

Immunizations for Older Adults

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WHY: Older adults are at increased risk for many vaccine-preventable diseases. Preventable illnesses cause substantial morbidity and mortality in older adults, who tend to have more medical co-morbidities and are at higher risk for complications. Acute respiratory infections, including pneumonia and influenza, are the 8th leading cause of death in the United States, accounting for 56,000 deaths annually. On average, influenza leads to more than 200,000 hospitalizations and 36,000 deaths each year (DHHS, Healthy People 2020). While people 65 and over accounted for only 15% of the U.S. population, they made up 50% of influenza-associated hospitalizations and 64% of pneumonia and influenza deaths during the 2015-2016 season (Rolfes et al., 2017). Nonetheless, vaccination rates in the United States do not meet targets. In the United States, most of deaths from influenza occur among those over 65, yet only 63% of older adults were immunized against the flu during the 2014-2016 season, short of the Healthy People 2010 target of 90% (Rolfes et al., 2017; DHHS, CDC, NHIS, 2009). Only 61.3% of Americans 65 and older were immunized against pneumococcal pneumonia (Williams, et al., 2016). Additionally, the herpes zoster vaccine, recommended for all Americans 60 and older, had the lowest adult immunization rate at 27.9% (Williams et al., 2016).

BEST PRACTICES: Screen for immunization histories during office visits as well as hospital, assisted living, and long term care admissions and offer vaccinations as indicated. Health care personnel should be screened pre-employment and kept up to date with immunizations during yearly visits.

TARGET POPULATION:

- Administer to those >50 years old 1 dose of age-appropriate inactivated influenza vaccine (IIV) or recombinant influenza vaccine (RIV) annually (DHHS, 2018a).
- Administer to immunocompetent adults aged ≥65 years 1 dose of 13-valent pneumococcal conjugate vaccine (PCV13), if not previously administered, followed by 1 dose of 23-valent pneumococcal polysaccharide vaccine (PPSV23) at least 1 year after PCV13; if PPSV23 was previously administered but not PCV13, administer PCV13 at least 1 year after PPSV23 (DHHS, 2018a).
- Administer to adults, who previously did not receive a dose of tetanus toxoid, reduced diphtheria toxoid, or acellular pertussis vaccine, Tdap as an adult 1 time, followed by a dose of tetanus and diphtheria toxoids (Td) booster every 10 years (DHHS, 2018a).
- Administer 2 doses of recombinant zoster vaccine (RZV) 2–6 months apart to those aged ≥50 years regardless of a past episode of herpes zoster or receipt of zoster vaccine live (ZVL). Administer 2 doses of RZV 2–6 months apart to adults who previously received ZVL at least 2 months after ZVL. For those aged ≥60 years or older, administer either RZV or ZVL (RZV is preferred) (DHHS, 2018a).

Considerations for Special Populations:

Adults with immunosuppression should generally avoid live vaccines. Inactivated vaccines (e.g., pneumococcal vaccines) are generally acceptable. High-level immunosuppression includes HIV infection with a CD4 cell count <200 cells/μL, receipt of daily corticosteroid therapy with ≥20 mg of prednisone or equivalent for ≥14 days, primary immunodeficiency disorder (e.g., severe combined immunodeficiency or complement component deficiency), and receipt of cancer chemotherapy. Other immunocompromising conditions and immunosuppressive medications to consider when vaccinating adults can be found in [Clinical Practice Guideline for Vaccination of the Immunocompromised Host](#) (IDSA, 2018).

Those ages 19 - 64 with chronic heart, lung, or liver disease, alcoholism, cigarette smoking or diabetes mellitus should also receive 1 dose of PPSV23 (DHHS, 2018).

STRENGTH AND LIMITATIONS: Efficacy for influenza vaccines are determined by the match between the circulating viruses and the composition of the vaccine and the recipient's age and health (DHHS, CDC, 2017). The largest trial to assess the efficacy of PCV13 in adults was the CAPiTA trial; this trial compared PCV13 to placebo in nearly 85,000 immunocompetent adults ≥65 years of age in the Netherlands who were enrolled between 2008 and 2010 and who had not received a pneumococcal vaccine previously and who had no prior history of pneumococcal disease. The trial demonstrated 46% efficacy (95% CI 22 - 63 %) of PCV13 against vaccine-type pneumococcal pneumonia, 45% efficacy (95% CI 14 - 65 %) against vaccine-type nonbacteremic pneumococcal pneumonia, and 75% efficacy (95% CI 41 - 91%) against vaccine-type invasive pneumococcal disease. In this trial no comparison was made with PPSV23, which, historically, has demonstrated an even higher rate of protection of 75% in immunocompetent adults aged 65 or more (Mushner, 2018; Merck, 2018). The effectiveness of tetanus toxoid-containing vaccines is very high, although not 100% (DHSS, 2017b).

ADMINISTRATION OF VACCINES: All vaccines are administered intramuscularly in the deltoid muscle. Pneumococcal vaccine and influenza vaccine may be administered at the same time (by separate injection in the opposite arm) without an increase in side effects or decreased antibody response to either vaccine. Tetanus-diphtheria toxoid (Td) or Tetanus, diphtheria, pertussis (Tdap) booster also may be administered concurrently with other vaccines.

RECOMMENDED IMMUNIZATION PRACTICES:

For the Older Adult:

1. Try to obtain the individual's immunization history. Check medical records to verify prior vaccinations. Note any history of neurological or hypersensitivity reactions.
2. Educate the individual on vaccine-preventable diseases and the importance of vaccination. Offer vaccination as indicated. Older adults and their families may have misconceptions regarding immunization.
3. Provide clear documentation of vaccination provided to minimize risk of unnecessary duplication.
4. Follow the best practices guidelines recommended by the Advisory Committee on Immunization Practices (Kroger, Duchin, & Vázquez, 2011) with updates for specific vaccines below (DHHS CDC, 2018 b).
 - Seasonal influenza vaccine should be given by the end of October if possible but should continue throughout the flu season, even into January or later. The high dose influenza vaccine is designed specifically for those ≥ 65 and contains 4 times the amount of antigen as the regular flu shot. Results from a clinical trial of more than 30,000 participants showed that those ≥ 65 years who received the high dose vaccine had 24% fewer influenza infections as compared to those who received the standard dose flu vaccine.
 - FLUAD™ is now an acceptable alternative to other vaccines like the high dose Fluzone vaccine licensed for those ≥ 65 . It was significantly more effective in preventing laboratory-confirmed influenza compared with a unadjuvanted standard-dose inactivated influenza vaccine. Adjuvants are added to FLUAD to enhance the immune response however no head to head trials of these vaccines have been undertaken (DHHS, CDC, 2017c).
 - Pneumococcal vaccines: the recommended interval between PCV13 followed by PPSV23 (PCV13–PPSV23 sequence) should be separated by ≥ 1 year for immunocompetent adults aged ≥ 65 . Adults aged ≥ 65 years with immunocompromising conditions, functional or anatomic asplenia, cerebrospinal fluid (CSF) leaks, or cochlear implants are recommended to receive PCV13 first, followed by PPSV23 ≥ 8 weeks later. ACIP also recommends that all adults aged ≥ 65 years who already received PPSV23 should receive a dose of PCV13 ≥ 1 year after receipt of PPSV23 (PPSV23–PCV13 sequence) (Kobayashi, 2015).
 - For immunocompetent adults who previously received PPSV23 when aged < 65 years and for whom an additional dose of PPSV23 is indicated when aged ≥ 65 years, this subsequent PPSV23 dose should be given ≥ 1 year after PCV13 and ≥ 5 years after the most recent dose of PPSV23. For adults aged ≥ 65 years with immunocompromising conditions, functional or anatomic asplenia, cerebrospinal fluid leaks, or cochlear implants, the recommended interval between PCV13 followed by PPSV23 is ≥ 8 weeks (Kobayashi, 2015).
 - Adults who have never received Tdap are recommended to receive a booster dose of Tdap. Provide Tetanus-diphtheria toxoid (Td) as a booster shot every ten years to those who have either completed the immunization series during childhood or teen years and have not received a booster dose in the last 10 years.
 - Shingrix, a zoster vaccine recombinant, was approved by the FDA in 2017 for the prevention of herpes zoster in adults aged ≥ 50 years. The vaccine consists of 2 doses (0.5 mL each), administered intramuscularly, 2–6 months apart for use in immunocompetent adults aged ≥ 50 years. In separate clinical trials, estimates of efficacy of Shingrix against herpes zoster were higher than Zoster vaccine estimates in all age categories. The difference in efficacy between the two vaccines was most pronounced among those aged ≥ 70 years. Studies have shown that the Zoster vaccines effectiveness wanes substantially over time, leaving a reduced protection against herpes zoster. Shingrix elicited similar safety, reactogenicity, and immunogenicity profiles regardless of prior Zoster vaccine receipt and so revaccination with Shingrix will likely be beneficial. Based on expert opinion, Shingrix should not be given < 2 months after receipt of Zoster Vaccine Live (Dooling, K.L., Guo, A., Patel, M., Lee, G. M., Moore, K., Belongia, E. A., Harpaz, R., 2018).
 - Zoster Vaccine Live is a 1-dose live attenuated strain of varicella zoster virus licensed for the prevention of herpes zoster in immunocompetent adults aged ≥ 50 years and is recommended by the ACIP for use in immunocompetent adults aged ≥ 60 years (Dooling, K.L., Guo, A., Patel, M., Lee, G. M., Moore, K., Belongia, E. A., Harpaz, R., 2018).
 - Certain subsets of the geriatric population may require vaccinations for Hepatitis A, Hepatitis B, meningococcal disease, varicella, and for measles, mumps, rubella (MMR), due to certain health problems, occupations, or risks posed by lifestyles. Furthermore, if such older adults travel, it would be advisable to offer relevant vaccines such as yellow fever vaccine or others.

ORGANIZATION IMMUNIZATION PROTOCOLS: Work with the outpatient practice, hospital, assisted living, and/or long term care administrations to develop a health care delivery system that (1) obtains immunization history upon admission of older adults; (2) educates newly admitted individuals about immunization; (3) incorporates immunization history and standing orders into the electronic health record; (4) tracks health care staff immunizations and ensures adequate compliance; (5) updates and maintains immunization records for older adults; and (6) provides immunization education and screening to the community at large.

MORE ON THE TOPIC:

Best practice information on care of older adults: <https://consultgeri.org>.

Gerontological Society of America National Adult Vaccination Program. Information available at: <https://www.navp.org>

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