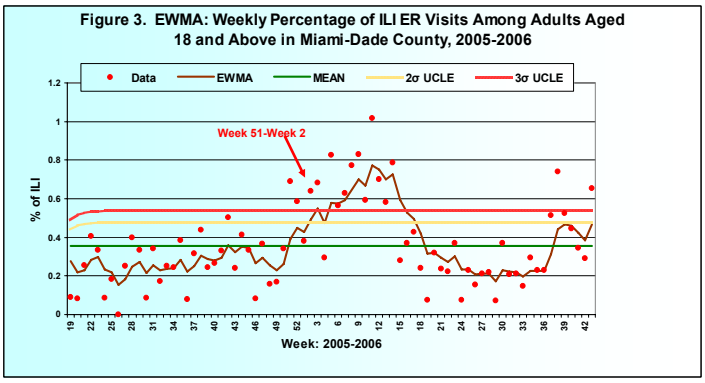


Figure 3. EWMA: Weekly Percentage of ILI ER Visits Among Adults Aged 18 and Above in Miami-Dade County, 2005-2006



Conclusions

This study demonstrates that there are some differences in ILI activity among pediatric and adult populations. There was a small peak in ILI activity among children at the end of August 2005, with a much larger peak in February 2006. The only peak in ILI activity among adults occurred in February 2006. This peak was 3 weeks after the peak seen among children. Further, the percentage of ER visits attributable to ILI was much higher among children than adults.

The ESSENCE system has demonstrated itself as an innovative element in seasonal influenza surveillance, and could represent a valuable surveillance tool for early detection of outbreaks.

References

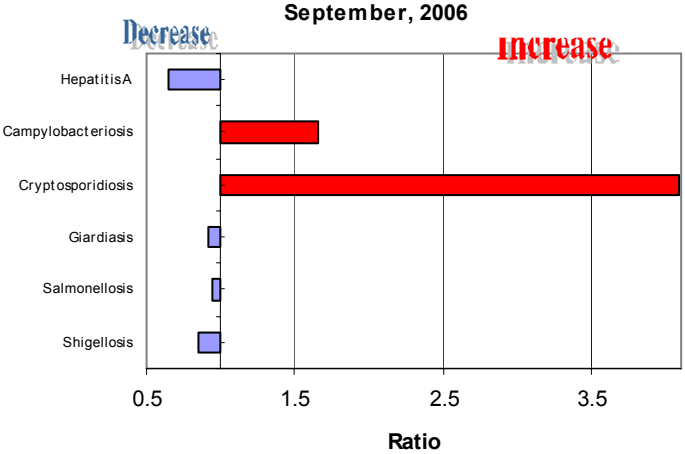
1. CDC. Framework for evaluating public health surveillance systems for early detection of outbreaks. MMWR 2004; 53(RR05).

TO REPORT ANY DISEASE AND FOR INFORMATION CALL:

Office of Epidemiology and Disease Control

Childhood Lead Poisoning Prevention Program	(305) 470-6877
Hepatitis	(305) 470-5536
Other diseases and outbreaks	(305) 470-5660
HIV/AIDS Program	(305) 470-6999
STD Program	*(305) 325-3242*
Tuberculosis Program	*(305) 324-2470*
Special Immunization Program	(786) 845-0550

Selected Notifiable Disease Reports, Miami-Dade County, Comparison with Historical Data, September, 2006



AVIAN FLU WATCH

Unless indicated, information is current as of October 27, 2006

- **Since 2003, 256 human cases of avian influenza (H5N1) have been confirmed** by the World Health Organization (WHO). Of these, 151 have been fatal.
- **Countries with confirmed *human* cases** include Cambodia, China, Djibouti, Indonesia, Thailand, Vietnam, Iraq, Azerbaijan, Egypt and Turkey.
- **No human cases of avian influenza (H5N1) have been reported in the United States.**
- **There have been three additional confirmed human H5N1 cases occurring in Indonesia.** The first case, who died on October 15, was a 67-year-old female. She developed symptoms on October 3rd and was hospitalized on October 7th. Reportedly, chickens died in her house and neighborhood before the onset of symptoms. The second cases was an 11-year-old male who developed symptoms October 2nd, was hospitalized October 6th, and died October 14th. The third case was a 27-year-old female; she developing symptoms October 8th, was hospitalized October 12th and expired October 13th. The source of exposure for this case is under investigation. This is the 72nd case confirmed to date in Indonesia. Of these, 55 were fatal.
- **H5N1 has been confirmed in *birds* in several other countries since 2003.** H5N1 has been documented in birds in more than 30 countries in Europe & Eurasia, South Asia, Africa, East Asia and the Pacific, and the Near East. For a list of these countries, visit the World Organisation for Animal Health Web Site at http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AIAsia.htm.
- **No restrictions on travel to affected countries have been imposed.** Travelers should avoid contact with live poultry and monitor their health for ten days after returning from an affected country.

PARTICIPATE IN INFLUENZA SENTINEL PROVIDER SURVEILLANCE

Why does Florida need influenza sentinel providers?

Sentinel providers are key to the success of the Florida Department of Health's Influenza Surveillance System. An influenza sentinel provider conducts surveillance for influenza-like illness (ILI) in collaboration with the Florida State Health Department, Bureau of Epidemiology and the Centers for Disease Control and Prevention (CDC). Data reported by sentinel providers, in combination with other influenza surveillance data, provides a national picture of influenza virus and ILI activity in the U.S. and Florida.

What data do sentinel providers collect and how do they report?

Sentinel providers report the total number of patient visits each week and number of patient visits for ILI by age group (0–4 years, 5–24 years, 25–64 years, and ≥ 65 years) year round. These data are transmitted once a week via the internet or via fax to a central database at CDC. Most providers report that it takes **less than 30 minutes a week** to compile and report their data. In addition, sentinel providers can submit specimens from a subset of patients to the state laboratory for virus isolation **free of charge**.

Who can be an Influenza Sentinel Provider?

Providers of any specialty (e.g., family practice, internal medicine, pediatrics, infectious diseases) in any type of practice (e.g., private practice, public health clinic, urgent care center, emergency room, university student health center) are eligible to be sentinel providers.

Why Volunteer?

Epidemics of influenza usually occur during the winter months and are responsible for approximately 36,000 deaths per year in the United States. Influenza and pneumonia together were the eighth leading cause of death in Florida in 2004, with over 3,000 deaths statewide. Serious complications due to influenza can also occur in persons with chronic health conditions such as heart disease, diabetes, or HIV. Recently, human infections and deaths from bird flu (influenza A H5N1) reported worldwide since 2003 have generated great concern for this or another strain's potential for a pandemic.

Data from sentinel providers are critical for monitoring the impact of influenza. In combination with other influenza surveillance data, they can be used to guide prevention and control activities, vaccine strain selection, and patient care. Sentinel providers receive feedback on the data submitted, summaries of Florida and national influenza data, a free subscription to CDC's Morbidity and Mortality Weekly Report (valued at $150.00) and the Emerging Infectious Diseases Journal. Most importantly, the data provided are critical for protecting the public's health.

For more information, please contact **Erin O'Connell** at 305-470-5660.

About the Epi Monthly Report

The Epi Monthly Report is a publication of the Miami-Dade County Health Department, Office of Epidemiology and Disease Control, 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. For more information or to submit an article, contact Diana Rodriguez, Managing Editor, or Rodlescia Sneed at 305-470-5660.

Monthly Report
Selected Reportable Diseases/Conditions in Miami-Dade County, September 2006

Diseases/Conditions	2006 this Month	2006 Year to Date	2005 Year to Date	2004 Year to Date	2003 Year to Date	2002 Year to Date
AIDS *Provisional	94	911	1029	1079	762	814
Animal Rabies	0	0	0	0	0	0
Campylobacteriosis	19	138	105	108	102	72
Chlamydia trachomatis	508	3618	2955	3577	3383	3683
Ciguatera Poisoning	0	0	0	0	0	0
Cryptosporidiosis	9	22	25	16	9	6
Cyclosporosis	0	0	11	2	1	1
Dengue Fever	0	1	1	3	1	2
Diphtheria	0	0	0	0	0	0
E. coli, O157:H7	0	1	0	3	0	0
E. coli, Non-O157	0	0	1	1	2	1
E. coli, Other	0	0	0	0	0	0
Encephalitis (except WNV)	0	0	0	1	0	1
Encephalitis, West Nile Virus	0	0	0	14	5	2
West Nile Fever	0	0	0	4	0	0
Giardiasis, Acute	24	165	155	226	137	154
Gonorrhea	192	1431	1246	1323	1430	1575
Hepatitis A	8	37	48	34	46	119
Hepatitis B	2	20	37	26	45	36
HIV *Provisional	134	922	1107	1325	1227	1461
Lead Poisoning	15	116	129	215	190	222
Legionnaire's Disease	0	7	5	7	5	1
Leptospirosis	0	0	2	0	0	0
Lyme disease	0	0	0	3	4	2
Malaria	4	14	7	15	9	9
Measles	0	0	0	1	0	0
Meningitis (except aseptic)	1	12	11	8	7	4
Meningococcal Disease	4	12	5	15	3	11
Mumps	0	0	0	0	0	0
Pertussis	0	5	9	9	9	6
Polio	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Rubella, Congenital	0	0	0	0	0	0
Salmonellosis	52	400	391	330	382	236
Shigellosis	14	97	206	132	240	187
Streptococcus pneumoniae, Drug Resistant	5	83	53	54	96	82
Syphilis, Infectious	15	167	125	159	129	158
Syphilis, Other	70	504	441	635	795	796
Tetanus	0	0	0	0	0	0
Toxoplasmosis	0	0	9	5	8	14
Tuberculosis *Provisional	9	143	148	177	158	156
Typhoid Fever	3	6	2	3	4	3
Vibrio cholera Type O1	0	0	0	0	0	0
Vibrio cholera Non-O1	0	0	0	0	0	1
Vibrio, Other	0	0	0	0	1	0

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