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Epidemiology: The study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to control health problems.

Stedman's Medical Dictionary, Ed. 27

An Update on the 2007 Florida Behavioral Risk Factor Surveillance System (BRFSS) County Survey

by Melissa R. Murray, MS

The Behavioral Risk Factor Surveillance System (BRFSS) is an anonymous population-based telephone surveillance system designed to collect data on health conditions, behaviors, and emerging health issues. First, households are randomly selected to participate, and then one adult (aged 18 and older) is randomly selected from each household to complete the survey. Survey data are adjusted, or "weighted", so that the resulting estimates can be generalized to the entire state population, not just to those who responded to the survey. The BRFSS is conducted in every state with financial and technical assistance from the Centers for Disease Control and Prevention (CDC).

The BRFSS survey data have been widely used to monitor health behavior and health status at the state and national levels. However, due to small sample sizes, the statewide BRFSS cannot provide accurate and reliable data at the county level for public health program planning and evaluation. Therefore, with support from all county health departments and other data users, the Bureau of Epidemiology designed the 2007 County BRFSS Survey. The county survey is an expanded version of the standard state survey, designed to collect county-specific data. At least 500 interviews will be completed in each of Florida's 67 counties throughout the 2007 calendar year, for a total of 33,500 interviews statewide.

Counties were given the additional options to fund increases in county sample size beyond 500 interviews, and to replace up to 10 state questions with county-specific questions. Three counties (Duval, Highlands, and Sarasota) funded sample size increases, and oversamples of Hispanic populations in eight counties (Collier, DeSoto, Hardee, Hendry, Miami-Dade, Okeechobee, Orange, and Osceola) were funded by the Bureau of Chronic Disease Prevention and Health Promotion through Hispanic Obesity Prevention Education funding. Five counties (Clay, Collier, Duval, Monroe, and Orange) elected to develop county-specific questions.

Interviews for the 2007 County BRFSS Survey began January 2nd. The Florida Department of Health has contracted data collection for the BRFSS to Schulman, Ronca, & Bucuvalas, Inc. (SRBI) since 2005. The majority of interviews will be conducted by SRBI's call center staff in Fort Myers, FL, but due to workload some will be handled by a second call center in Huntington, WV.

More information about the Florida BRFSS, including survey instruments, reports, and data request forms, is available on the Bureau of Epidemiology's website at www.doh.state.fl.us/disease_ctrl/epi/brfss. For more information on BRFSS protocols, methodology, or to access state and national data, please visit the CDC's BRFSS website at www.cdc.gov/brfss.

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Readers Say Sanitation is Greatest Medical Advance Since 1840

by Jaime Forth

A recent survey conducted by the *British Medical Journal* revealed that among 11,000 readers, a public health issue, sanitation, was considered the most important medical advance since 1840, the year the publication was first printed. Runners-up by a close second and third were antibiotics and anesthesia, respectively.

The online poll was conducted between January 5-14, 2007. Readers were asked to defend their nominations, which ranged from oral rehydration therapy ("saving lives because sodium increases glucose from the GI tract") to quinine and chloroquine ("millions still depend on them"), and included the X-ray ("accurate diagnosis is fundamental to the correct management of any patient"), water disinfection ("linked to a 50% increase in life expectancy in this century"), the randomized controlled trial ("the basis for evidence which impacts every corner of medicine today and shines a light of truth"), plastic ("makes health care possible by creating sterile fields, stents, computers, syringes, connectors, IVT ..."), public health ("plumbing and modern toilets and sewage systems"), the contraceptive pill ("has reduced infant and maternal mortality") and DDT ("anesthesia has saved the lives of millions. DDT has saved the lives of billions.") and the operating microscope.

The top 15 items according to voters were:

1. Sanitation
2. Antibiotics
3. Anesthesia
4. Vaccines
5. Discovery of DNA structure
6. Germ theory
7. The oral contraceptive
8. Evidence-based medicine
9. Medical imaging
10. Computers
11. Oral rehydration therapy
12. Smoking risks
13. Immunology
14. Chlorpromazine
15. Tissue culture

Physicians constituted the majority of voters, with academic researchers, students, health policy advisors, and members of the public also contributing input. Readers from the United Kingdom, the US, and "other countries" comprised 75.2% of survey participants.

To access the *British Medical Journal*, go to its website at <http://www.bmj.com/>

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Biomonitoring of Mercury Levels in Hair Samples From Women of Child-Bearing Age in Escambia and Santa Rosa Counties, FL

by K. Ranga Rao, Ph.D. and Natalie Karouna-Renier, Ph.D., University of West Florida; John J. Lanza, MD, PhD, MPH, FAAP, Patricia A. Wilson, MSN, ARNP, Denise K. Hodges, and Samantha D. Rivers, MS, Escambia County Health Department



Background

According to the US Environmental Protection Agency, nearly 75% of fish consumption advisories in the United States have been issued due to mercury contamination (US EPA, 2003). Despite a significant reduction in the use and release of mercury from industrial processes since the 1970s, mercury contamination associated with increased fossil fuel combustion poses a growing contamination problem in many areas (US EPA, 2000). The southeast, and in particular the Gulf coast, experiences the highest levels of mercury deposition in the US (NADP, 2004), and the State of Florida issues fish consumption advisories due to mercury levels on varying fish species. Thus, the human population in the Florida Panhandle, near Pensacola, is potentially exposed to highly elevated levels of mercury, primarily through the consumption of regionally caught fish species. Many of the fish consumption surveys issued in the US specifically target women of childbearing age because of concerns that maternal intake of contaminants poses a major health risk to a developing fetus. The human nervous system is highly vulnerable to methyl mercury (MeHg), and exposure to high levels of MeHg during the last two trimesters of pregnancy produces documented neurodevelopment problems in children (McDowell et al, 2004). Biomonitoring of human hair for mercury is a useful indicator of exposure over extended periods of time and hair-mercury concentrations reflect longer-term averages than levels in the blood (Budtz-Jorgensen et al, 2004)

Methods

This study used hair from approximately 600 participants (women 18-49 years old regardless of pregnancy status) from Santa Rosa and Escambia counties, Florida. Only persons that had resided in the study area for at least one year and could give informed consent were included. Hair samples (approximately 100 strands of hair ~ 50 mg) were collected by trained staff, and sent to a certified analytical chemistry laboratory for analysis of mercury levels. In addition, each volunteer was interviewed regarding demographic information and recent fish consumption practices. Demographic data collected included residency zip code, race, gender, years of residency, age, and pregnancy status. A follow-up survey was given to the participants to allow for feedback and a satisfaction rating of the project. Descriptive statistics and correlation analysis were run using SPSS version 12.0 (SPSS, Inc., Chicago, IL).

Results

Interim results for 70% of the study population have been received and analyzed. The mean Hg ($\mu\text{g/g}$) in the hair was 0.581 (0.117, 0.282 and 0.610 at 25th, 50th and 75th percentiles, respectively) and 16% fell above the recommended EPA known safe level of 1.0 $\mu\text{g/g}$ Hg in hair (NRC, 2000). There was a significant correlation between increased MeHg levels and increased self-reported consumption of fish over the previous 30 days (Pearson Correlation $R=0.210$; $p<0.01$) and 60 days (Pearson Correlation $R=0.207$; $p<0.01$). Only 15.7% of the study population reported catching their own fish, while the majority purchased fish at a store (60.8%) and/or consumed fish at a restaurant (64.4%). No correlation was found between MeHg levels and knowledge about the fish advisory, although people who caught fish were 2.7 times more likely to know about the fish advisory than people who did not consume fish ($p<0.05$), and 1.7 times more likely to know about the advisory than people who bought their fish at a store or restaurant ($p<0.05$).

Conclusions

The information gained through this biomonitoring program has established a baseline mercury dataset that can be used in future studies to determine whether levels in the human population change in response to new environmental regulations. Local fishing populations appear to be better informed of state fish consumption advisories, although it did not decrease the amount of MeHg that was found in their hair. The data suggest that public health interventions such as education and fish advisories should be geared more towards pregnant women, who are at most risk. Public health education may need to be focused on fish markets and restaurants because the majority of the study population consumed their fish through those avenues and they were less likely to know about the fish advisory. Future studies should focus on species of fish consumed and a more detailed inventory of fish consumed to better understand the risk factors involved with elevated MeHg in this high risk subset of our population.

Measles and Rubella Outbreak on a Cruise Ship

by Karen Street, RN, BA, BSN



Background

The Brevard County Health Department has responded to several past outbreaks of illness aboard cruise ships at Port Canaveral, Florida. Rubella and measles infections on commercial cruise lines demonstrate that crew members, many of whom are from countries without routine measles, mumps and rubella (MMR) vaccination programs, are in potential risk groups susceptible to these infections.

In February 2006 a crew member aboard a cruise line docked at Port Canaveral was diagnosed with rubella. Five days later a second case of rash illness was confirmed as measles, with two additional cases of measles being confirmed one week later.

Coordinated efforts between the Brevard County Health Department, the Florida DOH, the Canaveral Port Authority, the CDC, and the cruise line resulted in the recommendation that susceptible crew members receive the MMR vaccine to contain the outbreak.

There were several challenges: The cruise line was concerned about meeting its scheduled itinerary while fulfilling its obligations to its passengers health. Finding appropriate space to carry out the vaccinations and respecting the privacy of its passengers were other considerations. The confirmation of MMR receipt and issuance of record was another issue. Arrangements for limiting crew transfers between ships also needed coordination.

Methodology

The objectives of the investigation were to identify rash illnesses, confirm diagnoses, and to contain further transmission through isolation, vaccination and provision of recommendations for prospective and retrospective surveillance.

A case definition was established. Data were collected on all patient cases including name, demographics, age, country of birth, vessel name, date of embarkation, locale one month prior to embarkation, occupation, vaccine history, date of onset, clinical presentation, serology, date of medical evaluation, date and place of isolation, roommates and treatment received.

Several conference calls between all agencies involved were conducted, and the Brevard County Health Department provided staff, vaccine and necessary supplies to vaccinate 1151 crew members within five hours. Exempt from vaccination included those who were pregnant, immuno-compromised, or those who were able to provide proof of immunity.

The CDC's Division of Vaccine Preventable Diseases drafted recommendations for the cruise line and passengers. Letters were issued to passengers who sailed during the period of potential transmission, to explain possible secondary exposure to measles and rubella. A CDC contact number was provided for follow-up inquiries.

Daily surveillance was performed on all crew members, and the information was reported to the CDC and Brevard County Health Department.

Results

One acute rubella infection was confirmed, and two cases of measles were confirmed.

1151 of 1180 crew members were vaccinated with the MMR vaccine.

All passengers who sailed the ship during the potential transmission period were notified by letter of possible risks, and a contact number for the CDC was issued, which provided reassurance to these passengers.

After continued surveillance, no further cases were identified.

Conclusions

Although previous recommendations have been made, we are continuing our efforts to educate and encourage the commercial cruise line industry on implementation of mandatory MMR vaccine to susceptible crew members upon initial employment.

Coordination with public and private agencies ensured effective implementation of outbreak and containment activities.

The ability to control the environment facilitated good communication and orderly processing of crew members for vaccination. Excellent coordination between all involved agencies allowed prompt mass prophylaxis, and new partnerships were developed in a spirit of trust.

Karen Street is a nursing program specialist at the Brevard County Health Department. She can be reached at 321.454.7116.

Hepatitis Training Offered in Teleconference

A one-hour basic introductory training course entitled "Hepatitis 101: For Counselors and Outreach Workers" has been scheduled for February 7, July 11 and November 7, 2007 from 2 - 3:00 p.m. Continuing education credits will be offered to all licensed laboratorians and nurses in Florida who register for the class.

The objectives of the course are to teach attendees ways in which HIV/AIDS affect the progression of hepatitis C; show them how to use hepatitis information in counseling patients about hepatitis A, B and C; introduce them to the clinical features, methods of transmission and prevention messages of hepatitis; assist them in understanding test results for hepatitis; and identifying clients who should be referred for vaccination and testing.

All participants will receive the conference call phone number and a PowerPoint presentation prior to the course. Space is limited, so log on as early as possible to the registration site at

http://www.doh.state.fl.us/disease_ctrl/aids/hep/Hep101/101regform.htm.

For more information about the hepatitis program, contact April Crowley, health education coordinator in the Bureau of HIV/AIDS at 850.245.4444, ext. 2580.

Mosquito-borne Disease Summary January 14-20, 2007 ***Rebecca Shultz, MPH, Caroline Collins, Daneshia Roberts, Carina Blackmore, PhD***

During the period January 14-20, 2007, the following arboviral activities (St. Louis Encephalitis [SLE] virus, Eastern Equine Encephalitis [EEE] virus, Highlands J [HJ] virus, West Nile [WN] virus, California Group [CE] virus) were recorded in Florida:

EEE virus activity There were three sentinel chicken seroconversions in Orange (1) and Osceola (2) counties. One out of 16 wild birds captured in Santa Rosa County tested positive for antibodies to EEE virus.

WN virus activity One out of 19 wild birds captured in Washington County tested positive for antibodies to undetermined flavivirus.

SLE virus activity There was one sentinel chicken seroconversion in Lee County

HJ virus activity None

Sentinel Chickens There was one seroconversion to SLE virus (Lee County) and three seroconversions to EEE virus (Orange 1, Osceola 2).

Wild Live Birds Out of 59 samples collected from 4 counties between 1/8-1/11, one wild bird tested positive for flavivirus antibodies (Washington) and one tested positive for antibodies to EEE virus (Santa Rosa).

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. This week, 16 reports representing 35 dead birds were received from 13 counties. One was identified as a type of raptor, none was identified as a corvid, and 34 were identified as other species. The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. 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 web page for more information at <http://www.doh.state.fl.us/environment/community/arboreal/index.html>. The Disease Outbreak Information Hotline offers recorded updates on medical alert status and surveillance at 888.880.5782.



This Week on EpiCom

by Christie Luce

The Bureau of Epidemiology encourages Epi Update readers to not only register on the EpiCom system at <https://www.epicomfl.net>, but to sign up for features such as automatic notification of certain events at EpiCom_Administrator@doh.state.fl.us and contribute appropriate public health observations related to any suspicious or unusual occurrences or circumstances. EpiCom is the primary method of communication between the Bureau of Epidemiology and other state medical agencies during emergency situations.

- A chemical incident at an ice house in Melbourne
- Outbreak of undetermined etiology involving 26 people at a school in St. Lucie County
- Two confirmed cases of Legionellosis in Leon County
- Suspected foodborne illness outbreak at government office complex in Hernando County
- Suspected multi-county outbreak of Salmonella linked to a soccer event in Palm Beach County

Christie Luce is administrator of the Surveillance Systems Section in the Bureau of Epidemiology. She can be reached at 850.245.4444, ext. 2450.

Weekly Disease Table

by D'Juan Harris, MSP

Go to http://www.doh.state.fl.us/disease_ctrl/epi/Disease_Table/2007_Weeks/dt_Week420071.HTML to review the most recent disease figures provided by the Florida Department of Health, Bureau of Epidemiology.

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