Immunization Update and ACIP Highlights – February 2020

March 5, 2020

The Advisory Committee on Immunization Practices (ACIP) of the CDC met on February 26-27 to provide guidance on vaccines. For archives of minutes and slides, go to the ACIP meeting website and click on Meeting Materials. Below are the key highlights:

- Influenza 2019-20 season interim report and announcement of new influenza vaccines approved for use in the 2020-2021 season (Fluzone® high-dose quadrivalent and Fluad® adjuvanted quadrivalent)
- Vote to recommend pre-exposure vaccination with rVSVΔG-ZEBOV-GP live Ebola Ziare vaccine (ERVEBO®) for adults age 18 years of age or older in the U.S. population who are responding to an outbreak, or who are healthcare personnel in a federally-designated treatment center, or who work in a laboratory at a biosafety-level4 facility in the US.
- Informational presentation on the 2019 Novel Coronavirus
- Informational presentations on other topics including: Rabies pre-exposure vaccine recommendations, dengue vaccine, and polio eradication efforts

The following includes details of vaccine evidence presented, committee discussion and votes.

Influenza

Adjuvanted quadrivalent influenza vaccine (Fluad®) and Fluzone® High-Dose quadrivalent influenza vaccine are now licensed. Both of these quadrivalent influenza vaccines recommended for older adults age 65 and older will be available for the 2020-2021 influenza season.

The interim report of the 2019-2020 influenza season as of the week ending Feb 15th indicates that influenza type B/Victoria was predominant at beginning the beginning of the season, but type A has become predominant in recent weeks. To date, 50% of cases have been Influenza type A and 91% of type A cases were A(H1N1)pdm09. Ninety-eight percent of type B cases have been of B/Victoria lineage. All A/H1N1 samples tested have been subclade 6B.1A which matches with vaccine component. The B/Victoria vaccine component is a genetic V1A.1 subclade. Only 7.6% of circulating virus are of that subclade, the rest belong to V1A.3 subclade, but 60.2% of the circulating virus was antigenically similar enough to the vaccine providing cross-protection and better efficacy than would have been expected with a mismatch. Only 4.2% of A(H3N2) circulating are subclade 3C.3a included in the vaccine, the rest are 3C.2a1 which are the subclade that are included the Southern Hemisphere vaccine. But again, 43.1% of circulating strains were well inhibited by vaccine-induced ferret antisera indicating good cross-protection.

For children and adults age 18-49 years during the 2019-2020 season, hospitalizations have been much higher than normal, but the level of hospitalizations of seniors has been normal this season. Of the 105

pediatric deaths so far, 72% were due to B/Victoria and approximately 16.6% of those children were vaccinated. More than half of children who died were healthy with no previous medical condition.

The preliminary burden of influenza estimates for the 2019-2020 season are 29-41 million illnesses, 13-19 million medical visits, 280,000-500,000 hospitalizations, and 16,000-41,000 deaths.

Interim Vaccine Effectiveness is 45% for all ages and 55% in children 6m-17 years. Effectiveness against influenza A/H1N1 was 37% and 50% influenza B/Victoria. For more details, see *Morbidity and Mortality Weekly Report*, February 21, 2020.

Averted burden from the 2018-2019 season in the US due to influenza vaccination with a vaccine effectiveness of 26% was 3,500 deaths averted, 58,000 hospitalizations averted and 4.4 million cases (Chung et al, *Clinical Infectious Diseases* 2020).

Ebola

The rVSVΔG-ZEBOV-GP Ebola virus vaccine (Ervebo®) is a live-attenuated recombinant vesicular stomatitis virus with glycoprotein insertion of glycoprotein of species *Zaire ebolavirus*. Vesicular stomatitis virus is a disease of livestock that sometimes can cause oral lesions and skin vesicles in humans. The vaccine is FDA-approved for use in age 18 years and older for prevention of Ebola virus disease. It is given IM as a one-time dose. The vaccine cannot cause Ebola disease. After vaccination, there is viremia with the recombinant vesicular stomatitis virus, with this virus detected in blood, saliva, urine, and synovial fluid. In humans, vaccine viremia can cause an asymptomatic infection or an influenza-like illness. Occasionally there can be oral stomatitis and vesicular rash, arthralgia, or arthritis. The vaccine must be frozen at -80 to -60 Celsius. Once thawed, the vaccine can be refrigerated for 2 weeks. The vaccine causes protective effects through both innate and adaptive immune responses. Antibodies rise by 14 days and can persist for 24 months.

The ACIP recommends the vaccine for preexposure use for those in the U.S. population who are at potential risk of exposure to Ebola virus (species *Zaire ebolavirus*) and are responding to an outbreak of Ebola virus disease; or work as healthcare personnel at a federally-designated Ebola Treatment Center in the United States; or work as laboratorians or other staff at biosafety-level4 facilities in the U.S.

Novel Coronavirus (COVID-19)

Novel Coronavirus (COVID-19) was first detected in December 2019 in China where there is now wide-spread community transmission in Asia. The first U.S. case was identified on January 21, 2019. It appears to be spread by close person-to-person contact through respiratory droplets but some cases may be due to spread from fomites. Symptoms include fever, fatigue, dry cough, and shortness of breath. There is range from mild to severe disease which can progress to Acute Respiratory Distress Syndrome. More severe disease is more common in those with underlying disease and older age. The incubation period is felt to be 2-14 days. Current treatment for COVID-19 is supportive care. Antivirals and antibiotics have not appeared to be of benefit, although investigational treatments, including those that were targeted toward SARS and MERS are being examined.

CDC is working to distribute diagnostic test kits to state and local health departments. It is recognized that commercially available tests will need to be available broadly for appropriate response and this will be overseen by the FDA. Work has begun on candidate vaccines through the NIH. The most optimistic timeline for vaccine development would be 12 months.

For mitigation, CDC recommends avoidance of nonessential travel to China and South Korea. While there are efforts to slow entry of the virus to the U.S., it is expected there will be community spread in the U.S. Future social distancing recommendations may include school closures, telecommuting, and avoidance of mass gatherings.

Other vaccines discussed:

ACIP presented information on future vaccine recommendations including the efficacy and safety of using a 2-dose plus a booster schedule rather than a primary 3-dose schedule for the rabies pre-exposure prophylaxis vaccine, and Dengvaxia® dengue vaccine for use in seropositive persons age 9-16 years in endemic U.S. territories such as Puerto Rico. The committee will not make recommendations on the dengue vaccine until more information on the dengue screening test is available. A review of the history of the change from oral polio vaccine to inactivated polio vaccine was presented as well as an update on current international polio eradication efforts.

If you have any questions regarding immunization, feel free to contact Tamara Sheffield, MD, MPA, MPH, Medical Director, Community Health and Prevention, Intermountain Healthcare, at (801) 442-3946.