Infection Disease Update

Satellite Conference and Live Webcast
Wednesday, March 18, 2015
1:00 – 3:00 pm Central Time

Produced by the Alabama Department of Public Health
Video Communications and Distance Learning Division

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EPI Investigations
- From 12/26/13 to 12/27/14 the Epidemiology Surveillance Division investigated 6,864 reports and identified 3,139 cases
- Outbreaks and clusters for 2014 totaled 129 compared to 88 in 2013

EPI Investigations and Cases (12/26/13 – 12/27/14)

Outbreaks and Clusters

Epidemiology Outbreaks 2014
- Notable outbreaks
  – Legionella - Hospital in Jefferson County and a copper plant in Wilcox County
  – Salmonella – Restaurant in Franklin County

**Epidemiology Outbreaks 2014**
- Notable outbreaks (continued)
  - Shigella - Numerous day care centers in Jefferson County

**Investigation at a Restaurant in Franklin County**
- On Wednesday, June 11, 2014, a foodborne illness complaint was received by the local environmental office regarding a Franklin County restaurant

**Investigation at a Restaurant in Franklin County**
- The complainant stated that several individuals had experienced symptoms of nausea and diarrhea after eating at the restaurant on June 4 or 5

**Investigation at a Restaurant in Franklin County**
- An environmental inspection of the restaurant conducted on June 11 identified seven critical violations
- The restaurant was given a food establishment score of 53 as a result of findings from the inspection

**Investigation at a Restaurant in Franklin County**
- This inspection score mandated the immediate closure of the restaurant on June 12

**Investigation at a Restaurant in Franklin County**
- ADPH interviewed 56 individuals, 53 met the basic outbreak case definition
- Ages ranged from 4 to 68 years (with median age of 39 years)
- 36 cases were female (67%)
Investigation at a Restaurant in Franklin County

- 30 stool specimens, 10 food samples, and 6 environmental swabs associated with the outbreak were tested for enteric pathogens by the BCL

Conclusion

- *Salmonella enteritidis* was isolated from all 30 stool specimens and from one environmental swab of a left door handle from a cooler at the restaurant
- The PFGE patterns for the positive environmental swab and the stool specimens were a 100% match to each other

Investigation of a Copper Plant in Wilcox County

- On September 24, 2014 local Field Surveillance Staff (FSS) identified a potential outbreak of legionellosis associated with a Wilcox County copper smelting plant during a routine investigation of a *Legionella* titer laboratory report

Investigation of a Copper Plant in Wilcox County

- Multiple employees at the plant had reportedly been out of work sick with respiratory symptoms and diagnoses of pneumonia

What is Legionellosis?

- Legionellosis is an environmentally acquired bacterial infection caused by *Legionella* species [4]

What is Legionellosis?

- The disease has two types of clinical manifestations:
  - Legionnaires’ disease, which causes mild to severe pneumonia, and
  - Pontiac fever, which is a febrile disease without pneumonia [4]
What is Legionellosis?
- Disease transmission is caused by breathing in water mist or water vapors contaminated with *Legionella*
- The bacteria thrives in water systems, like those associated with hot tubs, cooling towers, hot water tanks, large plumbing systems, or parts of the air conditioning systems of large buildings

Investigation of a Copper Plant in Wilcox County
- A confirmed case of Legionellosis was identified on September 25
- An outbreak investigation was initiated on September 25 to verify laboratory reports, identify other potential Legionellosis cases among plant employees, and conduct an environmental survey of the facility

Investigation of a Copper Plant in Wilcox County
- Clinical specimens, in particular sputum, were collected by FSS and sent to the Bureau of Clinical Laboratories (BCL) for Legionellosis testing
- Ill individuals were asked to seek medical attention if symptoms persisted and to request a chest x-ray and Legionellosis testing

Investigation of a Copper Plant in Wilcox County
- Liter water samples and swabs were taken from environmental areas throughout the plant that could have supported the growth of *Legionella* species

Investigation of a Copper Plant in Wilcox County
- Case finding efforts identified 36 employees ill with respiratory and / or GI symptoms
- 35 employees were interviewed
- Of the 35 employees interviewed, 17% were laboratory confirmed and met the outbreak case definition
Investigation of a Copper Plant in Wilcox County

- 4 had positive urine antigen tests performed by commercial laboratories
- 1 had a positive sputum culture tested by the BCL
- 1 was diagnosed by sero-conversion tested at a commercial laboratory

Conclusion

- Recommendations for the remediation of the identified *Legionella* in the cooling towers were made and the need to establish a *Legionella* control program at the plant to prevent further outbreaks

**Ebola**

- This is the largest Ebola epidemic in history
- CDC’s response to Ebola is the largest international outbreak response in CDC’s history

**EVD Cases United States**

- EVD has been diagnosed in the United States in 4 people:
  - 1 (the index patient) who traveled to Dallas, Texas from Liberia
  - 2 healthcare workers who cared for the index patient, and
  - 1 medical aide worker who traveled to New York City from Guinea

**Ebola Cases and Deaths**

- As of February 21, 2015, a total of 23,539 cases of Ebola (14,134 laboratory-confirmed) and 9,541 deaths have been reported

**EVD Cases United States**

- Index patient
  - Symptoms developed on September 24, 2014 approximately 4 days after arrival
  - Patient sought medical care at Texas Health Presbyterian Hospital of Dallas on September 26, returned and was admitted to hospital on September 28
  - Testing confirmed EVD on September 30, and the patient died October 8
EVD Cases United States

- TX Healthcare Worker, Case 2
  - Cared for index patient, was self-monitoring and presented to hospital reporting low-grade fever
  - Diagnosed with EVD on October 10
  - Recovered and was released from NIH Clinical Center on October 24

EVD Cases United States

- TX Healthcare Worker, Case 3
  - Cared for index patient, was self-monitoring and reported low-grade fever
  - Diagnosed with EVD on October 15
  - Was released from Emory University Hospital in Atlanta October 28

EVD Cases United States

- NY Medical Aid Worker, Case 4
  - Worked with Ebola patients in Guinea, was self-monitoring and reported fever
  - Diagnosed with EVD on October 24
  - Recovered and released from Bellevue Hospital in New York City November 11

EVD Cases United States

- During this outbreak, 5 health workers and 1 journalist have been infected with Ebola virus while in West Africa and transported to hospitals in the United States
  - Five of these patients have recovered

EVD Cases United States

- One of the health workers died on November 17 after being transported from Sierra Leone to Nebraska Medical Center

Ebola Virus Transmission

- Virus present in high quantity in blood, body fluids, and excreta of symptomatic EVD-infected patients
- Opportunities for human-to-human transmission
  - Direct contact (through broken skin or unprotected mucous membranes) with an EVD-infected patient’s blood or body fluids

Slide Credit: CDC
Ebola Virus Transmission
- Sharps injury (with EVD - contaminated needle or other sharp)
- Direct contact with the corpse of a person who died of EVD
- Indirect contact with an EVD - infected patient’s blood or body fluids via a contaminated object (soiled linens or used utensils)

Ebola Virus Transmission
- Ebola can also be transmitted via contact with blood, fluids, or meat of an infected bush animal
  - Limited evidence that dogs become infected with Ebola virus
  - No reports of dogs or cats becoming sick with or transmitting Ebola

Monitoring Individuals With EVD Exposure
- CDC has created guidance for monitoring individuals returning from a country with widespread transmission or cases in urban areas with uncertain control measures
- Epidemiology, Surveillance Division, is actively monitoring these individuals coming to Alabama

Alabama Monitorees As of March 16, 2015
- Cumulative Total = 44
- Completed 21 day monitoring or transferred to a new jurisdiction = 42
- Active Monitoring = 2
- Direct Active Monitoring = 0

References
- http://www.adph.org/epi
- http://www.cdc.gov/vhf/ebola/

References
- http://www.epa.gov/waste/nonhaz/industrial/medical/programs.htm