Practice Guidelines

ACIP Approves 2021 Adult and Child/Adolescent Immunization Schedules

Key Points for Practice

- Infants weighing less than 2,000 g born to mothers negative for hepatitis B surface antigen should receive an initial hepatitis B vaccination at hospital discharge or one month of age, whichever comes first.
- Live influenza vaccines should be avoided in people who have received oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous five days, or baloxavir within the previous 17 days.
- Approved mRNA vaccines for SARS-CoV-2 require a second dose of the same vaccine at 21 days for the Pfizer-BioNTech (mRNA-BNT162) vaccine and 28 days for the Moderna (mRNA-1273) vaccine. The CDC is adding additional safety and monitoring systems to current federal vaccine safety programs for these vaccines.

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The 2021 adult and child/adolescent immunization schedules have been approved by the Advisory Committee on Immunization Practices (ACIP) of the Centers for Disease Control and Prevention (CDC) and are accessible at https://www.aafp.org/patient-care/immunizations/schedules.html. Recognizing the difficulty of finding information in footnotes, ACIP introduced simpler and more prominent notes to clarify recommendations. Schedules for adults and children have similar designs, each with clear instructions on the cover page.

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This series is coordinated by Michael J. Arnold, MD, contributing editor.

A collection of Practice Guidelines published in *AFP* is available at https://www.aafp.org/afp/practguide.

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Changes to Child/Adolescent and Adult Immunization Schedules

Notable changes to both the child/adolescent and adult schedules include the addition of a new quadrivalent meningococcal vaccine option against meningococcal serotypes A, C, W, and Y for children two years and older and adults, guidance around live influenza immunization after antiviral medication use, an accelerated hepatitis A/B vaccine (Twinrix) dosing schedule for travelers 18 years and older, and further clarification on tetanus-toxoid containing vaccines in wound management.

ACIP continues to recommend routine human papillomavirus (HPV) vaccination for all patients from nine to 26 years of age and with shared clinical decision-making for those 27 to 45 years of age. People with HIV or other immunocompromising conditions should receive a three-dose series regardless of age at initial vaccination.

Additional Changes to Adult Immunization Schedule

Zostavax, a live varicella-zoster virus vaccine, is no longer marketed in the United States and has been removed from the recommendations. ACIP continues to recommend two doses of the recombinant zoster vaccine (Shingrix) at 50 years of age, regardless of prior receipt of the Zostavax vaccine.

Additional Changes to the Child/Adolescent Schedule

HEPATITIS B VACCINATIONS

For infants weighing less than 2,000 g born to mothers negative for the hepatitis B surface antigen, ACIP clarifies that a single dose of the hepatitis B vaccine should be administered at hospital discharge or one month of age, if not already discharged.

INFLUENZA VACCINATION

ACIP highlights minimum age requirements for the use of two influenza vaccines: the intranasal quadrivalent live attenuated influenza vaccine

should not be used in children younger than two years, and the quadrivalent recombinant influenza vaccine should not be used in people younger than 18 years. Live influenza vaccines should be avoided in people who have received oseltamivir (Tamiflu) or zanamivir (Relenza) within the previous 48 hours, peramivir (Rapivab) within the previous five days, or baloxavir (Xofluza) within the previous 17 days.

Vaccines Against SARS-CoV-2

In March 2020, the World Health Organization declared coronavirus disease 2019 (COVID-19) a global pandemic caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). After numerous reviews of vaccine development, ACIP recommends COVID-19 vaccine use. In mid-December, through Emergency Use Authorization, the U.S. Food and Drug Administration (FDA) approved use for two messenger RNA (mRNA) COVID-19 vaccines demonstrating more than 94% effectiveness and no serious adverse event safety concerns for Pfizer-BioNTech (mRNA-BNT162) vaccines in people older than 16 years and Moderna (mRNA-1273) vaccines in people older than 18 years. The vaccines are given intramuscularly in the upper arm in a two-dose series: the Pfizer vaccine doses given 21 days apart, the Moderna vaccine doses given 28 days apart. The second dose must use the same vaccine as the first.

Unlike many vaccines that trigger immune system responses to disease through use of a weakened or inactivated disease particle or element, these vaccines use mRNA technology that encodes for a "spike" protein found on the surface of SARS-CoV-2, instructing recipient cells to produce the (harmless) spike protein and recognize it as a foreign invader. This results in production of antibodies that confer protection if a person is later exposed to SARS-CoV-2. Although these are the first mRNA vaccines licensed in the United States, mRNA vaccines are used in cancer research to trigger the immune system to target specific cancer cells.[1]

ACIP outlined phases of COVID-19 vaccine distribution before allocation to the general population. Phase 1 is divided into three sequences, which may overlap: (1) health care personnel and residents and staff of long-term care facilities; (2) non–health care frontline (e.g., first responders, educators) essential workers and persons 75 years and older; and (3) those 65 to 74 years of age, persons 16 to 64 years of age with high-risk medical conditions, and other essential workers (e.g., public transit workers, food service workers). Administration of COVID-19 vaccines to health care personnel and long-term care facilities began in mid-December.

Vaccine Safety Monitoring Systems

There are several monitoring systems to ensure vaccine safety. The Vaccine Adverse Event Reporting System (VAERS) is a national system that collects reports from physicians, vaccine manufacturers, and the public of adverse events that happen after vaccination. The CDC's Vaccine Safety Datalink is a network of nine integrated health care organizations across the United States that conducts active surveillance and research and helps determine whether possible adverse effects identified using VAERS are related to vaccination. The CDC's Clinical Immunization Safety Assessment Project is a collaboration between the CDC and seven medical research centers to provide individual case consultation and conduct clinical research studies about vaccine safety. The FDA Biologics Effectiveness and Safety System, the Centers for Medicare and Medicaid Services Medicare data, and the FDA Sentinel Initiative are systems of electronic health record, administrative, or claims-based data for active surveillance and research. Additionally, the U.S. Department of Defense, U.S. Department of Veterans Affairs, and Indian Health Service report and contribute data to VAERS.

New safety systems and information sources have been added with COVID-19 vaccination to complement existing systems. V-safe, a new CDC smartphone-based checker for COVID-19 vaccine recipients, uses text messaging and online surveys to check in with vaccine recipients. The National Healthcare Safety Network connects acute care and long-term care facilities with VAERS. The FDA and other large insurer/payer databases have initiated additional systems of administrative and claims-based data for surveillance and research.[2]

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