



February 2016

[T. Herchline, Editor](#)

LOCAL NEWS

ID Fellows

Dr Shruti Patel will be at the VA Medical Center in February and March, and on Research in April. There will be two fellows starting in July - Luke Onuorah and Alpha Desai. Dr Omuorah comes to us from Lima, Ohio where he is currently a hospitalist. He earned his MBBS from University of Lagos in Nigeria and completed his residency at Brookdale University Hospital in Brooklyn, New York. Dr Desai is currently a hospitalist at MVH and is a graduate of the Wright State University Internal Medicine Residency. She earned her MBBS from Government Medical College in Surat, India.

Local Disease Activity

There were 8 cases of Salmonella during January. Ages ranged from 4 months to 55 years old. Each was interviewed by the Ohio FoodCORE center, which is a project funded by the CDC to investigate potential food borne outbreaks throughout the country. In addition, isolates are typed by ODH; two of the isolates were identical. These individuals were both homeless – as such, there were multiple potential epidemiologic links between the individuals.

A 2 month old child was diagnosed with infant botulism. The infant was hospitalized in late November with symptoms consistent with botulism (weakness/decreased feeding). Testing was done through ODH and was positive on December 7th. The infant was treated with botulism immune globulin (BabyBIG) with clinical improvement.

NATIONAL NEWS

Listeria Outbreak Linked to Dole Facility in Springfield

Since September 2015, CDC has been collaborating with public health officials in several states and the FDA to investigate a multistate outbreak of *Listeria monocytogenes* infections. Public health investigators are using the PulseNet system to identify illnesses that may be part of this outbreak. PulseNet is the national subtyping network of public health and food regulatory agency laboratories coordinated by CDC. Twelve people infected with the outbreak strain of *Listeria* have been reported from six states since July 5, 2015. The number of ill people reported from each state is as follows: Indiana (1), Massachusetts (1), Michigan (4), New Jersey (1), New York (4), and Pennsylvania (1). Ill people range in age from 3 years to 83, and all 12 reported being hospitalized, including one person from Michigan who died as a result of listeriosis. One of the illnesses reported was in a pregnant woman. Epidemiologic and laboratory evidence available at this time indicates that packaged salads produced at the Dole processing facility in Springfield,

Ohio and sold under various brand names are the likely source of this outbreak. On January 21, 2016, Dole reported to CDC that it had stopped production at the processing facility in Springfield, Ohio. The company also reported that it is withdrawing packaged salads currently on the market that were produced at this facility. The withdrawal does not affect other Dole products. CDC recommends that consumers do not eat, restaurants do not serve, and retailers do not sell packaged salads produced at the Dole processing facility in Springfield, Ohio. These packaged salads were sold under various brand names, including Dole, Fresh Selections, Simple Truth, Marketside, The Little Salad Bar, and President's Choice Organics. The packaged salads can be identified by the letter "A" at the beginning of the manufacturing code found on the package. At this time, there is no evidence to suggest that packaged salads produced at other Dole processing facilities in the United States are linked to illness.

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 January, overall influenza increased slightly but pneumonia and influenza mortality remained below the epidemic threshold. For week 2 (ending January 16), three states reported widespread influenza activity; Puerto Rico and 10 states reported regional influenza activity; Guam and 12 states reported local spread of influenza; 24 states (including Ohio) reported sporadic influenza activity; and 1 state reported no influenza activity. Regionally (Auglaize, Champaign, Clark, Darke, Greene, Miami, Montgomery, Preble, Shelby, and Warren counties), there were 10 cases of influenza A and 5 cases of influenza B from December 18th through January 22nd, with 8 influenza-related hospitalizations.

INTERNATIONAL NEWS

Ebola Virus Disease

As of December 29th, travelers coming to the United States from Guinea are still entering the US through one of the designated airports conducting enhanced entry screening, however the CDC no longer recommends active monitoring for these travelers. As of December 22nd, travelers arriving from Sierra Leone are no longer restricted to the designated airports and are no longer subject to enhanced entry screening. The most recently reported case of Ebola was in Sierra Leone on January 14th, in a woman who died 2 days earlier. The source of her infection is still under investigation; there have been no identified secondary cases.

CDC Issues Travel Warning for Zika Virus

The CDC has issued a travel alert for people traveling to regions and countries where Zika virus transmission is ongoing, including: Barbados, Bolivia, Brazil, Cape Verde, Colombia, Ecuador, El Salvador, French Guiana, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Martinique, Mexico, Panama, Paraguay, Samoa, St. Martin, Suriname, Venezuela, and the Commonwealth of Puerto Rico. This alert follows reports in Brazil of microcephaly and other poor pregnancy outcomes in babies of mothers who were infected with Zika virus while pregnant. Until more is known, CDC recommends that pregnant women in any trimester, women trying to become pregnant, or women who are thinking about becoming pregnant should consider postponing

travel to the areas where Zika virus transmission is ongoing. Women who must travel to one of these areas should talk with their doctor or other health care provider first and strictly follow steps to avoid mosquito bites during the trip. The most common symptoms of Zika are fever, rash, joint pain, and conjunctivitis (red eyes). Symptoms can last from several days to weeks. There is no vaccine to prevent or medicine to treat Zika virus infection. All travelers should take steps to prevent mosquito bites, such as using insect repellent, wearing long sleeves and pants, and staying in places with air conditioning or that use window and door screens. Updates on areas with ongoing Zika virus transmission are available online at: <http://wwwnc.cdc.gov/travel/notices>. Pregnant women with a history of travel to an area with Zika virus transmission and who report two or more symptoms consistent with Zika virus disease during or within 2 weeks of travel, or who have ultrasound findings of fetal microcephaly or intracranial calcifications, should be tested for Zika virus infection in consultation with their state or local health department. Testing is not indicated for women without a travel history to an area with Zika virus transmission. In pregnant women with laboratory evidence of Zika virus infection, serial ultrasound examination should be considered to monitor fetal growth and anatomy and referral to a maternal-fetal medicine specialist with expertise in pregnancy management is recommended. There is no specific antiviral treatment for Zika virus; supportive care is recommended.

Global Effort to Eliminate Measles

Global efforts to immunize more children against measles have saved more than 17 million lives since 2000, according to data released by the World Health Organization (WHO) and the U.S. Centers for Disease Control and Prevention (CDC). Measles is one of the most contagious diseases ever known. A sick person will infect 90 percent of the unimmunized people with whom he or she comes into contact. Though it only rarely kills, children are especially vulnerable. In 2001, WHO, the CDC, the American Red Cross, the United Nations Foundation, and UNICEF launched the Measles & Rubella Initiative. The goal of the program was to cut deaths by 95 percent by 2015 and to eliminate measles altogether in five of six global regions by 2020. Since 2000, annual deaths from measles dropped from almost 550,000 to slightly more than 110,000 last year. Total cases dropped from 146 per million people to just 40 per million last year. WHO officials credited massive vaccination campaigns in the Democratic Republic of the Congo and Nigeria for decreases in reported measles cases in Africa. Cases there fell from more than 170,000 in 2013 to under 75,000 in 2014. Cases also fell in Southeast Asia. Unfortunately, only half of the world's children get the recommended second vaccine dose. The numbers suggest that the plan to eradicate measles is in jeopardy. Last year there were outbreaks in China, India, the Philippines, Vietnam, Somalia, Ethiopia, and the Russian Federation. In addition, recent years have seen major conflicts with historic numbers of refugees. Conflicts and the refugee camps they create set the stage for infectious diseases to spread. But camps also give aid groups an opportunity to vaccinate a lot of people in one place.

Case Conference

Contributed by Shruti Patel, MD

An 86 year old male with history of Hypertension and CAD was admitted to hospital with concerns of altered mental status for one day. He also had unsteady gait and aphasia. His vital signs were within normal limits. His physical exam was unremarkable except for confusion. His total white blood cell counts was 11.3 K/MM3. He had mild renal failure with Cr 1.4 MG/DL. His pro calcitonin level was 0.14. His chest radiograph showed bibasilar infiltrates suggestive of possible pneumonia. He was started on levofloxacin. His CT scan of head was unremarkable. MRI was obtained for further evaluation which showed abnormal signal in medial left temporal lobe with restricted diffusion with likely etiology being stroke. Neurology was consulted. Patient developed fever of 101.7 F after a day in hospital and his mentation was fluctuating. Per neurology assessment concerns for viral encephalitis was very high based on his clinical presentation. He was started on IV acyclovir. Lumbar puncture was performed and CSF showed 60 white blood cells with 76% lymphocytes, 136 red blood cells with very high protein 163. Glucose was 53. Herpes simplex virus 1 PCR from CSF comes back positive. Patient was diagnosed with herpes encephalitis. He continued to have fever as high as 103 F. Patient also developed acute respiratory failure secondary to altered mental status and was intubated and remained on mechanical ventilator. He remained febrile despite of being on acyclovir and antibiotics. Family expressed concerns that patient would have wanted DNR CC. Palliative care was consulted at that time and family decided to do withdrawal of life support measures.

Discussion

Herpes simplex 1 (HSV-1) causes encephalitis in all age groups. Incidence rate of HSV -1 encephalitis in the United States is 10-20 percent of total viral encephalitis cases. Neurological symptoms are more acute and presents for less than a week's duration. Altered mental status, cranial nerve palsies, aphasia, ataxia and seizures can also present besides usual symptoms of fever, headache and vomiting. Temporal lobe abnormalities are strongly indicative of HSV-1 encephalitis. Detection of HSV -1 PCR in CSF is gold standard for diagnosis of encephalitis and has more than 90 percent of sensitivity and specificity. IV acyclovir (10 mg/kg every 8 hours) is recommended treatment. A retrospective study showed early initiation of acyclovir is associated with favorable outcome. While another study showed extent of brain lesions on MRI and duration of symptoms before hospital admission were independently associated with poor outcome. Those patients who survived had significant neurological sequels in several studies.

References

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- 3: Raschilas F, Wolff M, Delatour F, Chaffaut C, De Broucker T, Chevret S, Lebon P, Canton P, Rozenberg F. Outcome of and prognostic factors for herpes simplex encephalitis in adult patients: results of a multicenter study. *Clin Infect Dis.* 2002 Aug 1;35(3):254-60. Epub 2002 Jul 10.
- 4: Sili U, Kaya A, Mert A; HSV Encephalitis Study Group. Herpes simplex virus encephalitis: clinical manifestations, diagnosis and outcome in 106 adult patients. *J Clin Virol.* 2014 Jun;60(2):112-8. doi: 10.1016/j.jcv.2014.03.010. Epub 2014 Mar 25.

New Antimicrobials

Contributed by: Katelyn Booher, D.O.

Tenofovir alafenamide fumarate (TAF) was FDA approved November 5, 2015 in co-formulation with elvitegravir, cobicistat, and emtricitabine (Genvoya), indicated for treatment of HIV infection. Tenofovir disoproxil fumarate (TDF), which was FDA-approved in 2001, has been widely used since that time. Specifically, an estimated 84% of HIV-infected US residents on antiretroviral therapy currently receive a form of TDF as part of their combination therapy (1). However, new drug development has been sought due to notable adverse effects associated with TDF, including nephrotoxicity, declining glomerular filtration rates (GFRs), and greater declines in bone mineral density (BMD) versus other nucleoside reverse transcriptase inhibitors (NRTIs) (1, 2, 3, 4). TAF has consistently demonstrated significant reductions in these adverse effects (1, 2, 3, 4).

For fifteen years, the favorable properties of TAF have been known, including ability to achieve higher intracellular concentration of the active moiety tenofovir diphosphate, lower plasma levels of tenofovir, and only 1/10th the requirement of active drug. These improvements come at no cost to efficacy, with a phase 3 double-blinded study comparing E/C/FTC/TAF with E/C/FTC/TDF (the latter formulation known as Stribild) demonstrating no significant differences in virologic suppression. Additionally, transitioning ART to the Genvoya was associated with significant improvements in proteinuria, albuminuria, and bone mineral density (4).

Genvoya is dosed once daily, orally, with food (which increases AUC of elvitegravir). It is only approved for treatment of HIV infection. No dosage adjustment is necessary until creatinine clearance declines below 30mL/minute, at which time use is not recommended. Use is not recommended with severe hepatic impairment. The medication does carry a U.S. boxed warning for lactic acidosis and severe hepatomegaly with steatosis, similar to other NRTI regimens. It is pregnancy category B. Precautions regarding drug interactions must be taken with the CYP3A inhibitor, cobicistat.

The future of TAF combinations is promising, with possibilities for this medication to be used as part of pre-exposure prophylaxis, as well as further combinations for HIV treatment, such as with protease inhibitors, though these combinations have not yet been FDA-approved.

References

1. Walensky, R, Horn, T, Paltiel, D. The Epi-TAF for Tenofovir Disoproxil Fumarate? CID. 2015 Dec 9.
2. Bonora S, Calcagno A, Trentalange A, Perri GD. Elvitegravir, cobicistat, emtricitabine and tenofovir alafenamide for the treatment of HIV in adults. Expert Opin Pharmacother. 2015 Dec 5.
3. Sax PE, Zolopa A, Brar I, Elion R, Ortiz R, Post F, Wang H, Callebaut C, Martin H, Fordyce MW, McCallister S. Tenofovir alafenamide vs. tenofovir disoproxil fumarate in single tablet regimens for initial HIV-1 therapy: a randomized phase 2 study. J Acquir Immune Defic Syndr. 2014 Sep 1;67(1):52-8.
4. Pozniak A, Arribas JR, Gathe J, et al. Switching to tenofovir alafenamide, coformulated with elvitegravir, cobicistat, and emtricitabine, in HIV-infected patients with renal impairment: 48 week results from a single-arm, multi-center, open-label, Phase 3 study. J Acquir Immune Defic Syndr. 2015 Nov 30.
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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 if you come across an isolate that may fit in this category.

Organism: *Propionibacterium acnes*

Clinical Data: A 51 year-old male with a history of coronary artery disease and chronic obstructive pulmonary disease presented with shortness of breath and was admitted for a large, loculated right pleural effusion. The patient reported a febrile illness about a month prior. He recovered from this but developed gradually progressive shortness of breath. Imaging revealed complete collapse of the right lung associated with the effusion, and initial thoracentesis yielded purulent, foul-smelling fluid. He subsequently underwent thoracotomy with decortication and grew *Fusobacterium* and *Peptostreptococcus micros* from the empyema fluid. Admission blood cultures grew *Propionibacterium acnes* in one of two sets as well. His empiric antibiotics were switched to ampicillin/sulbactam, and his post-operative course was complicated by atrial fibrillation. He ultimately was discharged on ertapenem to be administered at an outpatient infusion center to complete a four-week course.

Taxonomy:

Division: Bacteria
Phylum: Actinobacteria
Class: Actinobacteria
Order: Propionibacteriales
Family: *Propionibacteriaceae*
Genus: *Propionibacterium*
Species: *acnes*

Associated Diseases:

1. Acne vulgaris
2. Implant associated infections
3. Endocarditis
4. Bone/joint infections

Description:

Propionibacterium acnes is a coryneform (“diphtheroid”) gram-positive, non-spore-forming anaerobic rod that is part of the normal flora of the skin and GI tracts. The Gram stain is often uneven, and the cell’s pleomorphic nature can make interpretation by an inexperienced technician difficult. As an inhabitant of the hair follicle/sebaceous gland apparatus, it is frequently a contaminate of blood cultures. The inflammatory role of *P. acnes* in acne vulgaris has long been described. Invasive infections due to surgical hardware implantation also occur, including prosthetic joints, vascular grafts, neurosurgical shunts, intraocular lenses, cardiac devices as well as breast and spine implants. These infections often present in a subacute or chronic fashion consistent with infections with other skin flora that are not typically as virulent as other pathogens. Although the organism is oxygen tolerant, growth in aerobic conditions is slow enough that infection is probably under-recognized depending upon the method of specimen collection. Inoculation of specimen into broth and/or prolonged agar culture incubation to 14 days should be considered if infection with this organism is suspected. Penicillin, cephalosporins and clindamycin are all highly effective treatments. *P. acnes* is also usually susceptible to vancomycin, macrolides and tetracyclines. Metronidazole is ineffective.

Resources:

1. <http://www.uniprot.org/taxonomy>
2. Koneman's Color Atlas and Textbook of Diagnostic Microbiology, 6th ed.
3. Murray, *et al.* Manual of Clinical Microbiology, 7th edition.
4. Mandell, *et al.* Principles and Practice of Infectious Diseases, 6th edition.
5. Portillo ME *et al.* Propionibacterium acnes: An Underestimated Pathogen in Implant-Associated Infections. BioMed Research International, vol. 2013, Article ID 804391, 10 pages, 2013.
doi:10.1155/2013/804391

Upcoming Events

February 2016

10	Journal Club	MVH 6NW
22-25	Conference on Retroviruses and Opportunistic Infections http://www.croiconference.org/	Boston, MA
24	Case Conference	MVH Maxon Parlor

March 2016

2-5	International Congress of Infectious Disease http://www.isid.org/icid/	Hyderabad, India
9	Journal Club	MVH 6NW
30	Case Conference	MVH Maxon Parlor

April 2016

9-12	European Congress of Clin Micro & Inf Dis	Istanbul, Turkey
13	Journal Club	MVH 6NW
27	Case Conference	MVH Maxon Parlor

May 2016

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

June 2016

8	Journal Club	MVH 6NW
12-14	Refugee Health Conference http://www.northamericanrefugeehealth.com/	Niagra Falls, NY
16-20	ASM Microbe/ICAAC http://www.asmmicrobe.org/	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

26-30	ID Week http://www.idweek.org/	New Orleans, LA
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