



▶ WINTER IS NOROVIRUS SEASON..... 2



▶ ASSESSING DISPENSING ACCURACY FOR MEDICAL COUNTER-MEASURE EXERCISES..... 2



▶ ONE HEALTH: WILD PIGS, HUNTERS AND BRUCELLOSIS..... 3

▶ WATCHING OUT FOR FLU 3

▶ THE LIST OF REPORTABLE DISEASES AND EVENTS 3

Tennessee *epi-news*

TENNESSEE DEPARTMENT OF HEALTH
COMMISSIONER JOHN J. DREYZEHNER, MD, MPH

Legionnaires' Disease Outbreak in Shelby County

In June 2013, the Shelby County Health Department received multiple reports of Legionnaires' disease among inpatients at local hospitals. Health department epidemiologists quickly responded, conducting detailed interviews with the patients using an interview form they had adapted with questions specific to Shelby County exposures.

Interviews with the first seven identified patients revealed that five of them had frequented the same hot tub and steam room in a fitness center within two to ten days before their illness onset. The health department instructed the fitness center to close the pool, hot tub and steam room

areas and to conduct environmental sampling, testing and remediation using established methodologies. The investigators also initiated active surveillance for legionellosis and soon found four more cases sharing this exposure.

Legionnaires' disease is a form of community-acquired pneumonia caused by *Legionella* species. A less severe form of legionellosis is known as Pontiac fever. *Legionella* bacteria are ubiquitous in the environment and thrive in warm, manmade water systems. People can become infected by inhaling aerosolized water containing the bacteria. Older age, smoking, and chronic lung or other immunosuppressive



conditions are predisposing factors. Most cases occur sporadically and cannot be traced to a source; however, legionellosis outbreaks have been associated with a vari-

(Continued on page 2)

Middle East Respiratory Syndrome Coronavirus Update

Middle East Respiratory Syndrome (MERS) is viral respiratory illness first reported in Saudi Arabia in 2012. The agent is a coronavirus (CoV) with an as-yet-unidentified reservoir host. This virus has spread from ill people to others through close contact but has not spread in a sustained way in communities.

As of January 3, 2014, 177 cases of MERS-CoV infection, including 74 deaths, have been reported to the World Health Organization. These cases have all been linked to countries in or near the Arabian Peninsula;

no confirmed cases have been identified in the U.S. Healthcare providers are asked to report patients under investigation and unusual cases or clusters of severe acute respiratory infection (SARI) to public health officials. This includes patients with fever and pneumonia or acute respiratory distress syndrome with a history of travel to an affected area or contact with a symptomatic person who traveled to an affected area. Clusters of patients with SARI or ill healthcare workers who have cared for patients with SARI should also be reported. Though CDC has not recommended

changes in travel plans because of MERS, travel notices with information regarding how travelers can protect themselves can be found at <http://www.cdc.gov/coronavirus/mers/travel.html>. TDH is preparing to respond should there be a case of MERS in the U.S. or sustained human-to-human transmission anywhere in the world. Key areas for preparedness include surveillance, isolation of ill patients, quarantine of exposed contacts, and guidance on infection control practices. More information on MERS-CoV, including the most

(Continued on page 3)

Legionnaires' Disease Outbreak in Shelby County (continued)

(Continued from page 1)

ety of environmental exposures, including air conditioning systems, hospital and hotel hot water systems, decorative fountains, grocery store vegetable misters, and hot tubs and spas. One of the largest known legionellosis outbreaks was associated with a hot tub in the Netherlands in 1999, where

318 people became infected from a hot tub on display at a festival.

The Shelby County Health Department was able to identify the source of this outbreak by recognizing an increase in reports and promptly conducting detailed interviews. Early identification of the

source led to corrective action being taken that almost certainly prevented more illnesses in the community. — *by David Sweat, MPH* ❖

Winter is Norovirus Season

Norovirus is the most common cause of acute gastroenteritis in the U.S. Each year, it causes about 20 million illnesses and contributes to as many as 71,000 hospitalizations and 800 deaths. Hospitalization and mortality associated with norovirus infection occur most frequently among young children, older adults and immunocompromised patients. Norovirus is also the most common cause of foodborne-disease outbreaks in the U.S.

Although norovirus illness is often called “stomach flu”, it is not related to influenza. Noroviruses belong to the family *Caliciviridae* and can be grouped into five genogroups (GI through GV), which are further divided into at least 34 genotypes. Human disease is primarily caused by GI and GII noroviruses, with most outbreaks caused by GII.4 strains. During the past

decade, new GII.4 strains have emerged every 2–3 years, replacing previous predominant strains. TDH, in collaboration with CDC, collects information on norovirus strains associated with outbreaks in the U.S. through CaliciNet, an electronic laboratory surveillance network.

In 2012, a new strain of norovirus was detected in Australia called GII.4 Sydney. This new strain is currently the leading cause of norovirus outbreaks the U.S. From August 1, 2012 through July 31, 2013 Tennessee reported 60 norovirus outbreaks, most of which were due to GII.4 Sydney.

The majority of norovirus outbreaks in Tennessee occur in long-term care facilities. Effective prevention measures are crucial to limit transmission in such set-

tings. CDC has developed a norovirus prevention toolkit for healthcare settings, available at www.cdc.gov/HAI/organisms/norovirus.html.

The following general prevention measures can reduce the risk of transmission:

- ▶ Practice proper hand hygiene
- ▶ Wash fruits and vegetables and cook seafood thoroughly
- ▶ Do not prepare food or care for others when you are sick
- ▶ Clean and disinfect contaminated surfaces
- ▶ Wash laundry thoroughly

More information about norovirus can be found at www.cdc.gov/norovirus. — *by Katie Garman, MPH, CHES* ❖

Assessing Dispensing Accuracy for Medical Countermeasure Exercises

Large-scale emergencies, whether natural or manmade, can necessitate mass dispensing of pharmaceuticals or other medical products to an entire affected population. TDH routinely conducts medical countermeasure dispensing exercises to simulate mass prophylaxis in response to public health emergencies. These Point of Dispensing (POD) exercises have traditionally emphasized only the speed of medication dispensing. However, TDH is piloting a method for evaluating the accuracy of mass antibiotic dispensing. The objectives include predicting the number of drug-related adverse events that could result from such a large-scale operation. Dispensing accuracy is important because many people have contraindications to certain drugs, such as the commonly stockpiled antibiotics doxycycline and ciprofloxacin.

To assess accuracy, volunteers serving as community members are assigned mock

medical attributes as they pass through a POD to receive medication. These mock attributes indicate prophylaxis with one of several antibiotics. As medications are dispensed, copies of drug labels are retained with patient-



specific dispensing records. Afterward, the registration forms, indicating the drug that patients were meant to receive, are compared to the drug labels showing what they actually received. Any deviation from the medication

or dose assigned is considered an error. Dispensing errors are tallied for each exercise, and results are compared among exercises. During these exercises, PODs have dispensed up to 1830 units of medication per hour, with accuracy rates averaging 96.8% (range: 96.4- 97.5%).

Planning for countermeasure dispensing should focus not only on amount of medications delivered, but also on accuracy of dispensing. TDH intends to assess accuracy of POD dispensing for all 13 of the state's public health regions as they conduct medical countermeasure exercises. This will enable health departments to anticipate and prepare for medication-related adverse events. — *by Tristan Victoroff, MPH* ❖

One Health: Wild pigs, Hunters and Brucellosis

When a 27 year-old man from East Tennessee presented with fever, body aches and night sweats that had begun during a month-long trip through Asia, his doctors were faced with a daunting list of potential diagnoses. The patient was a farmer and avid hunter who had been exposed to risk factors for numerous infectious diseases prior to and while traveling abroad. A myriad of tests were run, and finally a blood culture provided a clue. Gram negative rods were seen, sparking suspicion of brucellosis. Further testing at the state public health laboratory confirmed that the organism was *Brucella suis*, found in feral swine in Tennessee. Case investigation revealed that the patient had killed and dressed a feral hog on the family farm a few weeks prior to the onset of his symptoms.

In the U.S., brucellosis is almost exclusively seen in wild animals such as bison, deer, elk, caribou and feral swine, as eradication programs have long been in place for domestic livestock. *Brucella* can be transmitted from animals to humans through contact with infected meat, placentas and birth fluids; inhalation of airborne particles contaminated with the bacteria; and consumption of unpasteurized milk and cheese. People who work closely with animals, including hunters, veterinarians and slaughter plant workers, are at a higher risk of infection. Brucellosis is the most common laboratory-acquired infec-

tion in the U.S.; therefore great care must be taken to protect laboratorians who work with specimens from suspected brucellosis patients. About 100 human brucellosis infections are reported per year in the U.S.

Symptoms of acute brucellosis can be flu-like, with fever, chills, muscle aches, fa-



Middle East Respiratory Syndrome Coronavirus Update (continued)

(Continued from page 1)

recent guidance on evaluation of potentially infected patients, can be found at <http://www.cdc.gov/coronavirus/mers/>.

To discuss evaluation of a potentially exposed person, contact TDH at 615-741-7247. Consultation is available 24 hours a day, seven days a week. For more information on Tennessee-specific guidance

and processes, contact the Healthcare Associated Infections team at hai.health@tn.gov. — by Jennifer Ward, MS ❖

Sentinel Providers: Watching Out for Flu

Flu activity in Tennessee has gradually increased over each week of the current season. All three seasonal influenza strains have been detected, with the 2009 type A (H1N1) strain predominating. Flu season, which begins in October and typically peaks in January or February, is unpredictable; its severity is dependent on a number of factors, including which flu viruses are circulating, how much and when vaccine is available, how many people get vaccinated and how well the vaccine matches the circulating flu viruses.



Year-round influenza surveillance is crucial not only to monitor circulating seasonal viruses, but also to detect



novel strains that could potentially cause a pandemic. Situations involving novel influenza viruses are closely monitored by public health officials. The novel strain of greatest concern at present is an avian A (H7N9) virus first reported by China in April 2013. The virus is apparently spreading from asymptomatic birds to humans in live animal markets. As of December 20, 2013, 147 human infections have been detected, with 47 deaths. All cases have been in China with no sustained human-to-human spread. Public health experts and virologists globally are conducting active surveillance and testing to better understand the potential threat and to develop effective vaccines, should the virus further adapt to spread among humans.

The Sentinel Provider Network (SPN) is the cornerstone of surveillance for influenza and other respiratory viruses in Tennessee. The SPN consists of more than 60 outpatient medical providers that work with TDH to track influenza-like illness (ILI—defined as fever plus cough and/or

sore throat) throughout the state. Data from SPN participants give a weekly snapshot of ILI activity and of circulating flu strains. Each week, sites report the proportion of outpatient visits for ILI and provide specimens to the state Public Health Laboratory to be tested for influenza and 18 other respiratory viruses. Importantly, these data influence the national influenza response, current CDC vaccination and antiviral use recommendations, and future vaccine development.

Tennessee's influenza surveillance and laboratory capacity are essential tools to protect the public from the threat of H7N9 and other forms of this ever-changing virus. Surveillance relies on the participation of healthcare providers. Providers who are interested in joining the SPN can call (615) 532-8507.

Weekly flu surveillance reports can be found at http://health.state.tn.us/TNflu_report_archive.htm. — by Robb L. Garman, MPH ❖

The List of Reportable Diseases and Events in Tennessee: A Living Document

Effective national public health surveillance begins at the local and state health department levels. Surveillance programs provide data that determine the direction and scope of many health department activities, from detecting individual cases and controlling outbreaks to implementing prevention and control activities. Requirements for reporting diseases in the U.S. are established by state laws or regulations; therefore, the list of reportable diseases in each state differs and can change over time.

The conditions on the TDH list of Reportable Diseases and Events are declared to be communicable or otherwise dangerous to the public. They are to be reported to the local or state health department by hospitals, physicians, laboratories or others knowing of or suspecting a case, in accordance with the statutes and regulations governing the control of communicable diseases in Tennessee (T.C.A. §68 Rule 1200-14-01-.02).

Each year, the State Epidemiologist reviews the list in consultation with epidemiologists from program areas responsible for the surveillance of those diseases and events. This annual review typically begins in the summer, when epidemiologists are asked to review the conditions currently listed, using surveillance case definitions published by the Council of State and Territorial Epidemiologists and the CDC. Emerging threats are evaluated for possible inclusion, and epidemiologists also work to document and update any proposed changes to the list of laboratory observations that may indicate a reportable event. Later in the year, the State Epidemiologist meets with a subgroup of epidemiologists and public health officials to evaluate suggested changes to the list. The revised list is finalized in December and published online in January on the TDH website at <http://health.state.tn.us/ReportableDiseases/Default.aspx>. The updated list is also sent out to providers and other interested parties. To be included in this distribution list or for more information, please contact CEDEP.Surveillance@tn.gov. — by Daniel Golson, MPH and Tonya McKennley, MSPH ❖

One Health: Wild pigs, Hunters and Brucellosis (continued)

(Continued from page 3)

tigue and lack of appetite. The disease usually progresses to a characteristic undulant fever and, in many cases, becomes chronic. Diagnosis is based on culture, PCR or paired serological tests. Confirmatory testing is available at the state public health laboratory. If brucellosis is suspected in a patient, providers may contact TDH at 615-741-7247 for consultation. — by Glenis Moore, DVM, MPH ❖

Selected Conditions Reported by Year, Tennessee

CONDITION	2008	2009	2010	2011	2012	2013*
Campylobacteriosis	481	499	401	413	445	404
Chlamydia	27939	29761	27809	30249	31834	29635
Cryptosporidiosis	48	82	52	99	70	80
Enterobacteriaceae, Carbapenem-reducing (CRE)	--	--	--	392	280	199
Gonorrhea	8754	7933	6974	7453	8922	7202
Haemophilus influenzae	103	112	97	108	103	100
Hemolytic Uremic Syndrome (HUS)	21	16	17	16	19	17
Hepatitis A	35	12	13	25	22	20
Hepatitis B, acute	155	139	148	216	264	265
Hepatitis C, acute	33	35	51	93	150	103
Lyme Disease	29	39	29	34	30	23
Meningococcal Disease	21	15	13	9	7	6
Pertussis	120	203	226	106	314	215
Salmonellosis	923	779	1113	1060	1106	835
Shiga toxin-producing Escherichia coli (STEC)	114	60	89	111	130	121
Shigellosis	949	367	268	213	205	626
Spotted Fever Rickettsiosis	231	187	307	262	696	540
Syphilis	1271	1316	1130	878	948	875
Tuberculosis	282	210	193	172	169	137

*Preliminary data, subject to change

EDITORIAL STAFF

Central Office Editorial Staff:
Darryl Edmisson, MS
Katie Garman, MPH, CHES
Robb Garman, MPH
Heather Henderson, DVM, MPH
L. Amanda Ingram, MPH

Regional/Metro Editorial Staff:
David E. Brumley, DDS, MPH
Heather Mullins, MPH
David Sweat, MPH

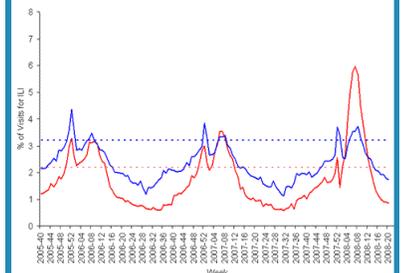
For subscription information, please contact Darryl Edmisson at (800) 404-3006 or EpiNewsletter.Response@tn.gov



Tennessee Department of Health
Authorization No. 343227, 12/13
Website Only

Flu happens!

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



Join the
**Tennessee Sentinel
Providers Network**

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

Contact Robb Garman for
more info:
(615) 532-8507
robb.garman@tn.gov