ABSTRACTS IN URGENT CARE

- What's New in Flu Vaccine Information
- New First-in-Class Pleuromutilin Antibiotic for CAP
- Abdominal Pain in Patients with IUDs—Watch Out for Ectopic Pregnancy
- Cancer-Causing Chemical Found in Ranitidine
- Measles Cases and Outbreaks
- Cooling Pediatric Burns
- Occ Med: Severe Silicosis in Stone Fabrication Workers

CORNELIUS O'LEARY JR, MD

An Update on Vaccine for the 2019-2020 Flu Season

***Key points:** The CDC recommends annual influenza vaccination for everyone 6 months of age and older, with any licensed influenza vaccine that is appropriate for the recipient's age and health status (IIV, RIV4, or LAIV4) with no preference expressed for any one vaccine over another. All regular dose vaccines are quadrivalent this year. Fluzone (high-dose trivalent vaccine) may provide more protection to those ages 65 and up, but is not preferred in this population by the CDC. Doses for first-time recipients can be found on the CDC website.*

Citation: Food and Drug Administration. Influenza Vaccine for the 2019-2020 Season. Available at: https://www.fda.gov/vaccines-blood-biologics/lot-release/influenza-vaccine-2019-2020-season. Accessed October 9, 2019.

The FDA's Vaccines and Related Biologic Products Advisory Committee met in Silver Spring, MD to determine the composition of this season's influenza vaccines. The agency noted that the investigators reviewed and evaluated surveillance data on the epidemiologic and antigenic characteristics of recent influenza isolates, serologic data showing response to last year's vaccine, and the availability of strains and reagents to make this year's vaccine. All regular dose seasonal influenza vaccines are quadrivalent this year.

The committee decided that this year's trivalent vaccine would contain:

- an A/Brisbane/02/2018 (H1N1)pdm09-like virus
- an A/Kansas/14/2017 (H3N2)-like virus
- a B/Colorado/06/2017-like virus (B/Victoria lineage)

The committee also decided that the quadrivalent vaccine would get the above three strains and a B/Phuket/3073/2013-like Virus (Yamagata lineage). ■

Cornelius O'Leary Jr, MD is an urgent care physician with Emergency Care Dynamics, San Diego, CA.

A New Antibiotic for Community-Acquired Bacterial Pneumonia

***Key point:** Xenleta (lefamulin) is a first-in-class pleuromutilin antibiotic for the treatment of community-acquired pneumonia (CAP). A recent stage III clinical trial published in* JAMA *showed it to be noninferior to moxifloxacin (Avelox), though it is more expensive and with a higher amount of gastrointestinal severe adverse events.*

Citation: FDA. FDA Approves New Antibiotic to Treat Community-Acquired Pneumonia. Available at: https://www.fda.gov/news-events/press-announcements/fda-approves-new-antibiotic-treat-community-acquired-bacterial-pneumonia. Accessed October 9, 2019.

The FDA approved a new oral and IV antibiotic, lefamulin (Xenleta), for the treatment of adults with community-acquired pneumonia. The agent will not cover MRSA or *Pseudomonas*. Lefamulin is a first-in-class new drug in the novel class of pleuromutilins made by Nabriva therapeutics.

The Nabriva website reports pleuromutilins were discovered in 1950. They disrupt bacterial ribosomal protein synthesis by binding to the 50s subunit of bacterial ribosomes. Ed Cox, MD, MPH, director of FDA's Office of Antimicrobial Products said the new approval is indicative of the agency's commitment to developing new antibiotics in this age of resistance.

The authors noted that a pivotal clinical trial tested the safety and efficacy of lefamulin head-to-head vs moxifloxacin with or without linezolid in 1,289 patients with CABP. When administered

orally or intravenously, lefamulin achieved clinical success similar to moxifloxacin with or without linezolid during these studies.

Lefamulin requires no dose adjustment in renal failure. Oral and IV adjustments are made in moderate to severe hepatic impairment. The most common side effects were diarrhea, vomiting, injection-site reaction, transaminitis, and QT prolongation. Women who may become pregnant are advised to use contraception until 2 days after the last dose. Based on findings of fetal harm in animal studies pregnant women or women who may become pregnant should be advised of potential risks. ■

Don't Let Birth Control Dissuade You from Considering Ectopic Pregnancy

Key point: Providers should maintain a high index of clinical suspicion for ectopic pregnancy in women of reproductive age, even in the setting of highly effective birth control.

Citation: Neth MR, Thompson MA, Gibson CB, et al. Ruptured ectopic pregnancy in the presence of an intrauterine device. ***Clin Pract Cases Emerg Med*****. 2019;3(1):51–54.**

The patient in this case was a 34-year-old woman with no past medical history who presented with acute-onset suprapubic pain. The pain was moderate to severe, nonradiating, with rebound abdominal tenderness and guarding. Review of systems was significant for nausea and vomiting. The patient had a copper IUD placed 3 years prior. She was afebrile, with stable vital signs: 98.1° F, BP 140/81, HR 96 beats per minute, RR 20 respirations. She denied history of PID or ectopic pregnancy, any vaginal bleeding or spotting, or vaginal discharge.

The authors noted that a urine pregnancy test was ordered promptly; however, the patient had a syncopal episode on the way to the restroom which led to prompt point-of-care ultrasound (POCUS) showing free fluid in Morrison's pouch, an intact IUD with no signs of intrauterine pregnancy, and marked hypervascularity in the left adnexa (ring of fire sign) and fetal cardiac activity. Along with a positive pregnancy test, a live ectopic pregnancy was diagnosed. The patient was taken emergently to the operating room where a ruptured left tubal ectopic pregnancy and a 1 L hemoperitoneum were found. After salpingectomy, the patient was hemodynamically stable and discharged.

A syncopal episode in this patient illustrates the importance of advocacy for safe ambulance transport to the ED.

The authors report that ruptured ectopic pregnancy is the leading cause of first-trimester maternal mortality. It is a medical emergency that should be considered in women presenting with abdominal pain, vaginal bleeding, or even syncope. This study shows that intrauterine devices protect women from intrauterine pregnancy, but do not protect from ectopic pregnancy in the setting of IUD failure. This case report discusses a patient who presented with ruptured ectopic pregnancy and hemoperitoneum despite a correctly positioned IUD.

With regard to ectopic pregnancy, the authors note that factors affecting fallopian tube function, such as a prior surgical procedure, instrumentation, or infection (such as from pelvic inflammatory disease) can increase the chance of ectopic pregnancy. They further highlight that use of an IUD for birth control increases the probability that women presenting with abdominal pain are experiencing ectopic pregnancy .

IUDs decrease the overall incidence of pregnancy, including ectopic pregnancy. However, in the instance of IUD failure (unintended pregnancy), the pregnancy is more likely to be an ectopic or ruptured ectopic pregnancy.

Studies show that IUDs have a 1-year failure rate of 0.8–0.1 unintended pregnancies per 100 women. In the setting of IUD failure, the risk of ectopic pregnancy rises from 2% in the general population to between 15% and 27%.

The overall incidence of ectopic pregnancy is 2%, but is much higher in patients who present to the ED (and also to the urgent care setting). Women with IUDs commonly report to the urgent care practitioner that pregnancy is impossible, and that they recently had an IUD check with their PCP.

This case report should reinforce in the mind of the urgent care practitioner the possibility of ectopic pregnancy in patients with correctly placed IUDs. Point-of-care ultrasound (POCUS) is important in the timely diagnosis of these patients. Alternative diagnoses such as ovarian torsion or ruptured ovarian cyst require the same timely transfer to the ED for ultrasound evaluation. This clinical scenario illustrates the potential for a skilled urgent care practitioner experienced in ultrasound to confirm this diagnosis prior to transfer. Confirmation of this diagnosis increases the likelihood the patient will accept safe transfer by ambulance to the ED. ■

Be Mindful of Warnings Regarding Raniditine-Containing Medications

Key point: Providers should consider prescribing alternatives to ranitidine during the current testing and recall of contaminated products by the FDA.

Citation: FDA. Zantac (ranitidine): Safety Information—NDMA Found in Samples of Some Ranitidine Medicines. Available at: https://www.fda.gov/safety/medical-product-safety-information/zantac-ranitidine-safety-information-ndma-found-samples-some-ranitidine-medicines. Accessed October 9, 2019.

The FDA announced that trace amounts of N-Nitrosodimethylamine (NDMA) have been found in some raniditine-containing medications, including the brand name drug Zantac. NDMA is a probable human carcinogen, the FDA noted, and is a known environmental contaminant that is sometimes present in water and in food such as dairy products, meat, and vegetables.

The FDA is not advising patients to stop taking ranitidine at

this time. However, urgent care providers should be prepared to discuss the situation with patients because the agency is recommending that those who want to stop taking it discuss alternatives with their healthcare provider. Patients taking OTC ranitidine should consider various other OTC options, according to the FDA. (The FDA subsequently announced the recall of Zantac and several other ranitidine containing products due to the potential for contamination.) ■

Measles Cases and Outbreaks

Key points: As of September 26, 2019, 1,243 known cases of measles have been confirmed in the U.S. Of note:

- *75% are related to the outbreak of measles in New York*
- *The majority of cases occur in previously unvaccinated patients*
- *131 cases were hospitalized, with 65 patients reporting severe sequelae such as pneumonia and encephalitis*

Citation: Centers for Disease Control and Prevention. Measles cases in 2019. Available at: https://www.cdc.gov/measles/cases-outbreaks.html. Accessed October 9, 2019.

The CDC reports there are two current outbreaks of measles occurring in the United States—both of them in New York. The two outbreaks are identified as New York #1 (Rockland County) and New York #2 (non-Rockland County). The date of two maximal incubation periods (42 days) without further cases was September 30 for the Rockland County outbreak. The CDC reports that outbreak is related to international travelers coming from countries such as Israel, Ukraine, and the Philippines, where outbreaks continue to be active. ■

New Data Validate Optimal First Aid for Burns in Children

Key point: Adequate first aid for burns includes 20 minutes of running water within the first 3 hours after thermal injury. Adequate duration of running water therapy may improve outcomes in pediatric burns.

Citation: Griffin BR, Frear CC, Babl F, et al. Cool running water first aid decreases skin grafting requirements in pediatric burns: a cohort study of two thousand four hundred ninety-five children. *Ann Emerg Med*. Available at: www.annemergmed.com/article/S0196-0644(19)30538-4/abstract. Accessed October 9, 2019.

The objective of this study was to study the adequacy of first aid with respect to running water duration on pediatric burn outcomes. This was a prospective cohort study of 2,495 children who presented to a tertiary children's hospital for burn care. The study examined duration of first aid with respect to the primary outcome of skin grafting, and secondary outcomes of time to re-epithelialization, wound depth, operative intervention, admission, and hospital stay.

Multivariate logistic regression models were used to study the relationship between first aid and the requirement for skin grafting. Approximately 91% of children were given first aid with running water, however only 71% were given the adequate duration of 20 minutes.

Approximately 10% of children required skin grafting. When adequate first aid with 20 minutes of running water was administered, the study noted:

- Odds ratio (OR) for decreased risk of skin grafting was 0.6 [95% Confidence Interval (CI) 0.4-0.8]
- Reduction in full thickness depth of the burn OR was 0.4 [95% CI 0.2-0.6]
- Decrease in hospital admissions OR 0.7 [95% CI 0.3-0.9]
- Decrease in operating room interventions OR 0.7 [95% CI 0.5-0.9]
- Twenty minutes of running water had no effect on hospital stay duration

The researchers concluded that adequate prehospital first aid should be prioritized, particularly with respect to the provision of 20 minutes of running water within 3 hours of injury, to improve outcomes in pediatric burns. ■

"Engineered stone contains much higher silica levels than natural stone, and the popularity of engineered quartz surfaces has resulted in an 800% increase in the use of such materials over the past several years. Silicosis causes approximately 100 deaths per year in the U.S. "

Severe Silicosis in Engineered Stone Fabrication Workers — California, Colorado, Texas, and Washington, 2017–2019

Key point: Silicosis is a rare, incurable lung disease that occurs after the inhalation of silica dust. It should be considered in symptomatic occupational health patients who work in stone fabrication.

Citation: *MMWR*. 2019;68(38):813–818.

Silicosis causes approximately 100 deaths per year in the U.S. The CDC identified two deaths in young stone fabrication workers that were attributable to their work with silica-containing compounds. With regard to the occupational health patient from stone fabrication, keep this diagnosis in mind. Keep this diagnosis in your differential if appropriate (such as in occupational medicine patients engaged in stone fabrication and in urgent care patients with exposures to dust/silica). Some of the

most important information we give to patients is to follow up with their physician if their symptoms do not improve.

According to the CHEST Foundation, there are three types of silicosis:

- Acute, in which patients experience cough, weight loss, and fatigue within a few years after exposure. Severe pulmonary inflammation may occur, leading to dyspnea and desaturation
- Chronic, which can occur 10 to 30 years after exposure, noted by extensive scarring, and may involve apical lungs. This may cause distinct areas of scarring and involve lymph nodes
- Accelerated, within 10 years of high-level exposure, noteworthy for selling/inflammation and symptoms progress faster than in acute silicosis

Silicosis cannot be cured, but it can be prevented. Engineered stone contains much higher silica levels than natural stone, and the popularity of engineered quartz surfaces has resulted in an 800% increase in the use of such materials over the past several years.

From a medical perspective, these cases describe 18 mostly Hispanic stone fabrication workers who presented with upper respiratory symptoms and had severe, accelerate, progressive disease. Two of the patients were concomitantly diagnosed with autoimmune disease, scleroderma and rheumatoid arthritis.

All patients had CT findings consistent with silicosis and pulmonary function tests showing restrictive disease. Several of these patients had lung biopsies prior to referral to occupational health.

The diagnosis of silicosis involves a full history and physical exam. Furthermore, work-up involves:

- Radiographs
- CT scan
- Referral to pulmonology
- Bronchoscopy
- Lung biopsy
- Sputum examination for associated diseases such as tuberculosis

In addition, the treatment of silicosis may initially involve steroids, inhaled steroids, or bronchodilators. In severe cases, a lung transplant may be considered. ■