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TENNESSEE DEPARTMENT OF HEALTH

COMMISSIONER JOHN J. DREYZEHNER, MD, MPH

Healthcare-Associated Infections: TDH Prevention Efforts Make an Impact

Each day, about one in every 20 hospitalized patients has an infection acquired during the course of receiving healthcare in the U.S. Though preventable, healthcare-associated infections (HAIs) are one of the top ten causes of death nationwide.

Tennessee acute care hospitals, long-term acute care hospitals, inpatient rehabilitation facilities and outpatient dialysis facilities are required to collect and report HAI data to TDH via the National Healthcare Safety Network, an electronic surveillance system managed by CDC. The TDH HAI team supports reporting of seven different infection events by providing training for infection preventionists, monitoring reporting compliance and data quality, and providing data analysis and feedback to assist facilities in targeted prevention efforts. Additionally, TDH publishes a semi-annual public report on HAIs which includes statewide aggregate and facility-specific data on central line-associated bloodstream infections, catheter-associated urinary tract infections, surgical site infections, and healthcare-onset methicillin-resistant *Staphylococcus aureus* and *Clostridium difficile* infection events. The newest state HAI report, which includes data from January 2010 through June 2013, will be released in early March and can be found on the TDH HAI website (http://health.state.tn.us/Ceds/HAI/index.htm).

Since the release of the first state HAI report in 2009, Tennessee hospitals have made impressive gains in preventing infections and thus improving patient safety. For example, Tennessee acute care hospitals reported 20% more central line-associated bloodstream infections than predicted from national baseline data in 2008, while in 2012 Tennessee hospitals reported 47% *fewer* of these infections than predicted.

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Outbreak of *Salmonella* Heidelberg at a County Jail

On Friday, November 29, 2013, the TDH Southeast Regional Office (SERO) was notified by local jail administrators that three inmates had been transported to an emergency department with high fevers, diarrhea and vomiting. The administrators were concerned that the source of the illness may have been the Thanksgiving meal served to the inmates on November 28th. Then, during the weekend a hospital infection preventionist in the southeast region contacted the State Public Health Laboratory (SPHL) about a possible *Salmonella* outbreak.

After receiving these reports, SERO worked with the jail staff and the infection preventionist to conduct an outbreak investigation. The investigation was two-pronged, with an environmental health assessment of the jail kitchen and an epidemiologic investigation of the patients.

Environmental Health Specialists collected food samples from the Thanksgiving meal and delivered them to the SPHL. The samples all tested negative for *Salmonella*, although the kitchen inspection identified the possibility of cross-contamination through improper hand washing, poor personal hygiene and inadequate sanitation of utensils.

Meanwhile, epidemiologists identified cases and solicited stool specimens for

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Healthcare-Associated Infections (continued)

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Another formidable problem being taken on by the HAI team is antimicrobial resistance. Last year, TDH began an Antimicrobial Stewardship Collaborative in hospitals across the state. Since then, the HAI team has been hosting monthly educational webinars on specific stewardship topics and providing resources via their website. Recently implemented surveillance of antibiotic use through a periodic simplified point prevalence survey will allow monitoring of antibiotic use trends and feedback to hospitals. Efforts such as these to combat antimicrobial resistance are crucial to help hospitals prevent infections that are difficult or impossible to treat. *— by Ashley Fell, MPH, Meredith Kanago, MSPH, Jea-Young Min, PharmD, MPH* ❖

Managing Hepatitis B Virus-Infected Pregnant Women

An estimated 300 hepatitis B virus (HBV)-infected women give birth in Tennessee each year. These women are identified primarily through screening by their prenatal care providers and the reporting of laboratory results to public health.* Any physician, hospital or laboratory aware of the condition is required to report it to the local health department, although data from recent years show that only about half of these cases are actually reported. Often, reports are not made because it is assumed that someone else is responsible and will do it. Reporting will allow public health staff to educate and manage the care of a mother to ensure that her infant has optimal chances of being protected from hepatitis B.

Laboratory responsibilities: All HBV-positive test results should be reported to the health department within one week. However, laboratories can only report women who are tested during pregnancy and are noted as pregnant when the lab test is requested.

Prenatal care providers responsibilities: Be sure to 1) screen patients for HBV surface antigen (HBsAg) during every pregnancy, even if previously vaccinated or tested; 2) report all positive test results to the local health department; 3) alert the delivery hospital of a pregnant woman's hepatitis B status; and 4) counsel the pregnant women on her positive HBV result and prevention of transmission to her newborn. Public health can help with counseling on testing and vaccination of at-risk contacts.

Delivery hospitals responsibilities: Implement policies and procedures to 1) make sure all pregnant women presenting for delivery are screened for HBsAg, and test results are documented on the infant's delivery sheet; 2) notify the health department of the birth of any infant to an HBV-infected woman; and 3) adhere to a universal routine hepatitis B vaccine birth dose protocol before discharging infants.

Preventing HBV infection at birth saves an infant from a 90% chance of having chronic HBV infection, which can lead to premature death from liver disease. For more information go to http://www.cdc.gov/hepatitis/HBV/index.htm or http://health.state.tn.us/ReportableDiseases/Default.aspx. *— by Janice Johnson, RN* ❖

*The Tennessee Code Annotated (§ 68–5–602) requires that all pregnant women receiving prenatal care or presenting for delivery with no prenatal care be tested for HBsAg.

Cross-Border CASPER Survey

In April 2013, the Kentucky-Tennessee Public Health Emergency Management Collaboration conducted a field exercise in Clay County, Tennessee and Cumberland County, Kentucky to assess household preparedness in the border region. During the two-day exercise, 15 teams of state and regional public health staff from both states joined forces to conduct door-to-door interviews of residents throughout the two counties. While assessing how prepared households were to respond to natural or manmade disasters, the teams exercised how multiple jurisdictions would work together during a coordinated response. Moreover, the exercise served as a forum to field test newly developed data collection software on handheld tablets. CDC software developers joined the teams for the initial testing of that capability in the U.S.

The handheld tablets afforded efficient data management, enabling staff to report results within hours of completing the exercise. These results provide valuable insight into area household preparedness that will help guide public health planning. Notably, only 37% of households in the region described themselves as "well-prepared", 44% reported having a weather radio, and 18% were familiar with the term "shelter in place." Most households claimed to have a three-day supply of needed medications, food and water (83%, 71% and 89%, respectively). Only 22% of households reported having a working carbon monoxide detector.

Officially known as a Community Assessment for Public Health Emergency Response (CASPER), the joint survey followed a household sampling approach that is designed to quickly and accurately assess community needs after a disaster. During an actual disaster, public health teams would rapidly gather information such as food and water needs, sustained injuries and

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Cross-Border CASPER Survey (continued)

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housing conditions that is quickly compiled and analyzed by responders. The documented needs of the communities captured by the CASPER allow decision-makers to guide the response or request additional resources. Because a timely response is necessary during the critical recovery period immediately following a disaster, practicing this type of exercise is an important part of ongoing public health emergency preparedness. — *by Jay Roth, MPH and Karen Lynn, RN, MSN* ❖

One Health: When Should a Veterinarian Call the Health Department?

You are a private veterinary practitioner examining a pet cat with signs of respiratory distress, when the cat's owner mentions that a family member has become ill with what he thinks are similar symptoms. After further examining the cat and questioning the client, you begin to suspect this may be a zoonotic infection.

First, you take steps to protect yourself, your staff and others. Then you collect

specimens for diagnostic tests, treat the animal empirically and place it in an isolation cage. You consider what to do next. Household members have been exposed to the sick cat, and now pets and people in your clinic have also been exposed. Should you report your concerns to the Health Department? How about the State Veterinarian?

The state Department of Health is the lead agency regarding risks to public health, so you should call TDH with your concerns for the people involved. Specifically, the State Public Health Veterinarian oversees surveillance of zoonotic diseases. The SPHV can help arrange appropriate diagnostic testing and consultation with subject matter experts at CDC or elsewhere.

Whether you should also contact the State Veterinarian's office at the Department of Agriculture depends on the disease you suspect. The list of reportable animal diseases and conditions in Tennessee is available at http://www.tn.gov/agriculture/publications/regulatory/reportablediseases.pdf.

The only disease that is reportable to both TDA and TDH is rabies. Because rabies is a public health threat, however, prevention and control activities fall under the jurisdiction of TDH. Any known or suspected outbreak of human disease is also reportable by law to TDH.

Public health veterinarians at TDH are available for consultation by calling 615-741-7247. For animal health concerns not related to public health, call the State Veterinarian's office at 615-837-5120. During non-business hours, both numbers have recordings giving emergency numbers to call if needed. — *by Heather Henderson, DVM, MPH* ❖

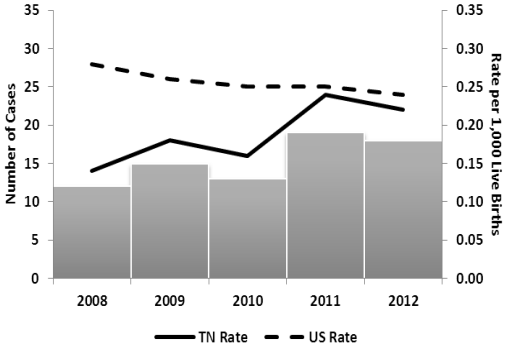
Preventing Early-Onset GBS Disease: There's an App for That!

Group B Streptococcus (GBS) is a gram-positive coccus that can colonize the human genital and gastrointestinal tracts, causing invasive disease in vulnerable individuals, particularly neonates born to mothers colonized with GBS. First identified as a pathogen in the 1930s, by the 1970s GBS had become the leading cause of early neonatal morbidity and mortality in the U.S. Analysis of patient data revealed a bimodal distribution by age of onset, now defined as early onset (infants aged < 7 days) and late onset (infants aged 7-89 days).

In 1996, CDC, American Academy of Pediatrics, and American College of Obstetricians and Gynecologists released recommendations for screening and intrapartum antibiotic prophylaxis to prevent perinatal GBS disease in neonates. Guidelines were revised in 2002 to recommend universal culture-based screening of all pregnant women at 35-37 weeks gestation to identify those who should receive antibiotics to prevent transmission. Significant declines in disease incidence followed, although invasive GBS disease remains the leading infectious cause of neonatal morbidity and mortality.

Rates of early-onset neonatal GBS disease in Tennessee paralleled the declining national trend following institution of the national screening and prophylaxis recommendations. Disturbingly, however, rates in Tennessee have substantially increased since 2008. The cause for this upward trend is unknown. Factors such as inadequate prenatal care, preterm birth (before the 35-37 week screening timeframe), unknown maternal GBS status or insufficient antibiotic prophylaxis undoubtedly all play a part; a single overriding factor has not been identified.

Number and rate of Group B Streptococcus invasive disease among infants aged <7 days



To aid physicians in determining infants' risk for developing early-onset GBS disease, CDC developed an interactive application for iOS and Android devices. The app walks providers through algorithms designed to identify which infants should receive antibiotic prophylaxis, which should be observed more closely, and which are at lower risk, depending on a variety of factors. It is free to download

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The 2014 Council of State and Territorial Epidemiologists Annual Conference is in Nashville

Dr. Tim Jones, State Epidemiologist at TDH, is the current president of the national Council of State and Territorial Epidemiologists. The 2014 CSTE Annual Conference will be held in Nashville June 22-26th. The conference connects more than 1,000 epidemiologists and others interested in public health from across the country. The program will include workshops, plenary sessions with leaders in the field of public health, oral breakout sessions, roundtable discussions and poster presentations. Attendees from diverse backgrounds meet and share their expertise in surveillance and epidemiology as well as best practices in a broad range of areas including informatics, infectious diseases, immunizations, environmental health, occupational health, chronic disease, injury control, and maternal and child health. We encourage anyone who is interested to take this opportunity to meet and build relationships with your colleagues. Additional information is available at http://www.csteconference.org/. ❖

Tim Jones, MD

Outbreak of *S.* Heidelberg at a County Jail (continued)

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laboratory testing. Twenty-nine cases were identified (23 inmates and six officers), five of whom were hospitalized. Nine of 13 stool specimens tested positive for *Salmonella* Heidelberg at the SPHL. To look for common exposures, the team conducted an analytical study by interviewing 20 cases and 20 healthy controls with a standardized questionnaire that focused on symptoms, activities and foods eaten during the previous week. No single food item or activity was found to be statistically associated with illness; however, the Thanksgiving meal could be ruled out as the source, as cases were significantly less likely than controls to have eaten any meal on November 28th.

Investigators then examined menus for meals served during several days prior to November 28th. They identified one product, mechanically separated chicken (MSC), that has been associated with outbreaks in the past and was served as part of two different meals on November 27th. That day MSC was used in chicken gravy for breakfast and in chicken spaghetti for lunch. SERO returned to the jail kitchen and, using a sterilized saw, collected samples from intact 10-pound chubs of frozen MSC, which were sent to the SPHL for testing.

The SPHL isolated the outbreak strain of *S.* Heidelberg from the MSC, as well as a second strain of *Salmonella*. TDH provided lot numbers to the USDA Food Safety Inspection Service and requested traceback assistance. By January 10th, the manufacturer had initiated a voluntary recall of 33,840 pounds of the product from the market; subsequently the company decided to cease production of MSC. — *by L. Amanda Ingram, MPH* ❖

Preventing Early-Onset GBS Disease (continued)

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and easy to use! "The app guides you through the process quickly and will be a big help in preventing GBS disease in the babies you deliver" says Dr. William Schaffner, an infectious disease specialist at the Vanderbilt Medical Center. — *by Mary-Margaret Fill, MD* ❖

With this app, you can

- Select your portal - obstetric or neonatal - and answer questions about your patient
- Receive specific patient management guidance based on the scenario you have entered
- Obtain appropriate antibiotic regimens for obstetric patients requiring intrapartum prophylaxis

http://www.cdc.gov/groupbstrep/guidelines/index.html

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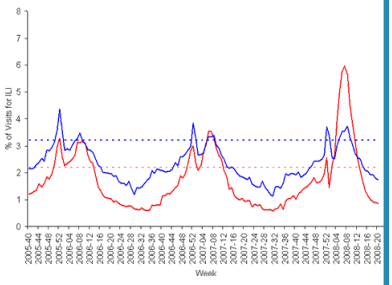
(And we need you to tell us about it.)



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Conducting year-round influenza surveillance including free laboratory testing for selected specimens.

Contact Robb Garman for more info:
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