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EDC-IS
Epidemiology, Disease Control & Immunization Services
MDCHD

Miami-Dade County Health Department
Epi Monthly Report

Innovative Alert System to Detect Possible School-Based Outbreaks of Influenza-like Illness

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Background

The Miami-Dade County Health Department (MDCHD) is Florida's largest county health department and serves the Miami metropolitan area of nearly 2.5 million persons. Approximately 350,000 students are enrolled in 436 schools in the Miami-Dade County Public Schools system (MDCPS), which includes public, charter, vocational, and alternative schools. Each school is required to enter students' attendance information daily into an MDCPS database, the Automated Student Attendance Recordkeeping System. Since 2007, MDCHD has automatically received these electronic raw data that contain students' demographic and geographic information, which includes gender, race/ethnicity, age, school code, and zip code. After the emergence of pandemic (H1N1) 2009 virus in April 2009, MDCHD designed an automated school-based absentee surveillance system (SBASS) at the beginning of the 2009–10 school year. This system had an alert function to monitor trends in absentee activity and potentially link absenteeism with influenza outbreaks. This paper assesses SBASS as an adjunct to traditional disease reporting.

Methods

Absentee data for MDCPS was evaluated during September 8–October 21, 2009. Eighty-seven charter and special education schools were excluded because of consistently unstable absenteeism levels. On the basis of MDCPS's previous year's mean of 4.9% absenteeism, an 8.0% threshold level was used. The mean and standard deviation were estimated in countywide and individual school levels. Alerts were automatically generated for an absentee rate >8%, and when the percentage was at least 1.0 SD beyond the mean of the previous 30 days in countywide or an individual school, compared with their own value. At 1.0 SD, a warning was signaled, and when the standard deviations were 1.96 and 2.58 beyond the mean, yellow and red alerts were triggered, respectively. These cutoffs were set to alert at the 95th and 99th percentiles, assuming the percentage of absenteeism was normally distributed. Only the yellow and red alerts were applied to countywide absenteeism trends by age group; however, all alerts were applied to the individual school trends. Combining absentee rates with an alert status helped exclude schools with percentage of absenteeism >8% without an alert

that, on the basis of historical data, typically have high absentee rates because of low attendance. SAS version 9.13 (SAS, Cary, NC, USA), Visual Basic (Microsoft, Redmond, WA, USA), and ArcGIS 9.3 (www.esri.com) were used to design an SBASS that created 4 reports. These comprised 1) a figure with the percentage of countywide absentee trends by age group (<5, 6–11, 12–14, 15–17, and >18 years of age); 2) a table with the countywide absentee percentages by mean, ratio, standard deviation, and alert status (red alert, yellow alert, or warning); 3) a list of the alerted schools; and 4) a geographic information system map with the alerted school locations.

Results

SBASS gave 61 red alerts, 28 yellow alerts, and 67 warnings during the study period (Table). After active investigation, 9 of 89 alerted schools were confirmed to have influenza outbreaks, and 71 persons with ILI were identified (Figure). Two of these 9 schools had simultaneously initiated reporting of outbreaks directly to MDCHD. Additionally, MDCHD received reports of suspected ILI activity from 24 public schools, none of which were confirmed outbreaks. Thus, 2 (8%) of 26 schools that directly reported to MDCHD had confirmed ILI outbreaks. Regardless of how ILI outbreaks were detected, all were investigated in accordance with EDC-IS protocol.

Conclusions

SBASS detected all influenza-related outbreaks among public schools and proved useful in conjunction with traditional surveillance methods. Pandemic (H1N1) 2009 was a novel disease with unknown implications; therefore, implementation of an aggressive surveillance approach was needed to better characterize and understand its public health effects, particularly among school-aged children.

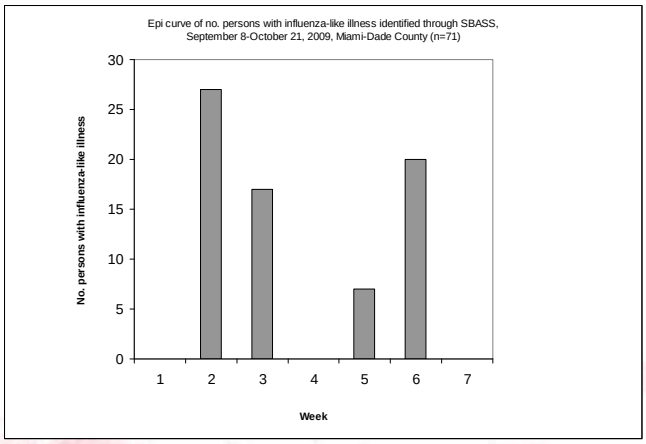
Major advantages of SBASS include its ability to identify schools with higher than normal absenteeism. The system assesses absenteeism against a historic baseline for each school. Schools with consistently high levels alone did not trigger an alert; only schools with higher than normal levels generated alerts and required follow-up. Use of SBASS also helped in the development of stronger partnerships between MDCHD and the school system. Frequent communication increased public health awareness and emphasized the vital role schools play in preventing and controlling disease. Additionally, the SBASS geographic information system mapping feature enabled better detection of geographic clustering when multiple schools had alerts.

Limitations of SBASS include its inability to capture reasons for absenteeism and its exclusion of private school attendance information. Furthermore, manual entry on the part of schools' attendance offices may lead to a lag in data submission time, and data entry errors. Future studies should aim to extend the study period and compare influenza trends over multiple years. Research using SBASS to detect other infectious disease outbreaks, not only in the event of a known source as was the case with pandemic (H1N1) 2009, should also be considered.

Table: ILI* identified through SBASS†, Miami-Dade County, 9/8 – 10/21, 2009

Week	Dates	Red alert	Yellow alert	Warning alert	# schools with outbreaks identified through SBASS	# ill identified through SBASS
1	9/8-9-11	3	2	17	0	0
2	9/14-9/18	8	2	16	1	27
3	9/21-9/25	9	11	10	2	17
4	9/28-10/02	9	4	7	0	0
5	10/5-10/9	16	4	11	2	7
6	10/12-10/16	16	5	6	1	20
7	10/19-10/21	0	0	0	3	0
	Total‡	61	28	67	9	71

*Influenza-like illness.
†School-based absentee surveillance system.
‡ 3 days were excluded due to school closures. On 10/20-21, high schools were excluded for FCAT testing and only elementary schools were counted.



On a Budget? Learn Cheap Ways to Be Healthy

Visit http://cdc.gov/Features/BudgetForHealth/

Everyday Health

- **Quit smoking.** Smoking is expensive, and that doesn't include the long-term costs associated with chronic disease and other problems that can develop later.

- **Subscribe to text4baby.** Get free health text messages for pregnant and new moms.

- **Vaccines for Uninsured Children.** Vaccine for Children Programs offers vaccines at no cost for eligible children thru VFC enrolled doctors.

- **Beans instead of meat.** Use canned or dried beans in recipes instead of meat, which is more expensive.

- **Breastfeed.** Breast milk is free and easy to digest for babies. Both babies and mother gain many benefits from breastfeeding.

- **Buy canned or frozen fruits and veggies.** Canned and frozen veggies can work just as well as the fresh alternatives, depending on recipe.

- **Buy seasonal fruits and vegetable.** Fruits and vegetables in season tend to be less expensive.

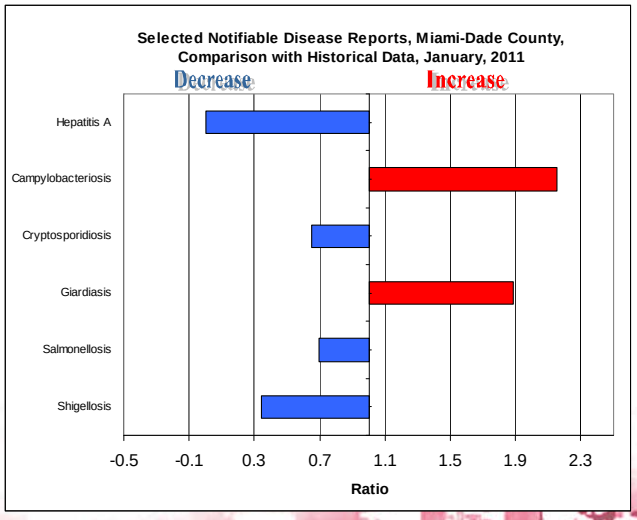
- **Cut your own fruits and vegetables.** Pre-cut fruits and vegetables tend to be more expensive.

- **Drink water.** Water is free and with water one avoids drinking sugar-sweetened beverage which tend to be more expensive.

- **Limit food portions.** Take control of the amount of food that ends up on your plate. Split an entrée with a friend.

- **Store brands.** Generic and store brands tend to cost less than name brands.

- **Use coupons.** Get discounts on your groceries.



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 305-325-3242
Tuberculosis Program 305- 575-5415
Immunization Service 305-470-5660
To make an appointment.....786-845-0550

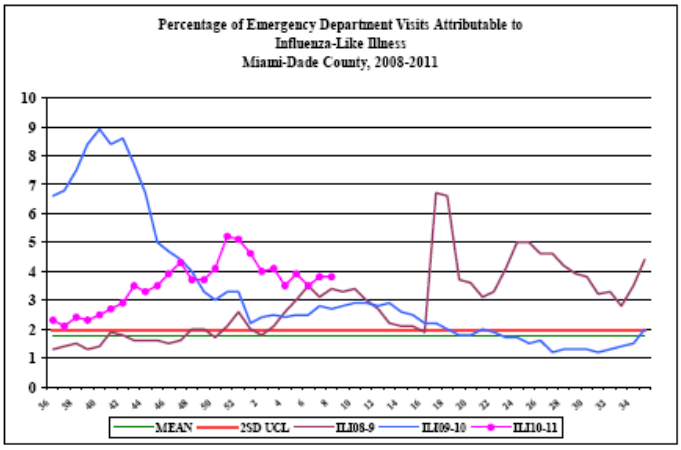
Miami-Dade County Health Department

EDC-IS Influenza/Respiratory Illness Surveillance Report

Week 08: 02/20/2011– 02/26/2011

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 10 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.



During this period, there were 22,125 ED visits; among them 848 (3.8%) were ILI. At the same week of last year, 2.7% of ED visits were ILI.

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

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
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, 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. For more information or to submit an article, contact Lizbeth Londoño at 305-470-6918.

Miami-Dade County Monthly Report
Select reportable Disease/Conditions
January 2011

Diseases/Conditions	2011 Current Month	2011 Year to Date	2010 Year to Date	2009 Year to Date
HIV/AIDS				
AIDS*	48	48	45	2
HIV	136	136	36	10
STD				
Infectious Syphilis	29	29	N/A	N/A
Chlamydia	712	712	N/A	N/A
Gonorrhea	191	191	N/A	N/A
TB				
Tuberculosis**	9	9	N/A	N/A
Epidemiology, Disease Control & Immunization Services				
Epidemiology				
Campylobacteriosis	27	27	6	6
Ciguatera Poisoning	1	1	0	3
Cryptosporidiosis	1	1	0	0
Cyclosporiasis	0	0	0	0
Dengue Fever	0	0	0	0
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	39	39	47	12
Influenza Novel Strain	0	0	0	0
Influenza, Pediatric Death	0	0	0	0
Legionellosis	1	1	0	0
Leptospirosis	0	0	0	0
Listeriosis	0	0	0	0
Lyme disease	0	0	0	0
Malaria	1	1	3	0
Meningitis (except aseptic)	0	0	0	0
Meningococcal Disease	0	0	0	1
Salmonellosis	22	22	13	27
Shigellosis	5	5	8	12
Streptococcus pneumoniae, Drug Resistant	8	8	10	7
Toxoplasmosis	0	0	0	0
Typhoid Fever	0	0	0	0
Vibriosis	1	1	0	0
West Nile Fever	0	0	0	0
Immunization Preventable Diseases				
Measles	0	0	0	0
Mumps	0	0	0	0
Pertussis	0	0	0	1
Rubella	0	0	0	0
Tetanus	0	0	0	0
Varicella	1	1	3	4
Hepatitis				
Hepatitis A	0	0	1	4
Hepatitis B (Acute)	0	0	0	0
Lead				
Lead Poisoning	14	14	0	0

*Data on AIDS are 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.