

Epi Monthly Report

Respiratory Outbreak Among Fire Fighters in Miami-Dade County

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Background

On February 8, 2006, the Office of Epidemiology and Disease Control (OEDC) received a report from the Miami-Dade County Fire Fighter Wellness Center (FFWC) regarding a suspected *Pertussis* outbreak among firefighters. According to the initial report, a total of 32 firefighters had required clinical services at the FFWC during the previous seven weeks due to complaints of persistent cough, malaise and/or fever. Some patients also presented with nausea, vomiting, and shortness of breath. Initial single serological reports showed elevated levels of immune globulin G (IgG), M (IgM) and A (IgA) titer for *B. Pertussis*.

The FFWC serves a population of approximately 1,500 firefighters at 48 facilities throughout Miami-Dade County. During a regular 24-hour work shift, the firefighters occupy common dormitories within their respective facility. Additionally, they often rotate between facilities over a monthly period.

OEDC staff immediately began a field investigation to ascertain the magnitude and etiology of this respiratory outbreak.

Methods

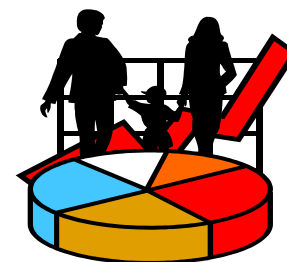
Epidemiological Investigation

A case was defined as a Miami-Dade County fire fighter complaining of cough

and fever, accompanied by sore throat, and/or other respiratory symptoms with onset of symptoms not earlier than December 12th, 2005. Case finding was initiated via medical record reviews among all patients visiting the FFWC with respiratory complaints during the seven-week period. Information retrieved from medical records included patient age, gender, date of onset, duration and severity of symptoms, treatment, and laboratory results.

Laboratory investigation

Initial laboratory tests requested by physicians at FFWC included single serologic testing for *B. pertussis*, influenza (rapid test and/or serum titers of influenza A and B), *Mycoplasma pneumoniae*, and bacterial culture for *Pertussis*. The OEDC investigators requested additional serologic tests including bacterial culture for *Pertussis*, respiratory viruses serology (Influenza A, Influenza B, Para-influenza 3, Adenovirus, *Mycoplasma pneumoniae*, Cytomegalovirus), and respiratory virus isolation (influenza A and B, adenovirus, parainfluenza 1, 2, and 3, and respiratory syncytial virus). Testing was provided through the Florida Department of Health Bureau of Laboratories (Miami and Jacksonville branches).



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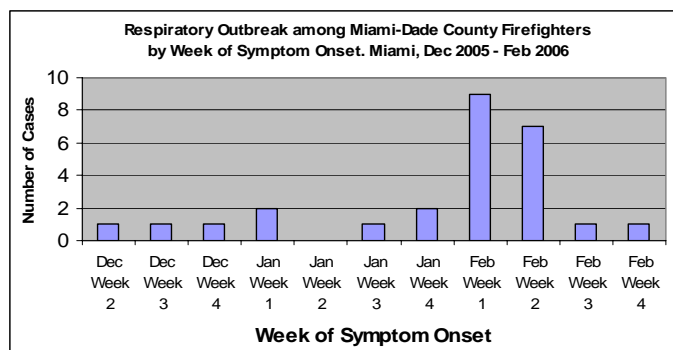


Results

Epidemiological Investigation

A total of 67 possible cases were identified through medical record review and initial patient reports. Twenty-six of the sixty-seven (38.8%) met the OEDC case definition for this outbreak. The attack rate among the Miami-Dade firefighter population was 1.7% (26/1500). The mean age among cases was 38 years old with a median of 37.7 (range 22-51). Nineteen cases (73.1%) were males and seven (26.9%) were females. Eight (30.8%) of the twenty-six cases reported cough lasting more than two weeks. Fifteen (57.7%) had cough lasting less than two weeks, and 3 (11.5%) had cough of unknown duration. All cases reported fever of at least 100°F. The first twenty cases received antibiotic treatment with erythromycin or trimethoprim-sulfamethoxazole. After the first positive influenza rapid test result, the remaining six cases were treated with oseltamivir (Tamiflu). All twenty-six cases fully recovered from this illness without complications.

An epidemic curve was created based on medical record information (Fig 1). The index case was a 32 years old male with an onset date of December 15, 2005. The outbreak peaked between 01/31/06 and 02/04/06, with 9 cases during this period.



Laboratory Results

Specimens from fourteen cases (53.8%) were submitted to the laboratory for *B. pertussis*/*B. parapertussis* bacterial culture; three could not be tested. The eleven remaining specimens were negative for *B. pertussis*/*B. parapertussis*. PCR was not available at either of the participating laboratories.

Three (27.3%) of eleven specimens submitted for influenza rapid test were positive for influenza A. Two (33.3%) of six specimens submitted for respiratory

viral isolation were positive for Influenza A. No other virus was identified among these cases.

Discussion and conclusions

Epidemiologic and laboratory investigations suggest that Influenza A was the agent responsible for this ongoing outbreak. The spread of this disease may have been facilitated by the frequent deployment of fire fighters to multiple facilities and the mixture of staff members from different stations on a given work shift. Additionally, most firefighters had not received seasonal influenza vaccinations, making them susceptible to this illness.

This outbreak was suspected to be a pertussis outbreak based on initial serologic surveys. A single DFA test for *B. Pertussis* has low specificity (frequent false positive results) and is not a confirmatory test. The gold standard laboratory test for diagnosis of *B. Pertussis* is isolation by bacterial culture; PCR testing of nasopharyngeal swabs is also a recommended technique. Additionally, a paired convalescent-phase specimen can be used for serological diagnosis of pertussis. It has good sensitivity and specificity when the acute serum is obtained early in the course of the illness.

A number of preventive measures were recommended throughout the course of this investigation, including education in basic personal hygiene, hand washing, and respiratory etiquette. Respiratory etiquette education emphasized the ease of influenza transmission via respiratory droplets from coughing and sneezing. Routine influenza vaccination among the firefighter population was also recommended.

References

1. Heymann, D. Control of Communicable Diseases Manual. 18th Edition. Washington, DC, American Public Health Association, 2004.
2. CDC. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2005;54 (No. RR-8).
3. CDC. Interim influenza vaccination recommendations, 2004--05 influenza season. MMWR 2004;53:923--4.



References (continued)

4. CDC. Influenza Antiviral Medications: 2005-06 Interim Chemoprophylaxis and Treatment Guidelines. <http://www.cdc.gov/flu/han011406.htm>
5. MMWR Recommended antimicrobial agents for Treatment and Postexposure Prophylaxis of Pertussis (2005)

**Influenza-Like Illness (ILI) Surveillance
Miami-Dade County, January-March 2006**

On a daily basis, 8 Miami-Dade County hospitals transmit Emergency Department chief complaint data to the Office of Epidemiology and Disease Control. This data is then categorized into several syndrome categories. Influenza-like illness includes complaints of fever with either cough or sore throat. It can also include a chief complaint of “flu”.

Since February, overall ILI activity in the county has decreased (Figure 1). The number of daily ILI visits in the 0-4 group peaked to 37 on February 12. During the month of March, there were a median 15.5, 12, 12, and 1.5 ILI visits in the 0-4, 5-17, 18-64, and 65+ age groups, respectively.

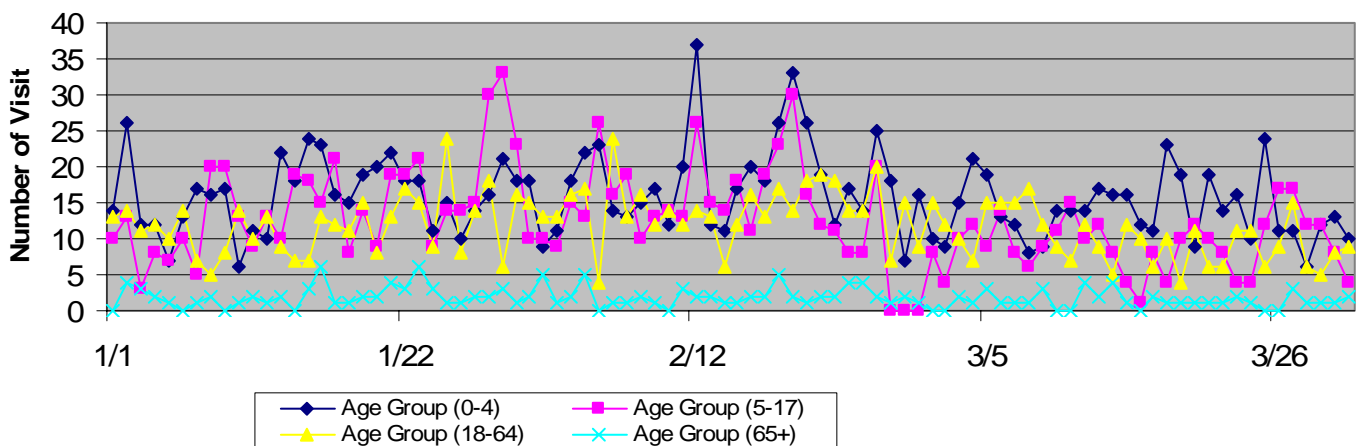
Figure 1.

**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
<i>STD Program</i>	<i>(305) 325-3242</i>
<i>Tuberculosis Program</i>	<i>(305) 324-2470</i>
Special Immunization Program	(786) 845-0550

**Influenza-Like Illness Based on Emergency Department Chief Complaint,
Miami-Dade County, January-March 2006**



Welcome Dr. Soyemi!



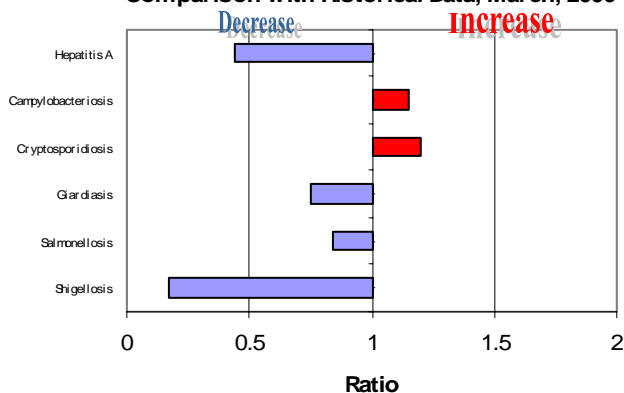
The Office of Epidemiology and Disease Control (OEDC) is pleased to welcome Kenneth Soyemi, MD, MPH as its new Assistant Director. Dr.

Soyemi will be directing the activities of the OEDC General Surveillance Unit. This unit is primarily responsible for notifiable disease reporting and outbreak investigations.

Dr. Soyemi comes to the Miami-Dade County Health Department with a wealth of clinical and management experience. He is board certified in pediatrics and board eligible in general preventive medicine / public health. Prior to joining the health department, Dr. Soyemi worked as an attending physician at Cook County Hospital in Chicago, Illinois. He also acted as a consultant for Illinois Medicaid.

Dr. Soyemi looks forward to working with all OEDC partners in the near future. He can be reached at (305) 470-5660.

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

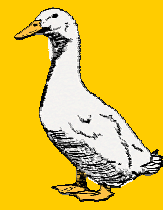


*Ratio of current month total to mean of 15 month totals (from previous, comparable, and subsequent month periods for the past 5 years).

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 Rodlescia Sneed, Managing Editor, at 305-470-5660.

AVIAN FLU WATCH



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

- **Since 2003, 205 human cases of avian influenza (H5N1) have been confirmed** by the World Health Organization (WHO). Of these, 113 have been fatal.
- **Countries with confirmed human cases** include , Cambodia, China, Indonesia, Thailand, Vietnam, Iraq, Azerbaijan, Egypt and Turkey.
- **No human cases of avian influenza (H5N1) have been reported in the United States.**
- **The most recently confirmed human H5N1 case occurred in China.** The case is an 8-year-old girl who developed symptoms of fever and pneumonia on April 16. She remains hospitalized. An initial investigation determined that poultry deaths occurred near the child's home. Of the 18 laboratory confirmed cases in China, 12 have been 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_AI-Asia.htm (Updated 04/20/06).
- **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.

SOURCES: World Health Organization; World Organisation for Animal Health; Centers for Disease Control and Prevention



Monthly Report
Selected Reportable Diseases/Conditions in Miami-Dade County,
January 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}	143	143	111	122	109	90
Animal Rabies	0	0	0	0	0	0
Campylobacteriosis	2	2	0	3	6	2
<i>Chlamydia trachomatis</i>	338	338	344	210	296	472
Ciguatera Poisoning	0	0	0	0	0	0
Cryptosporidiosis	0	0	0	0	2	0
Cyclosporiasis	0	0	0	0	0	0
Dengue Fever	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0
<i>E. coli</i> , O157:H7	0	0	0	0	0	0
<i>E. coli</i> , Non-O157	0	0	0	0	0	0
<i>E. coli</i> , Other	0	0	0	0	0	0
Encephalitis (except WNV)	0	0	0	0	0	0
Encephalitis, West Nile Virus	0	0	0	0	0	0
West Nile Fever	0	0	0	0	0	0
Giardiasis, Acute	3	3	2	5	1	3
Gonorrhea	117	117	142	86	143	229
Hepatitis A	2	2	1	1	0	0
Hepatitis B	1	1	0	0	0	0
HIV ^{Provisional}	125	125	138	154	123	173
Lead Poisoning	7	7	0	4	3	8
Legionnaire's Disease	0	0	1	0	0	0
Leptospirosis	0	0	0	0	0	0
Lyme disease	0	0	0	0	0	0
Malaria	0	0	0	0	0	1
Measles	0	0	0	0	0	0
Meningitis (except aseptic)	0	0	0	0	0	0
Meningococcal Disease	0	0	1	1	1	3
Mumps	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0
Polio	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Rubella, Congenital	0	0	0	0	0	0
Salmonellosis	9	9	4	5	12	8
Shigellosis	4	4	4	8	13	6
<i>Streptococcus pneumoniae</i> , Drug Resistant	0	0	0	0	4	11
Syphilis, Infectious	30	30	18	18	21	18
Syphilis, Other	30	30	46	54	89	87
Tetanus	0	0	0	0	0	0
Toxoplasmosis	0	0	0	0	0	0
Tuberculosis ^{Provisional}	19	19	14	12	24	13
Typhoid Fever	0	0	1	0	0	0
<i>Vibrio cholera</i> Type O1	0	0	0	0	0	0
<i>Vibrio cholera</i> Non-O1	0	0	0	0	0	0
<i>Vibrio</i> , Other	0	0	0	0	0	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.



Monthly Report
Selected Reportable Diseases/Conditions in Miami-Dade County,
February 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}	105	248	233	234	185	192
Animal Rabies	0	0	0	0	0	0
Campylobacteriosis	14	16	8	12	17	5
<i>Chlamydia trachomatis</i>	290	628	624	492	619	767
Ciguatera Poisoning	0	0	0	0	0	0
Cryptosporidiosis	2	2	3	1	2	1
Cyclosporiasis	0	0	0	0	0	0
Dengue Fever	0	0	0	0	0	1
Diphtheria	0	0	0	0	0	0
<i>E. coli</i> , O157:H7	0	0	0	0	0	0
<i>E. coli</i> , Non-O157	0	0	0	0	0	0
<i>E. coli</i> , Other	0	0	0	0	0	0
Encephalitis (except WNV)	0	0	0	0	0	1
Encephalitis, West Nile Virus	0	0	0	0	0	0
West Nile Fever	0	0	0	0	0	0
Giardiasis, Acute	20	23	13	25	15	12
Gonorrhea	99	216	259	202	298	387
Hepatitis A	4	6	4	5	2	7
Hepatitis B	2	3	2	4	2	2
HIV ^{Provisional}	80	205	228	263	273	327
Lead Poisoning	13	20	11	23	19	22
Legionnaire's Disease	0	0	1	0	0	0
Leptospirosis	0	0	0	0	0	0
Lyme disease	0	0	0	0	0	0
Malaria	0	0	0	0	2	1
Measles	0	0	0	0	0	0
Meningitis (except aseptic)	0	0	0	0	0	0
Meningococcal Disease	2	2	1	1	2	3
Mumps	0	0	0	0	0	0
Pertussis	1	1	0	0	0	0
Polio	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Rubella, Congenital	0	0	0	0	0	0
Salmonellosis	30	39	24	31	35	28
Shigellosis	15	19	22	21	36	21
<i>Streptococcus pneumoniae</i> , Drug Resistant	7	7	1	2	10	18
Syphilis, Infectious	15	45	29	34	32	32
Syphilis, Other	39	66	78	130	177	180
Tetanus	0	0	0	0	0	0
Toxoplasmosis	0	0	0	0	1	0
Tuberculosis ^{Provisional}	13	32	29	23	31	36
Typhoid Fever	1	1	1	1	1	0
<i>Vibrio cholera</i> Type O1	0	0	0	0	0	0
<i>Vibrio cholera</i> Non-O1	0	0	0	0	0	0
<i>Vibrio</i> , Other	0	0	0	0	0	0

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** Data on tuberculosis are provisional at the county level.



Monthly Report
Selected Reportable Diseases/Conditions in Miami-Dade County,
March 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}	105	248	233	234	185	192
Animal Rabies	0	0	0	0	0	0
Campylobacteriosis	14	16	8	12	17	5
<i>Chlamydia trachomatis</i>	290	628	624	492	619	767
Ciguatera Poisoning	0	0	0	0	0	0
Cryptosporidiosis	2	2	3	1	2	1
Cyclosporiasis	0	0	0	0	0	0
Dengue Fever	0	0	0	0	0	1
Diphtheria	0	0	0	0	0	0
<i>E. coli</i> , O157:H7	0	0	0	0	0	0
<i>E. coli</i> , Non-O157	0	0	0	0	0	0
<i>E. coli</i> , Other	0	0	0	0	0	0
Encephalitis (except WNV)	0	0	0	0	0	1
Encephalitis, West Nile Virus	0	0	0	0	0	0
West Nile Fever	0	0	0	0	0	0
Giardiasis, Acute	20	23	13	25	15	12
Gonorrhea	99	216	259	202	298	387
Hepatitis A	4	6	4	5	2	7
Hepatitis B	2	3	2	4	2	2
HIV ^{Provisional}	80	205	228	263	273	327
Lead Poisoning	13	20	11	23	19	22
Legionnaire's Disease	0	0	1	0	0	0
Leptospirosis	0	0	0	0	0	0
Lyme disease	0	0	0	0	0	0
Malaria	0	0	0	0	2	1
Measles	0	0	0	0	0	0
Meningitis (except aseptic)	0	0	0	0	0	0
Meningococcal Disease	2	2	1	1	2	3
Mumps	0	0	0	0	0	0
Pertussis	1	1	0	0	0	0
Polio	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Rubella, Congenital	0	0	0	0	0	0
Salmonellosis	30	39	24	31	35	28
Shigellosis	15	19	22	21	36	21
<i>Streptococcus pneumoniae</i> , Drug Resistant	7	7	1	2	10	18
Syphilis, Infectious	15	45	29	34	32	32
Syphilis, Other	39	66	78	130	177	180
Tetanus	0	0	0	0	0	0
Toxoplasmosis	0	0	0	0	1	0
Tuberculosis ^{Provisional}	13	32	29	23	31	36
Typhoid Fever	1	1	1	1	1	0
<i>Vibrio cholera</i> Type O1	0	0	0	0	0	0
<i>Vibrio cholera</i> Non-O1	0	0	0	0	0	0
<i>Vibrio</i> , Other	0	0	0	0	0	0

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