



Boonshoft  
School of Medicine  
WRIGHT STATE UNIVERSITY

## INFECTIOUS DISEASES NEWSLETTER

**May 2016**

T. Herchline, Editor

### **LOCAL NEWS**

#### **ID Fellows**

Dr Shruti Patel will be at OSU for her Transplantation rotation in May, and at Miami Valley Hospital in June and July. There will be two fellows starting this summer - Luke Onuorah and Alpha Desai. Both will be entering as first year fellows – Look for a total of three fellows in the program in 2017-2018!

#### **Local Disease Activity**

There was a local mumps outbreak which included a total of 16 cases confirmed by PCR, 15 probable cases and 5 suspect cases; all were University of Dayton students except four. PHDMC coordinated an immunization clinic with the University of Dayton for students who had not yet completed a MMR vaccine series. The onset of illness for the last reported case was May 9<sup>th</sup>. Several Universities across the country reported Mumps outbreaks this spring, including Harvard University (45 cases), Eastern Illinois University (10 cases), Indiana University (34 cases), Butler University (24 cases), Purdue University (11 cases). Totals are through April 29<sup>th</sup>. Most of the local cases had received the MMR; reasons for vaccine failure are uncertain at this time.

On Monday, February 29, 2016 a Montgomery County resident called Public Health to report her gastrointestinal illness. She also reported that a friend who had dined with her at a local restaurant was admitted and diagnosed with Salmonella. Later that day, there was a second Salmonella report on an individual who was also hospitalized. This prompted an extensive investigation. Eventually, there were 87 individuals identified with illness after eating or working at this restaurant. Five of these individuals were hospitalized. Stool samples were collected from a total of 32 individuals; 30 of these were positive for Salmonella. Food samples were also collected and tested; the mayonnaise sample tested positive for Salmonella, but samples of avocado and goat cheese tested negative. Eggs from the farm where the restaurant had purchased the eggs used in the mayonnaise (and multiple dips and dressings) were tested and were also positive for Salmonella. Typing done on these eggs matched the typing on the clinical specimens, confirming the link between the farm and the outbreak. Infected employees are being screened and are required to be negative before returning to work. The farm has permanently stopped selling eggs.

### **NATIONAL NEWS**

#### **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. For the 2015-2016 Influenza season, through May 14th, there were 63,456 positive specimens submitted to clinical laboratories with a peak in early March. Of these, 43,687 (68.8%) were influenza A. Of those isolates that were subtyped, 81% were A (H1N1). Among these strains, 99.9% were

antigenically similar to the influenza A (H1N1) component of the vaccine used this season. There were similar high rates of antigenic match for the H3N2 and influenza B components of this season's vaccine. Regionally (Auglaize, Champaign, Clark, Darke, Greene, Miami, Montgomery, Preble, Shelby, and Warren counties), there were 1354 cases of influenza A and 397 cases of influenza B through May 7th, with 423 influenza-related hospitalizations.

## **INTERNATIONAL NEWS**

### **Ebola Virus Disease**

The Emergency Committee convened by the WHO Director-General regarding Ebola conducted a meeting on March 29<sup>th</sup>. The Committee noted that since its last meeting all three countries had met the criteria for confirming interruption of their original chains of Ebola virus transmission. The Committee observed that, as expected, new clusters of Ebola cases continue to occur due to re-introductions of virus. Twelve such clusters have been detected to date (the most recent of which was reported as noted above). The Committee commented that to date, all of these clusters have been detected and responded to rapidly, limiting transmission to at most two generations of cases. The Committee provided its view that Ebola transmission in West Africa no longer constitutes an extraordinary event, that the risk of international spread is now low, and that countries currently have the capacity to respond rapidly to new virus emergencies. As such, the Ebola situation in West Africa no longer constitutes a Public Health Emergency of International Concern and the Temporary Recommendations adopted in response should now be terminated. The Committee emphasized that there should be no restrictions on travel and trade with Guinea, Liberia and Sierra Leone, and that any such measures should be lifted immediately. Based on the advice of the Emergency Committee, and her own assessment of the situation, the Director-General terminated the Public Health Emergency of International Concern regarding the Ebola virus disease outbreak in West Africa.

### **Zika Activity**

In May 2015, the World Health Organization reported the first local transmission of Zika virus in the Western Hemisphere (in Brazil). In November, a possible association between Zika and microcephaly was reported. On January 15, 2016 the CDC began requesting providers report suspected Zika virus disease. Through May 18th, there have been 544 travel-associated cases reported in the US (12 in Ohio) and no locally acquired vector-borne cases reported. Through the US Zika Pregnancy Registry, there have been 157 pregnant women with laboratory evidence of possible Zika virus infection. Data from this registry will be used to update the guidelines for clinical care and improve prevention of Zika virus infection during pregnancy.

## Case Conference

Contributed by Shruti Patel, MD

A 30 year old Hispanic male from central Mexico who had immigrated to US one month previously came to emergency room with chief complaint of “worst headache of his life”. His headache started one week prior to presentation and was associated with nausea and dizziness. He was a former smoker. He was from Morelia in central Mexico and grew up in farms with animals including cows, pigs, cats, dogs, chickens and horses. His temperature 98.1 F and VS otherwise unremarkable. His physical exam was normal. His total white blood cell counts were 9100 with 68% neutrophils and 1% eosinophils. CT scan of head showed mild hydrocephalus secondary to a two cm fourth ventricular cyst. MRI was done for more evaluation and showed 2x1.9x1.7 cm well circumscribed thin walled cystic lesion centered within the fourth ventricle demonstrating some modular soft tissue within it. The patient was admitted to the hospital. Because of his social history being immigrant from Mexico, he was started empirically on Albendazole 400 mg two times a day with steroids. HIV test and TB test was negative. Stringy IGG negative. Cysticercosis antibody came back high 4.36 (<0.9 normal). MRI head was repeated after two months of treatment and showed collapse of cystic lesion in the fourth ventricle with small amount of irregular enhancing soft tissue remained at inferior margin which was most consistent with neurocysticercosis. Prolonged steroid taper was done due to recurrence of headache after discontinuation of it.

### Discussion

Neurocysticercosis is brain infection caused by larval stage of the tapeworm *Taenia solium*. It is most common parasitic infection of CNS and acquired cause of seizures worldwide. Neurocysticercosis is broadly divided into four different categories including parenchymal, extra parenchymal, encephalitis, ocular and spinal cysticercosis. Treatment varies based on type of lesions. Albendazole and Praziquantel are two most commonly used antiparasitic drugs. Corticosteroids are often used in conjunction with antiparasitic treatment to reduce inflammation. Surgical excision of cysts or lesions is mainstay of treatment for ocular, spinal and intraventricular lesions causing hydrocephalus. Antiparasitic treatments should be avoided if ocular, spinal or encephalitis is present. Treatment duration is variable based on patients and often required longer tapering course of steroids. Calcified cysts does not require any treatment but may serve as a trigger for epilepsy and need symptomatic treatment including antiepileptic and anti inflammatory medications.

### References

1. Sinha S, Sharma BS. Neurocysticercosis: a review of current status and management. *J Clin Neurosci*. 2009 Jul;16(7):867-76.
2. Garcia HH, Nash TE, Del Brutto OH. Clinical symptoms, diagnosis, and treatment of neurocysticercosis. *Lancet Neurol*. 2014 Dec;13(12):1202-15.
3. Garcia HH, Gonzales I, Lescano AG, Bustos JA, Zimic M, Escalante D, Saavedra H, Gavidia M, Rodriguez L, Najar E, Umeres H, Pretell EJ; Cysticercosis Working Group in Peru. Efficacy of combined antiparasitic therapy with praziquantel and albendazole for neurocysticercosis: a double-blind, randomised controlled trial. *Lancet Infect Dis*. 2014 Aug;14(8):687-95.

## New Antimicrobials

Contributed by: Katelyn Booher, D.O.

### Review of the New Lipoglycopeptides: Dalbavancin and Oritavancin

Dalbavancin and oritavancin are two new lipoglycopeptides which were FDA approved in 2013 for treatment of acute bacterial skin and skin structure infections (ABSSSI). Interest has been largely driven by the potential for reduced hospital admissions and length of stay associated with the favorable dosing characteristics of these medications (1).

The glycopeptide vancomycin was FDA approved in 1986, and has since been used to treat serious MRSA and other gram positive bacterial infections. Given the rising prevalence of multi-drug resistant (MDR) bacteria, particularly vancomycin-resistant strains, three new lipoglycopeptides targeting gram positive bacteria have been introduced since 2009: oritavancin, dalbavancin, and telavancin. The long terminal half-lives and therefore infrequent dosing of oritavancin and dalbavancin are unique and attractive characteristics. Though animal models show promise for treatment of more serious infections such as bacteremia, endocarditis, and pneumonia, FDA approval exists for ABSSSI only. Select features of these new anti-microbials are summarized below (3):

Antibiotic	Dosage	Frequency	Infusion Time	Duration	Comments
Dalbavancin	1000mg, 500mg 1 week later	Once weekly, two doses total	30 min	Two doses, 1 week apart	Early discharge. Bactericidal. Not dialyzable if toxicity emerges.
	1500mg	Once	30 min	One time dose	No definitive data for enterococci.
Oritavancin	1200mg	Once	3 hours	One time dose	Early discharge. Bactericidal. Not dialyzable if toxicity emerges. No definitive data versus enterococci. Falsely elevates aPTT for up to 5 days.

### References

1. Li R, Nailor MD. New Gram Positive Agents to Treat Acute Bacterial Skin and Skin Structure Infections. *Conn Med.* 2016 Mar; 80(3):175-80.
2. Guskey MT, Tsuji BT. A comparative review of the lipoglycopeptides: oritavancin, dalbavancin, and telavancin. *Pharmacotherapy.* 2010 Jan; 30(1):80-94.
3. Russo A, Concia E, Cristini F. Current and future trends in antibiotic therapy of acute bacterial skin and skin-structure infections. *Clin Microbiol Infect* 2016; 22: 527-536.

## Bug of the Quarter

Contributed by: W. Grant Starrett, M.D.

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

For this edition of “Bug of the Quarter” we will be testing your knowledge of those organisms reviewed in the last three years. Please match the description with the correct organism. Answers may be found at the end of the newsletter – if needed! See previous editions of the newsletter for a brief explanation.

### Matching

- |                                        |                                                                    |
|----------------------------------------|--------------------------------------------------------------------|
| I. <i>Hafnia alvei</i>                 | A. environmental GNB producing an orange indole reaction           |
| II. <i>Brevundimonas diminuta</i>      | B. motile GNB, peritrichous flagella, inhabit aquatic environments |
| III. <i>Cryptococcus uniguttulatus</i> | C. scotochromogen that may be detected on routine blood cultures   |
| IV. <i>Finegoldia magna</i>            | D. anaerobe, under-recognized cause of device infections           |
| V. <i>Achromobacter xylosoxidans</i>   | E. enteric non-lactose fermenting GNB, rarely pathogenic           |
| VI. <i>Mycobacterium neoaurum</i>      | F. most commonly isolated anaerobic GPC in specimens               |
| VII. <i>Comamonas</i>                  | G. pseudomonad intrinsically resistant to fluoroquinolones         |
| VIII. <i>Propionibacterium acnes</i>   | H. dimorphic fungus found as yeast in environment and host         |

## Upcoming Events

### May 2016

11	Journal Club	MVH 6NW
18-21	Society for Healthcare Epidemiology <a href="http://www.shea-online.org/Education/SHEASpring2016Conference.aspx">http://www.shea-online.org/Education/SHEASpring2016Conference.aspx</a>	Atlanta, GA
25	Case Conference	MVH Maxon Parlor

### June 2016

8	Journal Club	MVH 6NW
12-14	Refugee Health Conference <a href="http://www.northamericanrefugeehealth.com/">http://www.northamericanrefugeehealth.com/</a>	Niagra Falls, NY
16-20	ASM Microbe/ICAAC <a href="http://www.asmmicrobe.org/">http://www.asmmicrobe.org/</a>	Boston, MA
29	Case Conference	MVH Maxon Parlor

### July 2016

13	Journal Club	MVH 6NW
27	Case Conference	MVH Maxon Parlor

### August 2016

10	Journal Club	MVH 6NW
31	Case Conference	MVH Maxon Parlor

### September 2016

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

### October 2016

12	Journal Club	MVH 6NW
26-30	ID Week <a href="http://www.idweek.org/">http://www.idweek.org/</a>	New Orleans, LA
26	Case Conference	MVH Maxon Parlor

### 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

### Bug of the Quarter: Answers

Organism	Answer	Newsletter Ed.
<i>Hafnia alvei</i>	E. enteric non-lactose fermenting GNB, rarely pathogenic	11/15
<i>Brevundimonas diminuta</i>	G. pseudomonad intrinsically resistant to fluoroquinolones	2/15
<i>Cryptococcus unigutulatus</i>	H. dimorphic fungus found as yeast in environment and host	11/14
<i>Finegoldia magna</i>	F. most commonly isolated anaerobic GPC in specimens	5/15
<i>Achromobacter xylosoxidans</i>	B. motile GNB, peritrichous flagella, inhabit aquatic environments	8/14
<i>Mycobacterium neoaurum</i>	C. scotochromogen that may be detected on routine blood cultures	2/14
<i>Comamonas</i>	A. environmental GNB producing an orange indole reaction	11/13
<i>Propionibacterium acnes</i>	D. anaerobe, under-recognized cause of device infections	2/16