



Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents

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Figure 1 (Last updated September 13, 2017; last reviewed September 13, 2017)

Figure. Recommended immunization schedule for adults and adolescents with HIV infection, United States, 2017

Adapted from the Advisory Committee on Immunization Practices (ACIP) recommended immunization schedules for adults and adolescents. These immunization schedules are available at www.cdc.gov/vaccines/schedules/hcp/index.html. Detailed information on these and other vaccines can be found at www.cdc.gov/vaccines/hcp/acip-recs/index.html.

VACCINE	Age					CD4 Cell Count (cells/ μ L)	
	13–18 years	19–26 years	27–59 years	60–64 years	\geq 65 years	<200	\geq 200
Influenza ¹	1 dose annually					1 dose annually	
Tdap/Td ²	1 dose Tdap, then Td booster every 10 yrs					1 dose Tdap, then Td booster every 10 yrs	
MMR ³	2 doses if CD4 cell count \geq 200					Contraindicated	2 doses if born in 1957 or later
VAR ⁴	2 doses if CD4 cell count \geq 200					Contraindicated	2 doses
HZV ⁵						Contraindicated	
HPV ⁶	3 doses					3 doses through age 26 yrs	
PCV13 ⁷	1 dose					1 dose	
PPSV23 ⁷	2 doses				1 dose	Up to 3 doses depending on age	
HepA ⁸	2 or 3 doses depending on vaccine					2 or 3 doses depending on vaccine	
HepB ⁹	3 doses					3 doses	
MenACWY ¹⁰	2 doses, then booster every 5 yrs					2 doses, then booster every 5 yrs	
MenB ¹⁰	2 or 3 doses depending on vaccine					2 or 3 doses depending on vaccine	
Hib ¹¹	1 or 3 doses depending on indication					1 or 3 doses depending on indication	

Recommended for adults and adolescents with HIV infection
 Recommended for adults and adolescents with HIV infection and other indications
 Contraindicated
 No recommendation

Abbreviations used for vaccines

HepA	hepatitis A vaccine	IIV	inactivated influenza vaccine	RIV	recombinant influenza vaccine
HepA-HepB	hepatitis A and hepatitis B vaccine	MenACWY	serogroups A, C, W, and Y meningococcal vaccine	Td	tetanus and diphtheria toxoids
HepB	hepatitis B vaccine	MenB	serogroup B meningococcal vaccine	Tdap	tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine
Hib	<i>Haemophilus Influenzae</i> type b vaccine	MMR	measles, mumps, and rubella vaccine (live)	VAR	varicella vaccine (live)
HPV vaccine	human papillomavirus vaccine	PCV13	13-valent pneumococcal conjugate vaccine		
HZV	herpes zoster vaccine (live)	PPSV23	23-valent pneumococcal polysaccharide vaccine		



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Report clinically significant postvaccination events to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov or by telephone, 800-822-7967.

All vaccines listed on this immunization schedule except herpes zoster and 23-valent pneumococcal polysaccharide vaccines are covered by the Vaccine Injury Compensation Program. Information on how to file a claim is available at www.hrsa.gov/vaccinecompensation or by telephone, 800-338-2382.

Footnotes. Recommended immunization schedule for adults and adolescents with HIV infection, United States, 2017

1. Influenza vaccination

Administer age-appropriate inactivated influenza vaccine (IIV) or recombinant influenza vaccine (RIV) to adults and adolescents annually. Administer IIV or RIV to pregnant women. For adults and adolescents with a history of hives-only egg allergy, administer IIV or RIV. Those with a history of egg allergy other than hives (e.g., angioedema or respiratory distress) may receive IIV or RIV in a medical setting under supervision of a health care provider who can recognize and manage severe allergic conditions. A list of currently available influenza vaccines is available at www.cdc.gov/flu/protect/vaccine/vaccines.htm.

2. Tetanus, diphtheria, and pertussis vaccination

Administer 1 dose of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine (Tdap) to adults and adolescents who were not previously vaccinated with Tdap, followed by a tetanus and diphtheria toxoids (Td) booster every 10 years. Administer 1 dose of Tdap to women during each pregnancy, preferably in the early part of gestational weeks 27–36. Information on the use of Tdap or Td as tetanus prophylaxis in wound management is available at www.cdc.gov/mmwr/preview/mmwrhtml/rr5517a1.htm.

3. Measles, mumps, and rubella vaccination

Administer a 2-dose series of measles, mumps, and rubella vaccine (MMR) at least 1 month apart to adults and adolescents with a CD4 cell count ≥ 200 cells/ μ L who do not have evidence of immunity to measles, mumps, and rubella (born before 1957, documentation of receipt of MMR, or laboratory evidence of immunity or disease). Pregnant women with a CD4 cell count ≥ 200 cells/ μ L who do not have immunity to rubella should receive a 2-dose series of MMR at least 1 month apart after pregnancy. Adults and adolescents with a CD4 cell count < 200 cells/ μ L should not receive MMR.

4. Varicella vaccination

Administer a 2-dose series of varicella vaccine (VAR) 3 months apart to adults and adolescents with a CD4 cell count ≥ 200 cells/ μ L who do not have evidence of immunity to varicella (documented receipt of 2 doses of VAR, born in the United States before 1980, diagnosis of varicella or zoster by a healthcare provider, or laboratory evidence of immunity). Those with a CD4 cell count < 200 cells/ μ L should not receive VAR.

5. Herpes zoster vaccination

There is no recommendation for herpes zoster vaccine (HZV) for adults and adolescents with a CD4 cell count ≥ 200 cells/ μ L. Those with a CD4 cell count < 200 cells/ μ L should not receive HZV.

6. Human papillomavirus vaccination

Administer a 3-dose series of human papillomavirus (HPV) vaccine at 0, 1–2, and 6 months to adults and adolescents through age 26 years. Pregnant women are not recommended to receive HPV vaccine.

7. Pneumococcal vaccination

Administer 1 dose of 13-valent pneumococcal conjugate vaccine (PCV13) followed by 1 dose of 23-valent pneumococcal polysaccharide vaccine (PPSV23) at least 2 months later. Administer a second dose of PPSV23 at least 5 years after the first dose of PPSV23. If the most recent dose of PPSV23 was administered before age 65 years, at age 65 years or older, administer another dose of PPSV23 at least 5 years after the last dose of PPSV23.

8. Hepatitis A vaccination

Administer a 2-dose series of single antigen hepatitis A vaccine (HepA) at 0 and 6–12 months or 0 and 6–18 months, depending on the vaccine, or a 3-dose series of combined hepatitis A and hepatitis B vaccine (HepA-HepB) at 0, 1, and 6 months to adults and adolescents who may not have a specific risk but wants protection against hepatitis A infection. Administer a HepA-containing vaccine series to adults and adolescents at risk which includes chronic liver disease, receive clotting factor concentrates, men who have sex with men, inject illicit drugs, and travel in countries with endemic hepatitis A.

9. Hepatitis B vaccination

Administer a 3-dose series of single-antigen hepatitis B vaccine (HepB) or combined hepatitis A and hepatitis B vaccine (HepA-HepB) at 0, 1, and 6 months.

10. Meningococcal vaccination

Administer a 2-dose primary series of serogroup A, C, W, and Y meningococcal vaccine (MenACWY) at least 2 months apart, and revaccinate every 5 years. Serogroup B meningococcal vaccine (MenB) is not routinely recommended. Young adults and adolescents age 16 through 23 years (preferred age range is 16 through 18 years) may receive MenB (a 2-dose series of MenB-4C at least 1 month apart or a 3-dose series of MenB-FHbp at 0, 1–2, and 6 months) based on individual clinical decision.

11. Haemophilus influenzae type b vaccination

Adults and adolescents with HIV infection are not routinely recommended to receive Haemophilus influenzae type b vaccine (Hib). Administer Hib to those with asplenia, hematopoietic stem cell transplant, and other indications.