September 2011

"The reason for collecting, analyzing and disseminating information on a disease is to control that disease. Collection and analysis should not be allowed to consume resources if action does not follow."

Foege WH., International Journal of Epidemiology 1976; 5:29-37

In This Issue

Commentary from the State Epidemiologist

Richard S. Hopkins, M.D., M.S.P.H.

How do infectious disease prevention and control programs benefit the people of the state?

This commentary was written to help us understand what the benefits are of infectious disease prevention and control programs and how we might start to quantify them.

What do we actually do in infectious disease control programs – whether for person-to-person diseases or those from a common source?

- We track the occurrence of cases, so that we know how big the problem is with each disease of concern. We want to know whether the problem is getting bigger or smaller and which people, in what locations and with what characteristics are at greatest risk.
- We help doctors, hospitals and county health departments make the correct diagnoses, particularly with rare or hard-to-diagnose diseases.
- We further characterize agents causing disease, in order to identify cases that are related to each other.
- We help make sure that people with certain infectious diseases get the correct treatment, both for their own benefit and to reduce the chances they will infect others.
- We identify and investigate outbreaks and epidemics, so that we can take the correct steps to stop the epidemic, by identifying the source or mode of spread of the epidemic, removing the source, or intervening to stop the spread, and so that we can learn how to prevent future epidemics.

- We take control measures to prevent cases from ever occurring. These may be
    - environmental measures (providing safe food, drinking water, and milk, controlling disease vectors, separating people from hazards).
    - vaccines for children or adults.
    - educational (giving people information they need to protect themselves and others)
    - general living conditions that reduce spread, such as reduced residential crowding.
- We take control measures to prevent spread once we have cases, such as
    - making sure contacts are identified and get needed medicines or vaccines to prevent disease.
    - asking or requiring ill persons to limit their activities for as long as they are infectious, by staying out of certain work activities or staying home from work or school.
    - asking or requiring contacts of cases to limit their activities until it is clear whether they will develop a disease to which they have been exposed.
    - taking situation-specific environmental control measures, such as boil water orders, stop sale orders on food items or medicines, vector control activities, or other measures to remove environmental exposures.
- We can infer that these control measures are effective when:
    - disease rates are falling and/or very low; or
    - well-done scientific studies have been carried out showing the effectiveness of the control measures, and
    - ongoing program evaluations show that the correct interventions have been applied and they have been applied correctly.

It is very hard to be sure what would have happened had the control measures not been implemented. Some diseases have been actually or virtually eradicated in our state (smallpox, measles, local malaria, Hemophilus influenzae meningitis), some are steadily decreasing in numbers without being close to eradication (tuberculosis, meningococcal meningitis, infectious hepatitis), while others have proved to be relatively resistant so far to our control efforts (salmonellosis, gonorrhea, chlamydia, HIV/AIDS). Our general approach is to apply control measures of known effectiveness as energetically and efficiently as it is possible to do so, while remaining consistent with community norms.

Effective communicable disease control and prevention in the real world involves striking a balance between effective control (which protects the entire community) and limitations on individual liberty. The general rule is that the least intrusive measures should be taken that will be effective in protecting the community, although people of goodwill can and do differ in their views about where the correct balance is. It is proper and inevitable that public health agencies work at the direction of elected officials. Such officials generally hear from, and are responsive to, both citizens who feel that public health officials have been too intrusive, and citizens who fear that they and their families are not being adequately protected from disease.

It is difficult to quantify the impacts of some of our disease prevention activities; it may be helpful to enumerate how infectious disease prevention and control help individuals and communities. In principle, each of these benefits could be quantified.

At the individual level:

- People live longer.
- People live healthier lives, with less disability.
- Children are less likely to be orphaned by loss of parents to infectious diseases.
- Parents are less likely to lose children.

- People do not incur health care costs, sometimes very large, for care of their infectious disease or their complications (such as brain damage, blindness, paralysis, or heart disease).
- People do not lose income or jobs because of infectious diseases.
- Children's schooling is not interrupted by infectious diseases.

At the family level:

- People do not incur health care costs for care of infectious diseases and their complications in their family members.
- Parents are less likely to have to care for a child disabled by an infectious disease (like diphtheria, polio, congenital rubella, congenital syphilis, or tuberculosis).
- People do not incur health care costs for care of infectious diseases and their complications in their family members.
- People do not suffer income loss from having to care for ill family members.

At the community level:

- Everyone in the community is protected from unpredictable and potentially serious illness from infectious diseases when prevention and control measures are properly applied.
- There is less loss of productivity in the workplace because of infectious disease-related absenteeism and disability.
- Employers can count on healthy workforces.
- Tourism is enhanced when tourist destinations are known to be safe and healthy.
- People will want to raise families in healthy locations.
- Overall, healthcare costs are lower for populations of people who are free of most infectious diseases.
- Life expectancy and years of healthy life are improved.

A community might ask itself, how much is it worth to us to be as free from serious infectious diseases as current technology and knowledge allow us to be? A community has a right to expect its communicable disease control services to be operated based on good scientific information, and to be so managed as to get the most disease prevention effect possible per dollar spent, within community norms. In the end, a community has to make a choice about how well protected it wants to be. For example, funds spent at the local level on disease control and prevention are not available for other valued purposes, such as roads, schools, libraries, social services, or law enforcement, and vice versa.

Richard S. Hopkins is the Acting State Epidemiologist and the Acute Disease Section Administrator with the Bureau of Epidemiology, Florida Department of Health. He can be contacted at 850.245.4412 or by email at Richard_Hopkins@doh.state.fl.us.

The 2011 Davies Public Health Award

Mary Hilton, M.N.O.

Aaron Kite-Powell accepting the award presented by Jonathan French

The 2011 Nicholas E. Davies Public Health Award was presented to the Florida Department of Health, Bureau of Epidemiology for its syndromic surveillance system: Electronic Surveillance System for the Early Notification of Community-based Epidemics, Florida (ESSENCE-FL). The award recognizes excellence in the implementation and use of health information technology, for healthcare organizations, private practices, and public health systems.

The announcement was made at the 2011 Public Health Informatics Conference in Atlanta, Georgia and was presented by Jonathan French, Federal Affairs Team Manager for the Health Information Management Systems Society (HIMSS).

The Florida Department of Health is pleased to receive the significant national award that highlights the quality and depth of Florida's communicable disease surveillance staff and systems. Receiving the award at the conference on behalf of the Bureau of Epidemiology was Aaron Kite-Powell, M.S., Surveillance Epidemiologist who is responsible for the day-to-day management and oversight of ESSENCE-FL. Also included in the award were Janet J. Hamilton, M.P.H., and Richard S. Hopkins, M.D., M.S.P.H.

Nicholas E. Davies Public Health Award

ESSENCE-FL is a biosurveillance system that collects emergency department chief complaint data from participating hospitals and urgent care centers in Florida, call-center data from the Florida Poison Information Center Network, reportable disease data from the Merlin database, and mortality data from the Florida Office of Vital Statistics. The objective of this flexible surveillance system is to provide the epidemiologist with the data sources and analytic tools needed to identify and monitor outbreaks or unusual trends more rapidly, leading to a timelier and more effective public health response.

Mary Hilton is the Acting Bureau Chief, and Operations and Management Administrator for the Bureau of Epidemiology, Florida Department of Health. She can be contacted at 850.245.4401 or by email at Mary_Hilton@doh.state.fl.us.

FirstWatch® Real-Time Early Warning System-- Pinellas County, 2011

Kimberly Davis, M.P.H., Sharlene E. Edwards, M.P.H.

Background

FirstWatch® Real-Time Early Warning System is a software system that is used to provide situational awareness, data surveillance, and possible indication of a Weapons of Mass Destruction or Bioterrorism occurrence. Developed in 1999, FirstWatch® allows authorized users a way to monitor trends and patterns related to emergency medical services and calls received at 9-1-1 dispatch centers. Pinellas County Emergency Medical Services (EMS) uses FirstWatch® as a resource management tool since the system allows monitoring of dispatch logs for trends based on pre-set criteria. EMS receives alerts on a wide variety of keywords including (but not limited to) those associated with infectious diseases, injuries, assaults, and chronic illnesses. Based on these alerts, EMS staff is able to take appropriate steps in protecting both the first responders as well as the public. In Florida, Pinellas County and Okaloosa County are currently using this software.

The Pinellas County Health Department (PinCHD) began collaborating with Pinellas County EMS and FirstWatch® in 2007 to enhance surveillance capabilities throughout the county, as well as to provide EMS with feedback on alerts from a public health perspective. The system is set up to alert PinCHD Public Health Preparedness (PHP) staff to specific FirstWatch® triggers. PHP staff review and analyze the alerts and associated data to assess if additional public health action is necessary. In the fall of 2010, PinCHD decided to review and adjust the alerts and trigger points to supplement Florida's current statewide syndromic surveillance system, ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics). In ESSENCE, County Health Departments (CHD) perform a daily review of data from hospitals or urgent care center visits. In contrast, FirstWatch® collects and categorizes pre-hospital data about persons that call 9-1-1 dispatch (Police, Fire, and EMS); these calls are more likely considered emergencies. The Pinellas County Health Department's primary objective is to use this system as a means to monitor alerts that could indicate an incident or situation that most closely resembled an outbreak or bioterrorism-related event.

FirstWatch® has many strengths and uses as a supplemental surveillance system. One of the benefits of this system is its ability to compare real-time data with historical trends and geographical patterns. Unlike ESSENCE, this system can provide pre-hospital data from a person who has called 9-1-1 and subsequently required EMS transportation. Since 9-1-1 calls are more likely to be a true emergency, FirstWatch® is able to capture and alert to suspicious trends, patterns, or geographical clusters that would require a timely public health response.

The greatest differences in surveillance perspective between FirstWatch® and ESSENCE are as follows: 1) FirstWatch® provides real-time data while ESSENCE provides a 1-day delay of data; 2) FirstWatch® provides pre-hospital data to include all patient demographics and history, while ESSENCE provides de-indentified data of persons that have already been admitted to the Emergency Department (ED); 3) FirstWatch® has the ability to send an alert to an incident of concern while ESSENCE requires more active investigation to determine trends and patterns. Ultimately, FirstWatch® closes the gap to provide additional surveillance data that is not found through ESSENCE for quicker assessment of potential public health issues.

Methodology

Each FirstWatch® trigger includes its own criteria based on user-defined data from one or more data sources (i.e. CAD or ProQA). The system then uses one of the following four methods to analyze data associated with each trigger: Trends and Patterns Analysis, Sentinel Event Detection Analysis, Time Compliance Analysis, or Geo Cluster Analysis. Trends and Patterns analysis and Geo Cluster analysis are most applicable to early event detection and syndromic surveillance. FirstWatch® allows the user to establish the sensitivity and specificity for each trigger based on community or surveillance needs.

FirstWatch® Analysis Methods for Early Detection and Syndromic Surveillance

Trends and Patterns Analysis		
Type	**Description**	**Variables and Customizations**
Actual Events/ Event Count	Analysis of the number of events over a period of time; calculated based on historical events	• Historical Average – baseline for time period • Trigger Thresholds – measure of variation from the baseline (2x -3x Standard Deviation (SD)) • Analysis Period – period of time being analyzed (i.e. 12-24 hrs)
Syndrome-to-All (STA)	Analysis of event count; ratio of events within the data set compared to ALL events in the system during that analysis period	• Trigger Thresholds - linked to Standard Deviation settings associated with Actual Events
Cumulative Summary (CUSUM)	Analysis of time-series; cumulate the deviations between observed and expected counts in a time period	• Analysis Period – by default 14- calendar day rolling average • Trigger Thresholds – measure of variation from the baseline (default H Value = 4.5)
Geographic Groups		
Type	**Description**	**Variables and Customizations**
Geo Cluster	Analysis of geographic trends by counts; monitors for groups of events within a specified area	• Number of events and specified geographic area (in miles) must be set (i.e. 8 events within a 1 mile radius)

Each call into 9-1-1 is placed into a category using EMS dispatch codes based on keywords. Our initial point of reference for developing new PinCHD alerts based on triggers were a set of keywords previously used by FirstWatch® for the El Paso Fire Department in Texas. Keywords were categorized into gastrointestinal, respiratory, dermatologic, systemic, central nervous or hemorrhagic groups. PinCHD chose to be alerted to triggers relating to respiratory, influenza, neurological, gastrointestinal, cardiac arrest/ death, and bioterrorism. All triggers were set to alert once the thresholds for all three statistical tests (SD, STA, and CUSUM) have been continually exceeded for two hours. In addition, alerts were classified by geographic location and/or symptom of the caller.

Initial tests of these new alerts revealed that the alerts used overly broad keywords, and alerting thresholds were too sensitive. Alerts were received for violence, chronic conditions, and falls; which did not require immediate public health action. More specific keywords and less sensitive thresholds were needed. PHP and Surveillance staff decided on the following triggers that would send an alert for a call or calls that most likely indicate a serious public health event or Bioterrorism occurrence *(*Alerting Criteria: Standard Deviation, Syndrome-to-All, and CUSUM must continually exceed the threshold for 2 hours before an alert is generated)*:

Trigger Name*	**Definition**
Pinellas – Community Watch	Geo-Cluster – monitors groupings of events within a specific geographic area (i.e. 8 events in 2 mile radius); based on the location of EMS transport
Pinellas – Respiratory (ePCR free-text)	Include text in comments matching: Fever, SRI, ILI, SARS, Febrile, elevated temp, high temp, hot to touch, influenza like illness, flu like, flu symptoms, influenza, severe acute, severe resp, REALLY HOT, hot skin, SHIVERING, temp
Pinellas – Respiratory	Problem Type: Breathing Problems
Pinellas – BIO (RCAD)	Problem Type: Breathing Problems
Regional Influenza Network (Pinellas) (ProQA)	Problem Type: Flu-like symptoms including fever, respiratory problems, abdominal pain, headache, and other symptoms associated with possible flu cases. Categorized based on 23 ProQA conditions
RIN Resp-Pinellas	Problem Type: Flu-like symptoms including fever, respiratory problems, abdominal pain, headache, and other symptoms associated with possible flu cases. Categorized based on 18 ProQA conditions
RIN NonResp – Pinellas	Problem Type: Categorized based on one of 44 ProQA conditions
Pinellas – Neurological	Problem Type: Headache, Psychiatric/Abnormal Behavior/Suicide Attempt, Stroke (CVA), Stroke/CVA, Unconscious/Fainting (Near), Unconsciousness/Fainting, Unconsciousness/Fainting (Near)
Pinellas – Gastrointestinal	Problem Type: Abdominal Pain/Problems
Pinellas – Cardiac or Respiratory Arrest/Death	Problem Type: Cardiac or Respiratory Arrest/Death

When the trigger thresholds are reached, an alert is sent to the PinCHD PHP and Surveillance staff by email and/or text message. Since this system continually collects 9-1-1 data, it can alert to an event day or night. Therefore, PinCHD staff share on-call responsibilities so these alerts are reviewed 24/7. The PHP/Surveillance on-call staff person reviews the list of calls that have caused trigger alerts. Call logs in FirstWatch® cover a 12-hour period, so the investigator can also look at events before the alert was triggered. Information for each call includes (but is not limited to): reason for call, demographics, and complete medical information. Because the PinCHD has been granted access to detailed information about each call, this provides an opportunity to receive more comprehensive data on each patient, which is not obtained from the de-identified information received through ESSENCE.

Recommendations
Pinellas County is in the unique position where only one company, SunStar, provides emergency medical transport for the county. This means that when the PinCHD looks at data from FirstWatch®, it is essentially a review of comprehensive countywide data. While the calls originate from the 9-1-1 dispatch centers, the transport unit also collects some data. In counties that have numerous ambulance services, if it was desired to implement this type of surveillance, it would be important that each medical transport company have access to FirstWatch® in order for the county health department to receive comprehensive countywide data.

PinCHD's access to FirstWatch® is not limited to the alert lists. PinCHD staff is able to access all calls in the same detail as calls that were part of the original alert. For example, this could be used to access a variety of injury data or to observe the progression from a 9-1-1 call to a chief complaint in ESSENCE.

Overall, FirstWatch® has many potential uses as a public health surveillance system including (but not limited to): assessment of post-disaster impact, tracking flu outbreaks, monitoring a variety of existing data systems (Hospitals, Clinical, Poison Control Center, Paramedic Electronic Patient Care Report-ePCR), and monitoring emergency pre-hospital data. PinCHD's access to the FirstWatch® Real-Time Early Warning System is an additional surveillance tool used to assess situational awareness. It is a useful supplement to ESSENCE and the use of these two systems together provides a more comprehensive look at both pre-hospital and ED data for all of Pinellas County.

References
Centers for Disease Control and Prevention. Public Health Surveillance Using Emergency Medical Service Logs- U.S.-Mexico Land Border, El Paso, Texas, 2009. Morbidity and Mortality Weekly Report, 59(21), June 4, 2010. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5921a1.htm. Accessed July 2011.

FirstWatch® Real-Time Early Warning System. FirstWatch- Situational Awareness and Early Warning Software. 2002-2010. Available at: http://www.firstwatch.net/. Accessed July 2011.

FirstWatch® Real-Time Early Warning System. FirstWatch Dashboard & Trigger Examples. 2002-2010. Available at: http://www.firstwatch.net/. Accessed July 2011.

Kimberly Davis is a former Surveillance Epidemiologist with the Pinellas County Health Department. She is currently an Infection Preventionist with Tampa General Hospital. Sharlene E. Edwards is the Public Health Preparedness Manager for the Pinellas County Health Department. She can be contacted at 727.538.7277 x1131 or by email at Sharlene_Edwards@doh.state.fl.us.

Assessing Data Validity in Broward County for Chronic Hepatitis C Cases

Snehal Lillaney, M.P.H

Introduction
Hepatitis C is a public health concern in both developed and developing countries (1). Based on the available data, approximately 3% of the world's population is infected with hepatitis C virus (HCV) (2). The chronic nature of the infection may increase prevalence of the persons infected

with HCV (3). The asymptomatic nature of the disease and the lack of information make it difficult to estimate the incidence of the disease in the population (4, 5).

Public health programs rely on the data obtained at the county, state, and federal levels. Surveillance is an ongoing, systematic collection, analysis and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice (6). Public health surveillance systems need to be evaluated from time to time to ensure efficient monitoring of problems that are of public health importance (7). This purpose of this study is to evaluate Merlin to ensure that the data entered for Broward County residents is based on the clinical definitions provided by Florida Department of Health (FDOH), Bureau of Epidemiology.

In Broward County during this time, most hepatitis C case reports were as positive laboratory results; increasingly these have been reported through electronic laboratory reporting. These were entered into Merlin by Broward CHD staff, who also classified the resulting cases according to the surveillance case definitions for acute and chronic hepatitis C.

Methods

Data was extracted from Merlin for Broward County residents (age 0-99) diagnosed with chronic hepatitis C from 2006 through 2009. Data was de-identified. The sample was selected by a convenience sampling technique: the first 10% of the cases reported in each year.

The laboratory criteria require that the anti-HCV test to be positive by enzyme immunoassay (EIA), verified by additional more specific assays such as recombinant immunoblot assay (RIBA) or polymerase chain reaction (PCR), or HCV RIBA, or Nucleic acid test for HCV ribonucleic acid (RNA) or report of HCV genotype or signal-to-cut-off ratio.

Case classifications provided by FDOH, Bureau of Epidemiology were used to categorize cases as confirmed, probable or suspect.

- Confirmed: A laboratory confirmed case that does not meet the case definition of acute hepatitis C.
- Probable: A case that is anti-HCV positive (repeat reactive) by EIA and has alanine aminotranferase (ALT) values above the upper limit of normal, but the anti-HCV EIA result has not been verified by an additional more specific assay and the signal to cut-off (S/CO) ratio that does not meet the above criteria or is not reported.
- Suspect: A case that is Anti-HCV positive, but absent other diagnostic criteria and does not meet the clinical or laboratory criteria for acute hepatitis C (8).

Data was analyzed by descriptive statistics and cross-tabulation models using SPSS and MS Excel 2003. Incidence rates per 100,000 were calculated using population data from Florida CHARTS (9).

Results

During the period of 2006-2009, 9226 patients were reported or classified as chronically infected with chronic hepatitis C in Broward County. The sample size selected for this study was 916 cases by convenience sampling. The average annual incidence rate of chronic hepatitis C was 130.3 per 100,000 population. A majority of the zip codes were missing or inaccurate. Approximately 77% of records were missing data for race and 76% for ethnicity.

Table 1. The comparison between the data entered in the surveillance system in Broward County, Florida and the statistical analyses based on clinical definitions by FDOH, Bureau of Epidemiology.

	Number of cases based on Merlin data	Number of cases correctly identified by Merlin	Percentage of cases identified correctly
Confirmed	624	552	86.38%
Probable	63	53	74.64%
Suspect	229	132	70.21%
Unknown	0	NA	NA

In the above-mentioned table, out of 624 confirmed HCV cases entered in Merlin, 552 were actually confirmed based on the FDOH surveillance case definition. Similarly, 53 out of 63 probable cases entered in Merlin were actually probable cases of chronic HCV and 132 out of 229 suspected HCV cases were actually "suspect."

Discussion

This study was performed to analyze the variation between the data entry in Merlin by CHD staff and independent statistical analysis based on FDOH surveillance case definitions. The data received at the county health department is entered manually into the surveillance system and reported to the state health department in Tallahassee. The main issue to be addressed is whether the surveillance system efficiently does what it is supposed to do. If not, then we need to identify the barriers that prevent maximum utilization of the system.

Results from the statistical analyses using the surveillance case definition were considered as gold standards as they were based on the interpretation of case classification by FDOH. The study findings are subject to few limitations in terms of reporting completeness and uniformity of data. The inability to generalize the concentration of disease in a population was a reflection of the incompleteness of data entered in the surveillance system. The importance of completeness was greater towards the reporting of the disease than the demographic characteristic of the disease. Errors in updating the data may reduce the sensitivity of the surveillance system. False negative results will underestimate true cases, while false positive results will overestimate true cases. Despite the limitations, the surveillance system serves as a knowledge repository of reportable diseases.

Conclusion

Assessing information technology has greatly augmented the effectiveness of public health data management, investigation, visualization, dissemination, and utilization (10). The drawbacks in this study were lack of sensitivity, specificity, completeness, standards for coding and acceptance by end-users (11). Structured and standardized disease reporting forms to laboratories and healthcare providers (11, 12) can ensure completeness and uniformity of data received. Linking administrative databases of hospitals to the public health surveillance system could enhance automatic demographic data extraction (13).

Additional trainings hold promise for ensuring completeness and uniformity in data entry. This study serves as a model in overcoming the barriers in the system to enhance the quality of data reporting. Periodic quality analysis of the surveillance system is a journey, not a destination. Constant evaluation of the disease reporting system is a necessity in surveillance of public health as it enables better interpretation of the information for disease control and prevention.

Editor's Note:
During 2010 and 2011, the case classification process for reported cases of hepatitis A, B and C has increasingly been automated in order to reduce the kinds of misclassification errors documented here. Currently, the Merlin case classification screen has check boxes for the various components of the surveillance case definition. These boxes are either checked manually by the user or, for laboratory results received electronically, pre-populated by the system. Merlin then applies the case classification logic for the user, which should result in zero misclassification errors if the check boxes were filled in correctly.

-- Richard S. Hopkins, MD, MSPH, Acute Disease Epidemiology Section.

References

1. Lavanchy, D. (2009). The global burden of hepatitis C. Liver International: Official Journal of the International Association for the Study of the Liver, 29 Suppl 1, 74-81.
2. WHO Consultation (1999). Global surveillance and control of hepatitis C. Journal of Viral Hepatitis, 6, 35.
3. Gonik, B. (2008). The role of obstetrician/gynecologists in the management of hepatitis c virus infection. Infectious Diseases in Obstetrics and Gynecology, 2008. Article id 374517.
4. Alter, M. J. (1995). Epidemiology of hepatitis C in the West. Seminars in Liver Disease, 15(1), 5-14. doi:10.1055/s-2007-1007259.
5. Alter, M. J. (2007). Epidemiology of hepatitis C virus infection. World Journal of Gastroenterology, 13(17), 2436-2441.
6. World Health Organization. *Public Health Surveillance*. [Online] Available http://www.who.int/immunization_monitoring/burden/routine_surveillance/en/print.html, July, 2011.
7. Guidelines Working Group, Centers for Disease Control and Prevention (2001). Updated guidelines for evaluating public health surveillance systems. Recommendations from the Guidelines Working Group. Centers for Disease Control and Prevention (CDC). MMWR Morbidity Mortality Weekly Report, 50 (RR13), 1-35. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5013a1.htm
8. Florida Department of Health Bureau of Epidemiology (2010). Surveillance Case Definitions for Select Reportable Diseases in Florida.
9. Florida Department of Health (2009). Florida Population Estimates. Florida Department of Health. Retrieved from http://www.floridacharts.com/charts/PopQuery.aspx.
10. Nangle, B., Xu, W., & Sundwall, D. N. (2009). Mission driven priorities: Public health in health information exchange. AIMA 2009 Symposium Proceedings, 2009, 468- 472. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2815484/?tool=pubmed.
11. M'ikanatha, N. M., Southwell, B., & Lautenbach, E. (2003). Automated laboratory reporting of infectious diseases in a climate of bioterrorism. Emerging Infectious Diseases, 9 (9), 1053-1057.
12. Reiner, B. I. (2010). Customization of medical report data. Journal of Digital Imaging. Retrieved from http://www.springerlink.com/content/b57m355581u55691/. doi: 10.1007/s10278-010-9307-4.
13. Panackal, A. A, M'ikanatha, N. M., Tsui, F. C., McMahon, J., Wagner, M. M., Dixon, B. W. & Harrison, L. H. (2002). Automatic electronic laboratory-based reporting of notifiable infectious diseases at a large health system. Emerging Infectious Diseases, 8, 685-691.

Snehal Lillaney is a Biological Scientist III (Volunteer) in Broward County Health Department. She can be contacted at 954.467.4700 extension 5587 or by e-mail at Snehal_Lillaney@doh.state.fl.us

Public Health History– Follow-up to the August Early Disease Reporting Article

Kim Bowman, C.P.M

In the August issue, *Epi Update* highlighted the difficulty collecting morbidity data in the early 1900's. Getting physicians to report notifiable diseases accurately was the first step to producing the first state list of reportable diseases. Following much persistence, a report was produced in 1918. Several readers of *Epi Update* subsequently asked, which diseases were reported on the first list?

The following list of Florida reportable diseases and case totals for the year 1918 was recorded in the *Florida Board of Health, Bureau of Vital Statistics, Morbidity Weekly Current Record, 1918-1925*.

<u>Disease and Case Total</u>

Typhoid – 485	Trichinosis – 4	Chancroid – 0
Paratyphoid – 6	Diphtheria – 329	Anthrax – 1
Typhus – 1	Influenza – 11,631	Rabies – 0
Malaria – 931	Dysentery – 264	Tetanus – 7
Smallpox – 59	Leprosy – 8	Pellagra – 67
Measles – 2,197	Mumps – 2,133	Tuberculosis – 522
Scarlet Fever – 138	German Measles – 501	Syphilis – 1,640
Whooping Cough – 557	Chicken Pox – 232	Gonococcus – 1,709
Trachoma – 181	Dengue – 12	Cancer – 34
Pneumonia – 982	Epidemic Meningitis – 75	Hookworm – 173
Acute poliomyelitis – 6	Ophthalmia Neonatorum – 90	

Florida Year-to-Date Mosquito-Borne Disease Summary Through September 10, 2011

Leena Anil, Ph.D., Danielle Stanek, D.V.M., Carina Blackmore, D.V.M., Ph.D.

During the period January 02, 2011 – September 10, 2011 the following arboviral activity was recorded in Florida:

Eastern Equine Encephalitis Virus (EEEV)
Positive samples from three equines, 19 sentinel chickens and 19 live wild birds have been received from 11 counties.

West Nile Virus (WNV)
Twelve human cases of WNV infection have been reported in 2011 in Duval County with onset in June (1) July (8) and August (3). Three positive asymptomatic blood donors were reported in Duval County. Positive samples from 71 sentinel chickens, one equine and one live wild bird (flavivirus positive) have been received from 16 counties.

St Louis Encephalitis Virus (SLEV) activity: Positive samples from six sentinel chickens have been received from two counties.

Dengue Virus (DENV)
Two cases of locally acquired dengue have been reported in Miami-Dade and Martin Counties. Twenty-four cases of dengue with onset in 2011 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were Aruba, Bahamas (3), Bangladesh (2), Brazil (2), Colombia, Guyana, Haiti, India, Nicaragua, Panama, Puerto Rico (6), St Lucia, Trinidad, Turks and Caicos Islands, and Venezuela. Counties reporting cases were Broward (3), Gulf, Hendry, Hillsborough, Marion, Martin, Miami-Dade (5), Orange, Palm Beach (6), Pasco, Pinellas, St. Johns, and Washington.

Malaria
Seventy imported cases of malaria with onset in 2011 have been reported. Countries of origin were: Afghanistan (3), Brazil, Cameroon, East Timor, Ethiopia (2), Eritrea (2), Gabon, Ghana (4), Guinea Conakry, Guyana, Haiti (18), Honduras (3), India (13), Kenya, Liberia (2), Libya, Mali (2), Nigeria (6), Pakistan, Peru, Rwanda, Uganda (3) and Venezuela. Counties reporting cases were Alachua (2), Brevard (4), Broward (8), Citrus, Collier (2), Duval (6), Escambia, Hillsborough (6), Indian River, Lee (3), Leon (2), Miami-Dade (15), Manatee (3), Okaloosa, Orange (4), Palm Beach (5), Pasco, Pinellas, Seminole, St. Johns, and St. Lucie (2).
Forty-one (58.6%) were diagnosed with *Plasmodium falciparum,* 26 (37.2%) with *Plasmodium vivax,* 1 (1.4 %) with *Plasmodium ovale,* 1 (1.4 %) *Plasmodium malariae* and 1 (1.4 %) with undetermined.

Dead Bird Reports
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. In 2011, two hundred and thirty-one reports representing 702 dead birds (30 crows, 38 jays, 49 raptors, and 585 others) were received from 42 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to www.myfwc.com/bird/

See the program web site for more information:
http://www.doh.state.fl.us/Environment/medicine/arboviral/index.html.

Please contact the Arthropod-borne Disease Surveillance Coordinator, Dr. Leena Anil at 850.245.4444 Ext.2437 or by email at Leena_Anil@doh.state.fl.us. Dr. Stanek is a medical epidemiologist with the Bureau of Environmental Public Health Medicine. She can be contacted at 850.245.4117, or by email at Danielle_Stanek@doh.state.fl.us. Dr. Blackmore is the State Public Health Veterinarian, the State Environmental Epidemiologist, and the Bureau Chief of the Bureau of Environmental Public Health Medicine. She can be contacted at 850.245.4732, or by email at Carina_Blackmore@doh.state.fl.us. The Bureau of Environmental Public Health Medicine is part of the Division of Environmental Health.

Reportable Diseases in Florida

Up-to-date information about the occurrence of reportable diseases in Florida, based on the Merlin surveillance information system, is available at the following site: http://www.floridacharts.com/merlin/freqrpt.asp. Counts can be displayed by disease, diagnosis status, county, age group, gender, or time period.

Monthly Notifiable Disease Data

Table 1. Provisional Cases* of Selected Notifiable Diseases, Florida, August 1-31, 2011

	Month				Cumulative (YTD)	
Disease Category	**2011**	**2010**	**Mean†**	**Median¶**	**2011**	**2010**
A. Vaccine Preventable Diseases						
Diphtheria	0	0	0	0	0	0
Measles	0	0	0.2	1	8	1
Mumps	5	0	1.4	3	12	13
Pertussis	42	44	39.2	41	222	208
Poliomyelitis	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Smallpox	0	0	0	0	0	0
Tetanus	1	0	0.6	1.5	3	4
Varicella	56	30	N/A	N/A	592	717
B. CNS Diseases & Bacteremias						
Creutzfeldt-Jakob Disease	4	3	1.4	1.5	11	8
H. influenzae (invasive disease)	16	7	8.4	5	172	124
in those ≤5	2	1	2.6	3	20	19
Listeriosis	2	6	3.8	4	15	39
Meningitis (bacterial, cryptococcal, mycotic)	16	15	1.4	13.0	32	27
Meningococcal Disease	3	1	2.4	2	44	47
Staphylococcus aureus (VISA, VRSA)	0	0	0.2	1	1	0
Streptococcal Disease, Group A, (invasive disease)	20	17	22.2	23	38	53
Streptococcus pneumoniae (invasive disease)						
Drug resistant	27	25	36	40	476	587
Drug susceptible	19	23	30.6	33	492	471
C. Enteric Infections						
Campylobacteriosis	275	137	127.2	125	1,557	801
Cholera	1	0	0	0	10	0
Cryptosporidiosis	56	50	80.6	70	307	261
Cyclospora	14	3	5.4	6	48	55
Escherichia coli, Shiga toxin-producing (STEC)**	63	26	10.4	3	280	133
Giardiasis	163	247	163	155	796	1,360
Hemolytic Uremic Syndrome	1	0	0.4	1	3	6
Salmonellosis	821	841	657.2	620	3,304	3,470
Shigellosis	259	171	123.4	133	1,796	658
Typhoid Fever	2	2	3	3	8	15
D. Viral Hepatitis						
Hepatitis A	10	19	19	19	59	111
Hepatitis B, Acute	24	24	26.4	24	179	207
Hepatitis C, Acute	6	11	5.8	5	56	73
Hepatitis +HBsAg in pregnant women	40	32	39.2	35	341	294
Hepatitis D, E, G	1	0	0.2	1	7	0

* Confirmed and probable cases based on date of report as reported in Merlin
  Incidence data for 2011 is provisional, data for 2010 was finalized on April 1, 2011

† Mean of the same month in the previous five years

¶ Median for the same month in the previous five years

** Includes *E. coli* O157:H7; Shiga toxin-positive, serogroup non-O157; and Shiga toxin-positive, not serogrouped

†† Includes neuroinvasive and non-neuroinvasive

N/A indicates that no historical data is available to caculate mean and median

Table 1. (cont.) Provisional Cases* of Selected Notifiable Diseases, Florida, August 1-31, 2011

	Month				Cumulative (YTD)	
Disease Category	**2011**	**2010**	**Mean†**	**Median¶**	**2011**	**2010**
F. Vector Borne, Zoonoses						
Dengue	15	45	11.4	3	34	120
Eastern Equine Encephalitits††	0	1	0.2	1	0	4
Ehrlichiosis/Anaplasmosis	4	3	1.2	2	22	10
Leptospirosis	1	0	0.0	0	1	0
Lyme Disease	32	17	12.4	16	92	55
Malaria	18	21	12.2	11	75	86
Plague	0	0	0	0	0	0
Psittacosis	0	0	0.2	1	0	0
Q Fever (acute and chronic)	0	0	0.2	1	3	1
Rabies, Animal	11	13	14.2	14	66	92
Rabies (possible exposure)	249	153	142.0	130	1,528	1,365
Rocky Mountain Spotted Fever	2	0	1.6	1.5	11	10
St. Louis Encephalitis††	0	0	0	0	0	0
Toxoplasmosis	0	1	0.8	1	4	6
Trichinellosis	0	0	0.2	1	0	0
Tularemia	0	0	0.2	1	0	0
Typhus Fever (epidemic and endemic)	0	0	0.2	1	2	0
Venezuelan Equine Enchephalitis††	0	0	0	0	0	0
West Nile Virus††	8	2	1.8	2.5	12	2
Western Equine Encephalitis††	0	0	0	0	0	0
Yellow Fever	0	0	0	0	0	0
G. Others						
Anthrax	0	0	0	0	0	0
Botulism-Foodborne	0	0	0.2	1	0	0
Botulism-Infant	0	0	0	0	0	0
Brucellosis	2	0	0.6	1.0	8	7
Glanders	0	0	0	0	0	0
Hansen's Disease (Leprosy)	3	2	0.8	1	8	8
Hantavirus Infection	0	0	0	0	0	0
Legionella	23	20	17.8	17	109	115
Melioidosis	0	0	0	0	0	0
Tuberculosis	36	58	75.4	75	437	580
Vibriosis	17	21	14.0	12	113	84

* Confirmed and probable cases based on date of report as reported in Merlin. Tuberculosis data is reported in HMS and historic data available in TIMS.
Incidence data for 2011 is provisional, data for 2010 was finalized on April 1, 2011

† Mean of the same month in the previous five years

¶ Median for the same month in the previous five years

†† Includes neuroinvasive and non-neuroinvasive

N/A indicates that no historical data is available to caculate mean and median

Note: The 2011 case counts are provisional and are subject to change until the database closes. Cases may be deleted, added, or have their case classification changed based on new information and therefore the monthly tables should not be added to obtain a year to date number.

Please refer any questions regarding the data presented in these tables to Kate Goodin at Kate_Goodin@doh.state.fl.us or 850.245.4444 Ext. 2440.

Upcoming Events

Bureau of Epidemiology Monthly Grand Rounds
Date: Last Tuesday of each month, except in December
Time: 10 a.m.-11 a.m., E.T.
Location: Building 2585, Room 310A
Dial-In Number: 877.646.8762 (password: Grand Rounds)

October 25: To Be Determined

Statewide Training Opportunity – "Challenges with Varicella Diagnosis and Surveillance in the Varicella Vaccination Era" presented by Stephanie R. Bialek, M.D., M.P.H., Adriana S. Lopez, M.H.S., and Donald Scott Schmid, Ph.D., M.S., Centers for Disease Control and Prevention.
Date: November 2, 2011
Time: 10 a.m. – 11 a.m., Eastern
Location: For additional information pre-register at
http://survey.doh.state.fl.us/survey/entry.jsp?id=1314730795588.

This Month on EpiCom

Christie Luce

EpiCom is located within the Florida Department of Health's Disaster Emergency Notification System (FDENS). The Bureau of Epidemiology encourages *Epi Update* readers to register on the EpiCom system by emailing the Florida Department of Health Emergency Notification System Helpdesk at FDENS-help@doh.state.fl.us. Users are invited to contribute appropriate public health observations related to any suspicious or unusual occurrences or circumstances through the system. EpiCom is the primary method of communication between the Bureau of Epidemiology and other state medical and public health agencies during emergencies. The following are titles from selected recent postings:

- Hansen's Disease case with no international travel, Osceola County
- *Salmonella* abscess in a man with sickle cell disease, Hillsborough County
- *Listeria* meningitis and sepsis in a resident, Hillsborough County
- Cluster of Salmonella Newport illness with XbaI pattern JJPX01.0011
- Gastrointestinal Illness (GI) cluster following swimming at Mango Lake, Hillsborough County
- Exposure to unknown substance, Seminole County
- Cluster of *Staphylococcus aureus* infections in high school athletes, Clay County
- Three confirmed cases of Ciguatera intoxication, St. Lucie County
- Hepatitis A case, Martin County
- Scabies in a Long-Term Care (LTC) facility, Seminole county
- Vibrio Cholera illness, Brevard County
- Meningococcal disease, St. Lucie County
- Brucellosis in a hog hunter, St Lucie County
- Norovirus outbreak in Assisted Living Facility (ALF), Sarasota County
- Shigellosis Cluster Investigation, Manatee County
- Pertussis death in six-week old infant, Palm Beach County
- *Salmonella* Typhi in a fifteen year old male student, Manatee County
- Update - West Nile Virus (WNV) cases, Duval County

- Suspected food borne outbreak investigation, Hillsborough County

Christie Luce is the Surveillance Systems Administrator for the Bureau of Epidemiology. Ms. Luce can be contacted at 850.245.4418 or by email at Christie_Luce@doh.state.fl.us.

Epi Update is the peer-reviewed journal of the Florida Department of Health, Bureau of Epidemiology and is published monthly on the Internet. Current and past issues of *Epi Update* are available online at http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/index.html.
For submission guidelines or questions regarding *Epi Update*, please contact Kim Bowman at 850.245.4409 or by email at Kim_Bowman@doh.state.fl.us.