



**November 2016**

T. Herchline, Editor

## **LOCAL NEWS**

### **ID Fellows**

Dr Luke Onuorah will be at the VA Medical Center in November and December, and at Miami Valley Hospital in January. Dr Alpa Desai will be at Miami Valley Hospital in November and December, and at the VA Medical Center in January.

### **Local Disease Activity**

There was an increase in Legionnaires' disease cases in August. Thirteen people were positive for legionella antigen this month. These people were between the ages of 35 and 74 years old. Ten of the individuals were admitted to a hospital for more than one night, 3 of whom were in intensive care units for multiple days during their inpatient stay. Four of the individuals had traveled outside the state of Ohio during their exposure periods. Only 2 people said they used any form of respiratory equipment. None of these people were linked to each other or any previously reported cases.

There were 10 reports of Cryptosporidium in August. Ages ranged from 2 years to 64 years old. Four of the people interviewed said they had visited pools or splash parks, but all had visited different pools. Three people had traveled outside of Montgomery County during their exposure period. There was one case of probable secondary infection from a member of the same household; otherwise, these individuals did not have links to one another. Since then, reports of gastrointestinal illness have decreased; Cryptosporidium cases have tapered off to pre-summer levels.

With the return to school and cooler weather, there has been an increase in the number of pertussis cases in Montgomery County. Since the 1st of September PHDMC has investigated six confirmed cases of pertussis. Ages ranged from 1 month to 8 years. Three of these children were infants less than 6 months old. One child was enrolled in school. Only one child was in day care at the time of diagnosis. All children were up to date on vaccinations. There were no common exposures between any of the children and household contacts received appropriate prophylaxis.

### **Influenza Activity**

The Centers for Disease Control and Prevention's (CDC) Influenza Division collects and analyzes surveillance data year-round and produces a weekly report on U.S. influenza activity from October through May. During October, overall influenza remained below baseline

threshold within the United States. Pneumonia and influenza mortality also remained below the epidemic threshold. For week 41 (ending October 15, 2016), Guam reported widespread influenza activity, no states reported widespread or regional influenza activity, 1 state (New Hampshire) reported local spread of influenza, 41 states (including Ohio) reported sporadic influenza activity and 8 states reported no influenza activity. Regionally (Auglaize, Champaign, Clark, Darke, Greene, Miami, Montgomery, Preble, Shelby, and Warren counties), there have been 1 case of influenza A and no cases of influenza B in October, with 1 influenza-related hospitalization.

## **NATIONAL NEWS**

Contributed by Alpa Desai, MD

### **Multistate Outbreak of Salmonella Oranienburg Infections Linked to Good Earth Egg Company Shell Eggs**

Good Earth Egg Company shell eggs have the potential to be contaminated with Salmonella and they were distributed throughout the Midwest, including Missouri, Illinois and Kansas, to supermarkets, wholesalers, restaurants, institutions, and direct sales to customers. Eight people infected with the outbreak strains of Salmonella Oranienburg have been reported from three states. Two ill people have been hospitalized, and no deaths have been reported.

### **Multistate Outbreak of Hepatitis A Linked to Frozen Strawberries**

Epidemiologic and trace back evidence indicate frozen strawberries imported from Egypt are the likely source of this outbreak. 14 people with hepatitis A have been reported from nine states: Arkansas (1), California (1), Maryland (12), New York (3), North Carolina (1), Oregon (1), Virginia (107), West Virginia (7), and Wisconsin (1). 129 of these cases reported eating a smoothie containing strawberries from Tropical Smoothie Café. 52 ill people have been hospitalized. No deaths have been reported. FDA trace back information indicated that the frozen strawberries served in the Tropical Smoothie Café locations were from the International Company for Agricultural Production & Processing (ICAPP), imported from Egypt.

### **Multistate Outbreak of Shiga Toxin-producing Escherichia coli O157:H7 Infections Linked to Beef Products Produced by Adams Farm**

CDC, and the U.S. Department of Agriculture Food Safety and Inspection Service (USDA-FSIS) investigated this multistate outbreak of Shiga toxin-producing Escherichia coli O157:H7 (STEC O157:H7) infections. Eleven people infected with the outbreak strain of STEC O157:H7 were reported from five states. Seven ill people were hospitalized. One ill person developed hemolytic uremic syndrome, a type of kidney failure, and no deaths were reported. Epidemiologic, trace back, and laboratory evidence indicated that beef products produced by Adams Farm Slaughterhouse in Athol, Massachusetts, were the likely source of this outbreak.

### **Candida auris, a Globally Emerging Invasive, Multidrug-Resistant Fungus in US**

Candida auris, an emerging fungus that can cause invasive infections, is associated with high mortality and is often resistant to multiple antifungal drugs. C. auris was first described in 2009. Seven C. auris cases occurring during May 2013–August 2016 were reported to CDC. Five patients had C. auris initially isolated from blood, one from urine, and one from the external ear canal. Out of 7 cases, 5 cases reported in 2016. 2 cases in Illinois, 2 cases in New York and 1 case in Maryland. There is 40% mortality of cases

reported in 2016.

## **INTERNATIONAL NEWS**

### **Dengue Vaccine**

The first dengue vaccine, Dengvaxia (CYD-TDV) by Sanofi Pasteur, was first registered in Mexico in December, 2015. CYD-TDV is a live recombinant tetravalent dengue vaccine that has been evaluated as a 3-dose series on a 0/6/12 month schedule in Phase III clinical studies. It has been registered for use in individuals 9-45 years of age living in endemic areas. WHO recommends that countries should consider introduction of the dengue vaccine CYD-TDV only in geographic settings (national or subnational) where epidemiological data indicate a high burden of disease. There are approximately five additional vaccine candidates under evaluation in clinical trials, including other live-attenuated vaccines, as well as subunit, DNA and purified inactivated vaccine candidates.

## Case Conference

Contributed by Luke Onuorah, MD

A 49 year old African-American woman from the Dayton area with a 2 year history of recurrent nephrolithiasis presented to the ED with a two week history of intermittent right flank pain. She reported an acute worsening of the pain 24 hours prior to her arrival. It was associated with nausea, emesis, chills but no fever. She also stated her urine had a strong odor but denied any dysuria, increased urinary frequency or hematuria. Pertinent medical history: Essential hypertension, Type 2 diabetes mellitus, Morbid obesity s/p gastric bypass, recurrent nephrolithiasis, s/p cystoscopy, pyelogram and right ureteral stent. She was a non-smoker and drank alcohol rarely. Vital signs at admission: Maximum temperature- 98.3 °F (36.8 °C), Blood pressure of 146/82 mmHg; Pulse rate 100, Respiratory rate of 18, Pulse oximetry of 98% while breathing ambient air. She was lying comfortably in bed but drowsy owing to morphine that was administered to her. Physical examination of her abdomen revealed a mild suprapubic tenderness and right costovertebral angle tenderness on percussion. Laboratory data was largely unremarkable: her hemoglobin was 12.9 g/dL, white blood cell count: 7,700/mm<sup>3</sup>, platelet count: 237,000/mm<sup>3</sup>. Her urinalysis showed a specific gravity: 1.026, blood- small, WBC 6-10, epithelial cells 21-40, bacteria- large. Her most remarkable findings were seen on a computed tomography scan of her abdomen with extensive emphysema in the wall of her urinary bladder (see Figure 1). Her urine culture grew a *Escherichia coli* which was pan sensitive to penicillin. She was diagnosed with emphysematous cystitis and was initially treated with piperacillin/tazobactam intravenously for 2 days, this was de-escalated to Ceftriaxone on the third day. A urethral Foley catheter was placed to rest her bladder. Charcoal ingestion was used to rule out a colo-vesical fistula. She was discharged from the hospital on day 6 with a 28 day prescription for Augmentin. A CT scan of her abdomen 6 days after discharge showed resolution of her emphysematous cystitis.

## Discussion

Emphysematous cystitis is a rare, distinct, complicated lower urinary tract infection (UTI) characterized by air within the bladder wall and lumen[1]. It is most common in middle-aged diabetic women. As well as patients with chronic UTIs, indwelling urethral catheters, urinary tract outlet obstruction, or neurogenic bladders [2]. Patients may have varied presentations ranging from incidental diagnosis on abdominal imaging to severe sepsis [1]. In a review of 135 cases by Anil et al., *Escherichia coli* was isolated in 58% of cases [1]. Radiologic studies are the most common mode of diagnosis, with plain abdominal x-rays being the most common imaging method [1]. CT imaging, however, detects cases not apparent on x-ray. Furthermore it can differentiate vesico-colic fistula [3], intra-abdominal abscess, adjacent neoplastic disease or presence of emphysematous pyelonephritis (EP). The overall death rate of EC was 7% which contrasts with a death rate of more than 50% of reported cases for EP [4,5]. Most patients are treated as inpatients. Medical therapy consists of intravenous anti-microbial agents, foley catheter insertion for bladder drainage, and treatment of predisposing conditions [1,6].

## References

1. Thomas AA, Lane BR, Thomas AZ, Remer EM, Campbell SC, Shoskes DA. Emphysematous cystitis: A review of 135 cases. *BJU Int* 2007; 100: 17-20,
2. Patel NP, Lavengood RW, Fernandes M, Ward JN, Walzak MP. Gas-forming infections in genitourinary tract. *Urology* 1992; 39: 341-5
3. Jarrett TW, Vaughan ED Jr. Accuracy of computerized tomography in the diagnosis of colovesical fistula secondary to diverticular disease. *J Urol* 1995;153: 44-6
4. Chen MT, Huang CN, Chou YH, Huang CH, Chiang CP, Liu GC. Percutaneous drainage in the treatment of emphysematous pyelonephritis: 10-year experience. *J Urol* 1997; 157: 1569-73

5. Ahlering TE, Boyd SD, Hamilton CL et al. Emphysematous pyelonephritis: a 5-year experience with 13 patients. J Urol 1985; 134: 1086-8
6. Grupper M, Kravstov A, Potasman I. Emphysematous cystitis; illustrative case report and review of the literature. Medicine 2007; 86: 47-53



Figure 1. CT of the pelvis showing extensive emphysema in the wall of urinary bladder

## New Antimicrobials

Contributed by: Katelyn Booher, D.O.

Review of bezlotoxumab, a monoclonal antibody for treatment of *Clostridium difficile*

Zinplava (bezlotoxumab) was approved October 2016 for recurrent *Clostridium difficile* infection (CDI) in patients receiving antibacterial treatment. Bezlotoxumab is a monoclonal antibody that binds *C. difficile* toxin B and neutralizes its effect. The goal of this medication is to reduce recurrence of CDI who are 18 years or older and receiving antibiotics for CDI and at high risk for CDI recurrence. Two phase III trials led to the drug's approval: MODIFY I and II. 1,452 patients from 19 countries were enrolled in MODIFY I, and 1,203 patients from 17 countries in MODIFY II. In each study, patients receiving standard antibiotics for CDI were randomized to receive a single one-time infusion of bezlotoxumab, bezlotoxumab and actoxumab, or placebo (the actoxumab arm was stopped for efficacy and safety reasons). In both studies, the rate of CDI recurrence through week 12 was significantly lower in the bezlotoxumab arms (17.4%,  $p < 0.0003$  and 15.7%;  $p = 0.0003$ ) and the combination bezlotoxumab and actoxumab arms (15.9%,  $p < 0.0001$ ), compared to the placebo arms (27.6% and 25.7%), respectively. Potential adverse effects include nausea, pyrexia, and headache; the medication should be used cautiously in patients with a history of heart failure. Bezlotoxumab provides another treatment option for patients at high risk for, or experiencing, recurrent *C difficile* infection.

## Bug of the Quarter

By: W. Grant Starrett, M.D.

This article reviews the more obscure organisms which are less commonly isolated in clinical specimens. Please contact me at [wgstarrett@premierhealth.com](mailto:wgstarrett@premierhealth.com) if you come across an isolate that may fit in this category.

Organism: *Agrobacterium*

Clinical Data: An 82 year-old female with a history of Parkinson's disease and chronic venous insufficiency was admitted to the hospital for a refractory surgical site infection following bunionectomy performed two months prior. Her surgery consisted of a left 1<sup>st</sup> metatarsal osteotomy/1<sup>st</sup> MTP joint arthrodesis with hardware implantation. The patient's incisions healed well, but she developed increasing warmth and swelling of the left foot a week after surgery. Her surgeon prescribed cefadroxil as "prophylaxis", but she eventually developed wound dehiscence with drainage about six weeks after surgery and was seen in the office. Broad spectrum antibiotics were initiated upon admission to the hospital, and wound cultures grew *pseudomonas*, *comamonas*, *agrobacterium*, *clostridium clostridioforme*, *peptostreptococcus* and diphtheroids. *Pseudomonas* and *staphylococcus schleiferi* grew from surgical cultures upon subsequent hardware removal, and she was discharged on piperacillin/tazobactam to complete a four week course. Her post-operative course was complicated by *Clostridium difficile* colitis, but she completely recovered from this and her wound healed.

### Taxonomy

Division: Bacteria  
Phylum: Proteobacteria  
Class: Alpha proteobacteria  
Order: Rhizobiales  
Family: *Rhizobiaceae*  
Genus: *Agrobacterium*

### Associated Diseases:

1. Central line infections
2. CAPD peritonitis
3. UTI

### Description:

*Agrobacterium* represents a genus of gram negative bacteria that is primarily a pathogen of plants. It is an oxidase-positive, indole-negative, motile, non-fermenting gram negative bacillus that is considered by many to be synonymous with the *Rhizobium* genus, although this is controversial. These organisms are best known for the induction of plant tumors such as crown gall, and are often considered contaminants when isolated from human clinical specimens. Reported human infections include bacteremia associated with central venous catheters and peritonitis in patients undergoing continuous ambulatory peritoneal dialysis. They are often difficult to treat given resistance to multiple antibiotics.

### Resources:

1. Hulse M *et al.* *Agrobacterium* Infections in Humans: Experience at One Hospital and Review. *Clin Infect Dis.* (1993) 16 (1): 112-117.
2. Koneman's Color Atlas and Textbook of Diagnostic Microbiology, 6<sup>th</sup> ed.
3. Mandell, *et al.* Principles and Practice of Infectious Diseases, 6<sup>th</sup> edition.
4. Murray, *et al.* Manual of Clinical Microbiology, 7<sup>th</sup> edition.

## Upcoming Events

### November 2016

9 Journal Club MVH 6NW  
Case Conference cancelled MVH Maxon Parlor

### December 2016

14 Journal Club MVH 6NW  
Case Conference cancelled MVH Maxon Parlor

### January 2017

11 Journal Club MVH 6NW  
25 Case Conference MVH Maxon Parlor

### February 2017

8 Journal Club MVH 6NW  
13-16 Conference on Retroviruses and Opportunistic Infections  
<http://www.croiconference.org/> Seattle, WA  
22 Case Conference MVH Maxon Parlor

### March 2017

8 Journal Club MVH 6NW  
29 Case Conference MVH Maxon Parlor  
29-31 Society for Healthcare Epidemiology  
<http://sheaspring.org> St Louis, MO

### April 2017

22-25 European Congress of Clin Micro & Inf Dis  
<http://www.eccmid.org> Vienna, Austria

### June 2017

16-18 Refugee Health Conference  
<http://www.northamericanrefugeehealth.com/> Toronto, Canada  
16-20 ASM Microbe (ASM/ICAAC)  
<http://asmmicrobe.org> Boston, MA