‘An Eye on the Ball is Worth a Million Bytes’; Putting Syndromic Surveillance in its Proper Place With EARS Louisiana, 2007

Syndromic Surveillance is the collection and analysis of pre-diagnostic and non-clinical disease indicators using pre-existing electronic data, with the purpose of:

1. Rapidly detecting clusters of symptoms and health complaints that might indicate a disease outbreak or other public health threat
2. Monitoring trends in syndromes of public health importance

The detection of outbreaks relies on reports by clinicians, laboratory personnel, public health staff or any health care provider noticing an unusual number of cases (confirmed or suspected). The need for rapid detection of disease clusters results from the threat of bioterrorism. The increasing availability of electronic health data has led to the development of new surveillance systems which aim at early and complete detection of outbreaks. Although the usefulness of surveillance systems for early detection and response to outbreaks has not been established, substantial costs can be incurred in developing or enhancing and managing these surveillance systems and investigating false alarms.

Outbreaks comprising a small number of cases cannot be detected by the electronic surveillance system since the small number of cases is drowned in the background noise of other cases. However, such outbreaks can be detected by astute observers who notice a few unusual cases. The following are a few examples:

- Five cases of diarrhea and unusual neurological symptoms were noted by a group of friends who had dinner together at a restaurant. They reported this to the chef who contacted Office of Public Health (OPH) sanitarians who informed the Infectious Disease Epidemiology Section (IDES). The investigation led to identification of a cluster of ciguatera from eating a fish caught in the Gulf. (See story on page 3 in this issue of the Louisiana Morbidity Report)
- A pathologist noted three unusual cases of fatal interstitial pneumonias. This investigation is pending.
- A man ate a tuna steak and salad at a restaurant and became sick with headache, nausea, hives, palpitations and a flushed face a few hours later. The physician he consulted the next day diagnosed scombroid. The patient researched the disease, became aware of its epidemiology and clinical presentation and reported the disease to the health department.

On the other hand, large outbreaks can be easily detected and reported by health care providers. No sophisticated electronic syndromic surveillance is useful for these outbreaks.

- Two hundreds students at a high school are absent. The investigation showed norovirus as the cause of the outbreak.
- Twelve persons are transported by Emergency Medical Services to an emergency room at night. All had participated in an office party. The investigation showed a toxin-infection by Clostridium perfringens as the culprit.

Syndromic surveillance would be useful in detecting small size outbreaks that would otherwise be undetected at least in the early stages. These are chiefly outbreaks of respiratory illnesses. These outbreaks are very common, particularly in the winter season and are due to a wide array of respiratory viruses. Investigation of these outbreaks are not productive. These are due to person-to-person

(Continued on page 5)
Influenza Activity Summary
Louisiana, 2007-2008 Season
Joanna Eavey, MPH; Ruben Tapia, MPH

Surveillance for influenza activity in Louisiana is conducted through a network of sentinel surveillance sites, including schools, nursing homes, hospital ER/EDs and laboratories and private physicians’ offices throughout the state. During the 2006-2007 influenza season, a total of 116 sites contributed 4479 weekly reports of influenza activity to the Office of Public Health (OPH).

Influenza activity in Louisiana peaked twice during the 2006-2007 season. One peak occurred in mid-December, 2006 and a smaller peak occurred in late February, 2007. These trends were mirrored by activity in the West South Central region of the U.S. (Texas, Oklahoma, Arkansas and Louisiana). In southern and eastern Louisiana, influenza activity peaked only in December, 2006 - while northern and western regions of the state also showed the second peak in activity in February. In all regions, activity returned to baseline levels by the end of April.

Sentinel physicians reported more Influenza Like Illness (ILI) this season compared to the previous two influenza seasons (Figure 1).

The early peak in activity that occurred in early December, 2006 was not seen during the previous two seasons. However, during the last three seasons, there has been a peak in activity during January/February (around weeks 4 - 8). Activity peaked in January/February of 2007 in surrounding states, as well.

During the 2006-2007 season, a total of 3829 laboratory confirmed cases of influenza were reported from sentinel surveillance sites (Figure 2).

Trends in the number of laboratory confirmed cases reported mirrored trends in reported ILI. One thousand six hundred and fourteen (42%) of reported laboratory confirmed cases were type A, 638 (17%) were type B and 1604 (42%) were not reported by type. Type B influenza accounted for over fifty percent of reported, typed cases from the beginning of the season through the middle of November 2006, after which influenza type A predominated. Sporadic confirmed influenza cases continued to occur through June, 2007. No confirmed cases were reported from July 2007 through the middle of September, 2007.

A trivalent vaccine will be used during the 2007-2008 influenza season. The strains for both inactivated and live, attenuated vaccines are A/Solomon Islands/3/2006 (H1N1)- like virus, A/Wisconsin/67/2005 (H3N2)- like virus and B/Malaysia/2506/2004- like antigens. These viral strains are used because they are representative of influenza viruses that are anticipated to circulate in the United States during the 2007-2008 season.

For the current influenza season, there have been two principal changes to OPH’s high risk influenza immunization policy:
1. ACIP recommends vaccination to all children six months through eight years with two doses of flu vaccines.
2. ACIP recommends that children aged six months through eight years who received only one dose in their first year of vaccination should receive two doses the following year. Thereafter, these children should be vaccinated with one dose annually.
The Louisiana OPH is currently recruiting schools, nursing homes, hospitals and physicians’ offices to participate in its sentinel surveillance program for influenza. To learn more about this program, please contact the Influenza Surveillance Coordinator at (504)219-4563 or email tsokol@dhh.la.gov. To learn more about the influenza vaccine, please contact Ruben Tapia at (504)838-5300 or email rtapia@dhh.la.gov.

A summary report of influenza activity in Louisiana is issued each week and participants receive a certificate of participation at the end of each influenza season. For more information about this program, please contact the Influenza Surveillance Coordinator at (504)219-4546.

Ciguatoxin Poisoning

Louisiana, 2007

Annu Thomas MSc., MPH

In July 2007, eight cases of ciguatera fish poisoning were reported to the Louisiana Office of Public Health (OPH). These cases were associated with ingestion of marbled grouper at a dinner function. The mean incubation time was 6.8 hours, (with a range of 2.5 to 12 hours). None of the cases sought medical attention. The types of symptoms experienced by the eight cases were weakness and shaking, itching, burning on urination, diarrhea, nausea, bad or metallic taste, reversal in the sensing of hot or cold temperatures, weakness in the legs, general body aches, tooth pain and numbness and tingling around the mouth.

The fish were caught in the northern Gulf of Mexico, eight to ten miles northwest of E. Flower Gardens National Marine Sanctuary (FGNMS), approximate coordinates 27°56’ and 93° 35’ (Figure 1).
The location is Area 16 on the map of Federal waters, approximately ninety miles from the Louisiana shoreline (Figure 2).

Two whole fish and one filet of the marbled grouper from the same batch consumed by the persons who experienced symptoms were sent to be tested at the Food and Drug Administration (FDA), Gulf Coast Seafood Laboratory, Dauphin Island, Alabama.

The Caribbean ciguatoxin was identified using techniques such as high-performance liquid chromatography (LC) and mass spectrometry (MS). An acetone extract of 1.0 gram of flesh from each sample was subjected to solvent partitioning and solid phase extraction.

The extracts were examined for the presence of ciguatera-related toxins using the sodium channel-specific mouse neuroblastoma ("cytotoxicity") assay. Caribbean ciguatoxin-1 (C-CTX-1) was used as a standard. Gradient reverse phase HPLC (LC) with mass spectrometric (MS) detection is then used to confirm Caribbean CTX-1 in the fish tissue extracts (Figures 3 & 4).

Ciguatera fish poisoning is characterized by gastrointestinal symptoms such as nausea, vomiting, diarrhea cramps with onset ranging from two to thirty hours after ingestion; however, symptoms most commonly begin within two to six hours. Cardiovascular symptoms may be present during this acute period, such as bradycardia with hypotension.

Within a few hours to two weeks after consumption of contaminated fish, neurologic symptoms such as weakness, paresthesias (tingling), severe pruritus (itching), paradoxical disturbance of temperature sensation, tooth pain or the feeling that teeth are loose, pain on urination and blurred vision can occur.

Complete recovery from gastrointestinal symptoms usually happens within a couple of days, but neurologic symptoms can recur periodically. The neurological symptoms of ciguatera poisoning, especially the paresthesias and weakness, can persist in varying severity for weeks to months after the acute illness.

In 1998, in a study by Flemint et al, it was estimated that there were 50,000-500,000 ciguatera poisonings per year world-wide. However, it is a substantial cause of morbidity in areas where ciguatera is endemic. Ciguatera-endemic U.S. states and territories include Ha-
Announcements

Updates: Infectious Disease Epidemiology Webpage
http://www.infectiousdisease.dhh.louisiana.gov

ANNUAL REPORT/ INFECTIOUS DISEASE SURVEILLANCE REPORTS: Chlamydia; Rabies

ANTIBIOTIC SENSITIVITY: Trends 2006

EPIDEMIOLOGY MANUAL: Hepatitis A; Varicella Summary

INFECTION CONTROL: Guidelines; Presentations

LOUISIANA MORBIDITY REPORT: 1969

MRSA: New page

PUBLIC INFORMATION: Campylobacter; Cholera & Vibrio; Lyme Disease; S. aureus (MRSA)

SPECIAL STUDIES: 11/5/07 Update to ‘Mortality in the Greater New Orleans Area, Louisiana-Post Katrina’; Creutzfeld-Jakob Disease in Louisiana, 1980-2006 - JLSMS

VETERINARY INFORMATION: Aminoglycosides; Sulfonamides

TRAINING: FET I & II

The Infectious Disease Epidemiology Section will repeat the Field Epidemiological Techniques I and II classes on February 19-20, 2008. This training will be targeted towards sanitarians, public health nurses, infection control professionals, disease surveillance specialists, epidemiologists, laboratory workers, health care providers and other public health care professionals interested in epidemiological principles and outbreak investigations. This workshop will take place in New Orleans and is free of charge although registration is required. There is a separate registration form for each day. For information, agendas and registration forms please go on-line to http://www.dhh.louisiana.gov/offices/page.asp?id=249&detail=7560 or email rroberts@dhh.la.gov; phone (504)219-4548.

Note: Guest room at the conference hotel must be reserved before January 18th for the special rate.

(An Eye on the Ball......Continued from page 1)

The approach taken by the OPH has been to strengthen the links between public health staff (health unit, regional and central staff) with the health care provider community, media, community groups and individuals. Being out in the community, talking about public health and promoting prevention is the way to improve relationships with the community and consequently enhance reporting of disease clusters.

On the other hand, syndromic surveillance is a very useful tool to monitor trends in syndromes of public health importance.

In recognition of the urgent need for monitoring trends of specific health conditions following Hurricanes Katrina and Rita in August/September of 2005, the Centers for Disease Control and Prevention (CDC) conducted detailed daily abstracts of emergency department records for all persons seen in permanent and temporary medical facilities in the New Orleans area in September, 2005. In addition, OPH conducted statewide surveillance of evacuee shelters until all shelter inhabitants were relocated to non-shelter housing. After CDC discontinued its daily abstracting of New Orleans-area emergency department records in October, 2005, OPH began piloting the use of the CDC’s Early Aberration Reporting System (EARS), a syndromic surveillance system that uses pre-existing databases to identify and analyze the frequency of occurrence of cases that meet user-defined syndrome definitions. IDES began using EARS to detect changes in the prevalence of asthmatic, diarrheal, upper and lower respiratory symptoms in the New Orleans area by analyzing emergency room chief complaint data sent to IDES on a regular bases by several New Orleans-area hospitals.

EARS has been useful to show that:

- There was no unusual proportion of emergency department visits for cough or upper respiratory infection (irritation) in the New Orleans area in the months following Katrina. EARS showed expected seasonal variations.
- Coupled with case control studies it was useful in debunking the myth of the “Katrina cough”. ("Katrina cough" was a combination of seasonal viral upper respiratory infections and possible upper respiratory irritation from dust or work indoors in poorly ventilated areas with no respiratory protection.
- There was no unusual proportion of diarrheas in emergency department visits in spite of the perception that the post-Katrina soil was loaded with E. coli, Aeromonas and other enteric pathogens
- There was no unusual proportion of asthma visits in the emergency departments.

In summary, OPH continues to rely on people to report unusual events, unusual clusters of syndromes or disease. The OPH use of syndromic surveillance is emphasized for monitoring trends in syndromes of public health importance.

For references or more information, please call (504) 219-4563.
**Operation Prepare, Regions 1 and 3 - Louisiana, 2007**

*Grace Ejigiri MPH; Penny Cuneo RN BSN*

Operation Prepare is an Office of Public Health (OPH) outreach activity created to distribute evacuation and disaster preparedness information to populations in vulnerable communities. It began in 2006 in Region 1 (New Orleans) and in 2007 was expanded to other regions within the state including Region 3 (Thibodaux). Objectives varied regionally but the overall mission was to provide emergency preparedness education to at-risk communities in vulnerable areas. Additionally, in both sites a brief survey was developed to assess participants’ plans in the event of an emergency. The questions addressed where residents get emergency information, plans to evacuate, transportation availability, whether residents had an emergency supply kit and medical needs assistance.

**Region 1**

Operation Prepare was conducted at two sites on June 29, 2007 and July 1, 2007. The first site, the Iberville Housing Development, is a public housing community located in downtown New Orleans. The second site, Mary Queen of Vietnam Church in the Village de L’est neighborhood of New Orleans East, is a central part of the New Orleans area Vietnamese community. At the Iberville site, OPH staff went door to door to administer the survey. A total of 674 surveys were collected in Region 1 (153 in Iberville and 521 in Village de L’est). The survey was translated into Vietnamese and administered before church services at Mary Queen of Vietnam. Two questions were omitted from the Vietnamese survey.

- The majority of Iberville (83.4%) and Vietnamese (89%) respondents plan to leave if evacuation orders are given for a hurricane.
- 42.1% of Iberville respondents will not have transportation in an emergency evacuation.
- The majority of Iberville respondents (78.4%) received their information from TV/radio news. The majority of Vietnamese respondents receive information about emergency situations from television (60.1%) and church (52.2%).
- 73.7% of Vietnamese respondents reported having an emergency supply kit. Almost half (49.7%) of Iberville respondents reported having an emergency supply kit.
- 31.5% of Iberville respondents have someone in their household who will require special medical assistance during an evacuation.

**Region 3**

OPH Region 3 organized and carried out Operation Prepare on August 4, 2007. The mission was to improve the health and well-being of vulnerable communities. OPH staff was divided between two sites to distribute education materials and conduct the survey. The communities targeted during Operation Prepare were a lower lying area of Terrebonne Parish (Shrimper’s Row in Dulac) and the Boutte Estates housing development in St. Charles Parish. A total of 311 surveys were collected between the two sites (127 in St. Charles and 184 in Dulac).

- 88.8 % of all survey respondents claimed they would evacuate if evacuation orders were given for a hurricane.
- 90.7% of survey respondents claimed they would have transportation in the event of an emergency evacuation.
- Almost three-fourths of the survey respondents (74%) stated they get information regarding emergency situations from radio or TV.
- 59.1% of survey respondents claimed they have an emergency kit.
- The majority of respondents (80%) stated they do not have anyone in their household requiring special medical assistance.

**Summary**

Overall, Operation Prepare was a success in both regions. Regional objectives were met, OPH staff provided essential emergency preparedness information and health services to high risk communities. There were similarities between Region 1 and Region 3 survey respondents. Most reported that they plan to evacuate in the event of a hurricane (Table 1).

**Table 1: Do you plan to leave if evacuation orders are given for a hurricane? –Regions 1 and 3 - Louisiana, 2007**

<table>
<thead>
<tr>
<th>Region 1</th>
<th>Region 3</th>
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TV or radio is a main source of emergency information. Continuing to stress the importance of developing a personal emergency plan and providing emergency preparedness education are necessary components in assuring the well-being of communities in an emergency.

For more information, please call Ms. Ejigiri at (504)588-0100 or email at oeijingiri@dhh.la.gov or Ms. Cuneo at (985) 447-0916 or email pcuneo@dhh.la.gov.

**Louisiana Fact**

At the age of ninety-two, Dr. Anthony Stefanski is the oldest living veterinarian in the state having practiced in southwest Louisiana covering fourteen parishes from Terrebonne to Lake Charles.

In 1936 at the age of twenty-one, he was one of the first and youngest graduate veterinarians in the United States coming to Louisiana from Pennsylvania. (At that time, it was rare for a veterinarian to complete a four-year college curriculum in Veterinary Medicine.)

As a thirty-seven year employee of the U.S. Federal Government, Bureau of Animal Industry, Dr. Stefanski worked both to control and eradicate disease in livestock such as tuberculosis, brucellosis, hog cholera and preventing the importation of diseased animals to Louisiana.
## LOUISIANA COMMUNICABLE DISEASE SURVEILLANCE

### September-October, 2007

#### Table 1. Disease Incidence by Region and Time Period

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<th>9</th>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>NA*</td>
</tr>
<tr>
<td>Vibrio, other</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>19</td>
<td>28</td>
<td>-32.1</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. influenzae (other)</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>5</td>
<td>6</td>
<td>18</td>
<td>-66.7</td>
</tr>
<tr>
<td>N. Meningitidis</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>27</td>
<td>34</td>
<td>-20.6</td>
</tr>
</tbody>
</table>

1 = Cases Per 100,000  
2 = These totals reflect persons with HIV infection whose status was first detected during the specified time period. This includes persons who were diagnosed with AIDS at time HIV was first detected.  
Due to delays in reporting of HIV/AIDS cases, the number of persons reported is a minimal estimate. Data should be considered provisional.  
* Percent Change not calculated for rates or count differences less than 5

#### Table 2. Diseases of Low Frequency (January-October, 2007)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Total to Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legionellosis</td>
<td>3</td>
</tr>
<tr>
<td>Lyme Disease</td>
<td>2</td>
</tr>
<tr>
<td>Malaria</td>
<td>14</td>
</tr>
<tr>
<td>Rabies, animal</td>
<td>6</td>
</tr>
<tr>
<td>Varicella</td>
<td>104</td>
</tr>
</tbody>
</table>

#### Table 3. Animal rabies (September-October, 2007)

<table>
<thead>
<tr>
<th>Parish</th>
<th>No. Cases</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jefferson Davis</td>
<td>1</td>
<td>Dog</td>
</tr>
<tr>
<td>Lafayette, contracted</td>
<td>1</td>
<td>Horse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>virus in Vermillion</td>
</tr>
</tbody>
</table>
LAC 51:II.105: The following diseases/conditions are hereby declared reportable with reporting requirements by Class:

**Class A Diseases/Conditions - Reporting Required Within 24 Hours**
Diseases of major public health concern because of the severity of disease and potential for epidemic spread-report by telephone immediately upon recognition that a case, a suspected case, or a positive laboratory result is known; in addition, all cases of rare or exotic communicable diseases, unexplained death, unusual cluster of disease and all outbreaks shall be reported.

Anthrax

Avian Influenza

Botulism

Brucellosis

Cholera

Diphtheria

Haemophilus influenzae (invasive disease)

Influenza-associated Mortality

**Class B Diseases/Conditions - Reporting Within 3 Business Days**
Diseases of public health concern needing timely response because of potential of epidemic spread-report by the end of the next business day after the existence of a case, a suspected case, or a positive laboratory result is known.

Arthropod-Borne Neuroinvasive Disease and other infections (including West Nile, St. Louis, California, Eastern Equine, Western Equine and others)

Aspergillus meningitis

Chancroid¹

E. coli, Shig-toxin producing (STEC), including E. coli/0157:H7

Cryptosporidiosis

Cryptococcosis

Cyclosporiasis

Dengue

Ehrlichiosis

Enterococcus, Vancomycin Resistant

E. coli

**Class C Diseases/Conditions - Reporting Required Within 5 Business Days**
Diseases of significant public health concern-report by the end of the workweek after the existence of a case, suspected case, or a positive laboratory result is known.

Acquired Immune Deficiency Syndrome (AIDS)

Blastoecytosis

Campylobacteriosis

Chlamydia infection¹

Coccidioidomycosis

Cryptosporidiosis

Cyclosporiasis

Diabetes

E. coli

Entero-bacter, Vancomycin Resistant

Encephalitis

E. coli

**Class D Diseases/Conditions - Reporting Required Within 5 Business Days**
Diseases of major public health concern-report by the end of the workweek after the existence of a case, a suspected case, or a positive laboratory result is known.

Arthropod-Borne Neuroinvasive Disease and other infections (including West Nile, St. Louis, California, Eastern Equine, Western Equine and others)

Class C Diseases/Conditions - Reporting Required Within 5 Business Days
Diseases of significant public health concern-report by the end of the workweek after the existence of a case, suspected case, or a positive laboratory result is known.

Acquired Immune Deficiency Syndrome (AIDS)

Blastoecytosis

Campylobacteriosis

Chlamydia infection¹

Coccidioidomycosis

Cryptosporidiosis

Cyclosporiasis

Diabetes

E. coli

Enterococcus, Vancomycin Resistant

Encephalitis

E. coli

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