

Recommended Adult Immunization Schedule for ages 19 years or older

How to use the adult immunization schedule

- 1** Determine recommended vaccinations by age (Table 1)
- 2** Assess need for additional recommendations by medical condition or other indication (Table 2)
- 3** Review vaccine types, dosing frequencies and intervals, and considerations for special situations (Notes)
- 4** Review contraindications and precautions for vaccine types (Appendix)

Vaccines in the Adult Immunization Schedule*

Vaccine	Abbreviation(s)	Trade name(s)
COVID-19 vaccine	1vCOV-mRNA	Comirnaty [®] /Pfizer-BioNTech COVID-19 vaccine Spikevax [®] /Moderna COVID-19 Vaccine
	2vCOV-mRNA	Pfizer-BioNTech COVID-19 Vaccine, Bivalent Moderna COVID-19 Vaccine, Bivalent
<i>Haemophilus influenzae</i> type b vaccine	1vCOV-aP5 Hib	Novavax COVID-19 Vaccine ActHib [®] Hibexen [®] PedvaxHIB [®]
Hepatitis A vaccine	HepA	Havrix [®] PediavaxHIB [®]
Hepatitis A and the hepatitis B vaccine	HepA-HepB	Vaqta [®]
Hepatitis B vaccine	HepB	Twinrix [®] Engerix-B [®] Hepisav-B [®] PreHevrio [®] RecombivaxHB [®] Gardasil 9 [®]
Human papillomavirus vaccine	HPV	
Influenza vaccine (inactivated)	IV4	Many brands
Influenza vaccine (live, attenuated)	LAIV4	FluMist [®] Quadrivalent
Influenza vaccine (recombinant)	RV4	FluBite [®] Quadrivalent
Measles, mumps, and rubella vaccine	MIMR	M-M-R II [®]
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-D MenACWY-CRM MenACWY-TT MenB-AC MenB-FHbp	Menactra [®] Menveo [®] MenQuadfi [®] Bexsero [®] Tandemvax [®]
Meningococcal serogroup B vaccine	PCV15	Vaxneuvac [™]
Meningococcal conjugate vaccine	PCV20	Pneumac 20 [™]
Pneumococcal polysaccharide vaccine	PPSV23	Pneumovax 23 [®]
Poliovirus vaccine	IPV	IPOL [®]
Tetanus and diphtheria toxoids	Td	Tenkiva [®] Tidva [™]
Tetanus and diphtheria toxoids and acellular pertussis vaccine	Tdap	Adacel [®]
Varicella vaccine	VAR	Boostrix [®]
Zoster vaccine, recombinant	RZV	Vornax [®] Shingrix

*Administer recommended vaccines if vaccination history is incomplete or unknown. Do not treat at or add doses to vaccine series if there are extended intervals between doses. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American College of Physicians (www.acponline.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), American College of Nurse-Midwives (www.midwife.org), American Academy of Physician Assistants (www.aapa.org), American Pharmacists Association (www.pharmacist.com), and Society for Healthcare Epidemiology of America (www.shae-online.org).

Report

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to the local or state health department
- Clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System at www.vaers.hhs.gov or 800-822-7967

Injury claims

All vaccines included in the adult immunization schedule except PPVS23, RZV, and COVID-19 vaccines are covered by the National Vaccine Injury Compensation Program (VICP). COVID-19 vaccines that are authorized or approved by the FDA are covered by the Countermeasures Injury Compensation Program (CIQP). For more information, see www.hrsa.gov/vaccinecompensation or www.hrsa.gov/cikp.

Questions or comments

Contact www.cdc.gov/cdc-info or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m., ET, Monday through Friday, excluding holidays.



Helpful information

- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
- General Best Practice Guidelines for Immunization (including contraindications and precautions): www.cdc.gov/vaccines/hcp/acip-recs/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/vis/index.html
- Manual for the Surveillance of Vaccine-Preventable Diseases (including case identification and outbreak response): www.cdc.gov/vaccines/pubs/surv-manual
- Travel vaccine recommendations: www.cdc.gov/travel
- Recommended Child and Adolescent Immunization Schedule, United States, 2023: www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html
- ACIP Shared Clinical Decision-Making Recommendations: www.cdc.gov/vaccines/acip/acip-scdm-faqs.html



Table 1
Recommended Adult Immunization Schedule by Age Group, United States, 2023

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
COVID-19	2- or 3-dose primary series and booster (See Notes)			
Influenza inactivated (IIV4) or Influenza recombinant (RIV4)	1 dose annually			
Influenza live, attenuated (LAIV4)	1 dose annually			
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
Measles, mumps, rubella (MMR)	1 dose Tdap, then Td or Tdap booster every 10 years			For healthcare personnel, see notes
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV)	2 doses for immunocompromising conditions (see notes)			2 doses
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition		27 through 45 years	
Pneumococcal (PCV15, PCV20, PPSV23)	1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)			
Hepatitis A (HepA)	2, 3, or 4 doses depending on vaccine			
Hepatitis B (HepB)	2, 3, or 4 doses depending on vaccine or condition			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, see notes for booster recommendations			
Meningococcal B (MenB)	19 through 23 years			
<i>Haemophilus influenzae</i> type b (Hib)	1 or 3 doses depending on indication			

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection

Recommended vaccination for adults with an additional risk factor or another indication

Recommended vaccination based on shared clinical decision-making

No recommendation/Not applicable

Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2023

Vaccine	Pregnancy	Immuno-compromised (excluding HIV infection)	HIV infection CD4 percentages and count	Asplenia, complement deficiencies	End-stage renal disease, or on hemodialysis	Heart or lung disease; alcoholism ^a	Chronic liver disease	Diabetes	Health care personnel ^b	Men who have sex with men
COVID-19		See Notes								
IPV4 or RIV4 or LAIV4		1 dose annually								
		Contraindicated				Precaution			or	1 dose annually
Tdap or Td	1 dose Tdap each pregnancy									
MMR	Contraindicated ^{**}	Contraindicated								
VAR	Contraindicated ^{**}	Contraindicated								
RZV		2 doses at age ≥19 years								
HPV	Not Recommended ^{**}	3 doses through age 26 years								
Pneumococcal (PCV15, PCV20, PPSV23)										
HepA										
HepB	3 doses (see notes)									
MenACWY		1 or 2 doses depending on indication, see notes for booster recommendations								
MenB	Precaution	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations								
Hib		3 doses HSCT ^c recipients only								

 Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection
 Recommended vaccination for adults with an additional risk factor or another indication
 Recommended vaccination based on shared clinical decision-making
 Precaution—vaccination might be indicated if benefit of protection outweighs risk of adverse reaction
 Contraindicated or not recommended—vaccine should not be administered. ^aVaccinate after pregnancy.
 No recommendation/Not applicable

^a. Precaution for LAIV4 does not apply to alcoholism. ^b. See notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations. ^c. Hematopoietic stem cell transplant.

Notes

Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2023

For vaccine recommendations for persons 18 years of age or younger, see the Recommended Child and Adolescent Immunization Schedule.

COVID-19 vaccination

Routine vaccination

- **Primary series:** 2-dose series at 0, 4–8 weeks (Moderna) or 2-dose series at 0, 3–8 weeks (Novavax, Pfizer-BioNTech)
- **Booster dose:** see www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html

Special situations

Persons who are moderately or severely immunocompromised

- **Primary series**
 - 3-dose series at 0, 4, 8 weeks (Moderna) or 3-dose series at 0, 3, 7 weeks (Pfizer-BioNTech)
 - 2-dose series at 0, 3 weeks (Novavax)
- **Booster dose:** see www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html
- **Pre-exposure prophylaxis (e.g., monoclonal antibodies)** may be considered to complement COVID-19 vaccination. See www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#immunocompromised
- For **Janssen COVID-19 Vaccine recipients** see COVID-19 schedule at www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html.

Note: Current COVID-19 schedule available at www.cdc.gov/vaccines/covid-19/downloads/COVID-19-immunization-schedule-ages-6months-older.pdf. For more information on Emergency Use Authorization (EUA) indications for COVID-19 vaccines, please visit www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines

Haemophilus influenzae type b vaccination

Special situations

- **Anatomical or functional asplenia (including sickle cell disease):** 1 dose if previously did not receive Hib; if elective splenectomy, 1 dose preferably at least 14 days before splenectomy
- **Hematopoietic stem cell transplant (HSCT):** 3-dose series 4 weeks apart starting 6–12 months after successful transplant, regardless of Hib vaccination history

Hepatitis A vaccination

Routine vaccination

- **Not at risk but want protection from hepatitis A** (identification of risk factor not required): 2-dose series HepA (Havrix 6–12 months apart or Vaqta 6–18 months apart [minimum interval: 6 months]) or 3-dose series HepA-HepB (Twinnix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])

Special situations

- **At risk for hepatitis A virus infection:** 2-dose series HepA or 3-dose series HepA-HepB as above
- **Chronic liver disease** (e.g., persons with hepatitis B, hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal)
- **HIV infection**
- **Men who have sex with men**
- **Injection or noninjection drug use**
- **Persons experiencing homelessness**
- **Work with hepatitis A virus** in research laboratory or with nonhuman primates with hepatitis A virus infection

- **Travel in countries with high or intermediate endemic hepatitis A** (HepA-HepB [Twinnix] may be administered on an accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months)
- **Close, personal contact with international adoptee** (e.g., household or regular babysitting) in first 60 days after arrival from country with high or intermediate endemic hepatitis A (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee's arrival)

• **Pregnancy** if at risk for infection or severe outcome from infection during pregnancy

• **Settings for exposure**, including health care settings targeting services to injection or noninjection drug users or group homes and nonresidential day care facilities for developmentally disabled persons (individual risk factor screening not required)

Hepatitis B vaccination

Routine vaccination

- **Age 19 through 59 years: complete a 2- or 3- or 4-dose series**
 - 2-dose series only applies when 2 doses of HepHisav-B* are used at least 4 weeks apart
 - 3-dose series Engerix-B, PreHevrio*, or Recombivax HB at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks])
 - 3-dose series HepA-HepB (Twinnix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])
 - 4-dose series HepA-HepB (Twinnix) accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months

***Note:** HepHisav-B and PreHevrio are not recommended in pregnancy due to lack of safety data in pregnant persons.

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- **Age 60 years or older with known risk factors for hepatitis B virus infection should complete a HepB vaccine series.**
- **Age 60 years or older without known risk factors for hepatitis B virus infection may complete a HepB vaccine series.**

Risk factors for hepatitis B virus infection include:

- **Chronic liver disease** (e.g., persons with hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice upper limit of normal)
- **HIV infection**
- **Sexual exposure risk** (e.g., sex partners of hepatitis B surface antigen [HBsAg]-positive persons; sexually active persons not in mutually monogamous relationships; persons seeking evaluation or treatment for a sexually transmitted infection; men who have sex with men)
- **Current or recent injection drug use**
- **Percutaneous or mucosal risk for exposure to blood** (e.g., household contacts of HBsAg-positive persons; residents and staff of facilities for developmentally disabled persons; health care and public safety personnel with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids; persons on maintenance dialysis, including in-center or home hemodialysis and peritoneal dialysis, and persons who are predialysis; patients with diabetes)
- **Incarceration**
- **Travel in countries with high or intermediate endemic hepatitis B**

Special situations

- **Patients on dialysis:** complete a 3- or 4-dose series 3-dose series Recombivax HB at 0, 1, 6 months (note: use Dialysis Formulation 1 mL = 40 mcg)
- 4-dose series Engerix-B at 0, 1, 2, and 6 months (note: use 2 mL dose instead of the normal adult dose of 1 mL)

Human papillomavirus vaccination

Routine vaccination

- **HPV vaccination recommended for all persons through age 26 years:** 2- or 3-dose series depending on age at initial vaccination or condition:
- **Age 15 years or older at initial vaccination:** 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon)
- **Age 9–14 years at initial vaccination and received 1 dose or 2 doses less than 5 months apart:** 1 additional dose

Age 9–14 years at initial vaccination and received 2 doses at least 5 months apart:

- HPV vaccination series complete, no additional dose needed
- **Interrupted schedules:** if vaccination schedule is interrupted, the series does not need to be restarted
- **No additional dose recommended when any HPV vaccine series has been completed using the recommended dosing intervals.**

Shared clinical decision-making

- **Some adults age 27–45 years:** Based on shared clinical decision-making, 2- or 3-dose series as above

Special situations

- **Age ranges recommended above for routine and catch-up vaccination or shared clinical decision-making also apply in special situations**
- **Immunocompromising conditions, including HIV infection:** 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
- **Pregnancy:** Pregnancy testing is not needed before vaccination; HPV vaccination is not recommended until after pregnancy; no intervention needed if inadvertently vaccinated while pregnant

Influenza vaccination

Routine vaccination

- **Age 19 years or older:** 1 dose any influenza vaccine appropriate for age and health status annually.
- **Age 65 years or older:** Any one of quadrivalent high-dose inactivated influenza vaccine (HD-IV4), quadrivalent recombinant influenza vaccine (RV4), or quadrivalent adjuvanted inactivated influenza vaccine (aIV4) is preferred. If none of these three vaccines is available, then any other age-appropriate influenza vaccine should be used.
- For the 2022–2023 season, see www.cdc.gov/mmw/volumes/71/rr17101a1.htm
- For the 2023–2024 season, see the 2023–2024 ACIP influenza vaccine recommendations.

Special situations

- **Egg allergy, hives only:** any influenza vaccine appropriate for age and health status annually
- **Egg allergy—any symptom other than hives** (e.g., angioedema, respiratory distress or required epinephrine or another emergency medical intervention): Any influenza vaccine appropriate for age and health status may be administered. If using egg-based IV4 or LAIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions.
- **Close contacts (e.g., caregivers, healthcare workers) of severely immunosuppressed persons who require a protected environment:** These persons should not receive LAIV4. If LAIV4 is given, they should avoid contact with/caring for such immunosuppressed persons for 7 days after vaccination.
- **Severe allergic reaction (e.g., anaphylaxis) to a vaccine component or a previous dose of any influenza vaccine:** see Appendix listing contraindications and precautions

Notes

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- **History of Guillain-Barré syndrome within 6 weeks after previous dose of influenza vaccine:** Generally, should not be vaccinated unless vaccination benefits outweigh risks for those at higher risk for severe complications from influenza

Measles, mumps, and rubella vaccination

Routine vaccination

- **No evidence of immunity to measles, mumps, or rubella:** 1 dose
- **Evidence of immunity:** Born before 1957 (health care personnel, see below), documentation of receipt of MMR vaccine, laboratory evidence of immunity or disease (diagnosis of disease without laboratory confirmation is not evidence of immunity)

Special situations

- **Pregnancy with no evidence of immunity to rubella:** MMR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose
- **Nonpregnant persons of childbearing age with no evidence of immunity to rubella:** 1 dose
- **HIV infection with CD4 percentages $\geq 15\%$ and CD4 count ≥ 200 cells/mm³ for at least 6 months and no evidence of immunity to measles, mumps, or rubella:** 2-dose series at least 4 weeks apart; MMR contraindicated for HIV infection with CD4 percentage $< 15\%$ or CD4 count < 200 cells/mm³
- **Severe immunocompromising conditions:** MMR contraindicated
- **Students in postsecondary educational institutions, international travelers, and house hold or close, personal contacts of immunocompromised persons with no evidence of immunity to measles, mumps, or rubella:** 2-dose series at least 4 weeks apart if previously did not receive any doses of MMR or 1 dose if previously received 1 dose MMR

- **In mumps outbreak settings,** for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6701a2.htm

- **Health care personnel:**

- **Born before 1957 with no evidence of immunity to measles, mumps, or rubella:** Consider 2-dose series at least 4 weeks apart for protection against measles or mumps or 1 dose for protection against rubella
- **Born in 1957 or later with no evidence of immunity to measles, mumps, or rubella:** 2-dose series at least 4 weeks apart for protection against measles or mumps or at least 1 dose for protection against rubella

Meningococcal vaccination

Special situations for MenACWY

- **Anatomical or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab) use, or microbiologists routinely exposed to *Neisseria meningitidis*:** 2-dose series (MenACWY-D (Menactra, Menveo, or MenQuadfi) at least 8 weeks apart and revaccinate every 5 years if risk remains
- **Travel in countries with hyperendemic or epidemic meningococcal disease, or microbiologists routinely exposed to *Neisseria meningitidis*:** 1 dose MenACWY (Menactra, Menveo, or MenQuadfi) and revaccinate every 5 years if risk remains
- **First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits:** 1 dose MenACWY (Menactra, Menveo, or MenQuadfi)
- **For MenACWY booster dose recommendations for groups listed under "Special situations" and in an outbreak setting (e.g., in community or organizational settings and among men who have sex with men) and additional meningococcal vaccination information,** see www.cdc.gov/mmwr/volumes/69/rr/r6909a1.htm

Shared clinical decision-making for MenB

- **Adolescents and young adults age 16–23 years (age 16–18 years preferred) not at increased risk for meningococcal disease:** Based on shared clinical decision-making, 2-dose series MenB-4C (Bexsero) at least 1 month apart or 2-dose series MenB-FHbp (Trumenba) at 0, 6 months (if dose 2 was administered less than 6 months after dose 1, administer dose 3 at least 4 months after dose 2); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series)
- **Special situations for MenB**
 - **Anatomical or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use, or microbiologists routinely exposed to *Neisseria meningitidis*:** 2-dose primary series MenB-4C (Bexsero) at least 1 month apart or 3-dose primary series MenB-FHbp (Trumenba) at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed; if dose 3 is administered earlier than 4 months after dose 2, a fourth dose should be administered at least 4 months after dose 3); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series); 1 dose MenB booster 1 year after primary series and revaccinate every 2–3 years if risk remains
 - **Pregnancy:** Delay MenB until after pregnancy unless at increased risk and vaccination benefits outweigh potential risks
 - **For MenB booster dose recommendations for groups listed under "Special situations" and in an outbreak setting (e.g., in community or organizational settings and among men who have sex with men) and additional meningococcal vaccination information,** see www.cdc.gov/mmwr/volumes/69/rr/r6909a1.htm
- Note:** MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, if feasible.

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Pneumococcal vaccination

Routine vaccination

- **Age 65 years or older who have:**
 - **Not previously received a dose of PCV13, PCV15, or PCV20 or whose previous vaccination history is unknown:** 1 dose PCV15 OR 1 dose PCV20. If PCV15 is used, this should be followed by a dose of PPSV23 given at least 1 year after the PCV15 dose. A minimum interval of 8 weeks between PCV15 and PPSV23 can be considered for adults with an immunocompromising condition,* cochlear implant, or cerebrospinal fluid leak to minimize the risk of invasive pneumococcal disease caused by serotypes unique to PPSV23 in these vulnerable groups.
 - **Previously received only PCV7:** follow the recommendation above.
 - **Previously received only PCV13:** 1 dose PCV20 at least 1 year after the PCV13 dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.
 - **Previously received only PPSV23:** 1 dose PCV15 OR 1 dose PCV20 at least 1 year after the PPSV23 dose. If PCV15 is used, it need not be followed by another dose of PPSV23.
 - **Previously received both PCV13 and PPSV23 but NO PPSV23 was received at age 65 years or older:** 1 dose PCV20 at least 5 years after their last pneumococcal vaccine dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.
 - **Previously received both PCV13 and PPSV23, AND PPSV23 was received at age 65 years or older:** Based on shared clinical decision-making, 1 dose of PCV20 at least 5 years after the last pneumococcal vaccine dose.

- For guidance on determining which pneumococcal vaccines a patient needs and when, please refer to the mobile app which can be downloaded here: www.cdc.gov/vaccines/vpd/pneumo/hcp/pneumoapp.html

Special situations

- **Age 19–64 years with certain underlying medical conditions or other risk factors** who have**
 - **Not previously received a PCV13, PCV15, or PCV20 or whose previous vaccination history is unknown:** 1 dose PCV15 OR 1 dose PCV20. If PCV15 is used, this should be followed by a dose of PPSV23 given at least 1 year after the PCV15 dose. A minimum interval of 8 weeks between PCV15 and PPSV23 can be considered for adults with an immunocompromising condition,* cochlear implant, or cerebrospinal fluid leak
 - **Previously received only PCV7:** follow the recommendation above.
 - **Previously received only PCV13:** 1 dose PCV20 at least 1 year after the PCV13 dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.
 - **Previously received only PPSV23:** 1 dose PCV15 OR 1 dose PCV20 at least 1 year after the PPSV23 dose. If PCV15 is used, it need not be followed by another dose of PPSV23.
 - **Previously received both PCV13 and PPSV23 but have not completed the recommended series:** 1 dose PCV20 at least 5 years after their last pneumococcal vaccine dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.
- For guidance on determining which pneumococcal vaccines a patient needs and when, please refer to the mobile app which can be downloaded here: www.cdc.gov/vaccines/vpd/pneumo/hcp/pneumoapp.html

****Note:** Immunocompromising conditions include chronic renal failure, nephrotic syndrome, immunodeficiency, iatrogenic immunosuppression, generalized malignancy, human immunodeficiency virus, Hodgkin disease, leukemia, lymphoma, multiple myeloma, solid organ transplants, congenital or acquired asplenia, sickle cell disease, or other hemoglobinopathies.

****Note:** Underlying medical conditions or other risk factors include alcoholism, chronic heart/liver/lung disease, chronic renal failure, cigarette smoking, cochlear implant, congenital or acquired asplenia, CSF leak, diabetes mellitus, generalized malignancy, HIV, Hodgkin disease, immunodeficiency, iatrogenic immunosuppression, leukemia, lymphoma, multiple myeloma, nephrotic syndrome, solid organ transplants, or sickle cell disease or other hemoglobinopathies.

Polio vaccination

Routine vaccination

Routine poliovirus vaccination of adults residing in the United States is not necessary.

Special situations

- **Adults at increased risk of exposure to poliovirus with:**

- No evidence of a complete polio vaccination series (i.e., at least 3 doses); administer remaining doses (1, 2, or 3 doses) to complete a 3-dose series
- Evidence of completed polio vaccination series (i.e., at least 3 doses); may administer one lifetime IPV booster

For detailed information, see: www.cdc.gov/vaccines/vpd/polio/hcp/recommendations.html

Notes

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Tetanus, diphtheria, and pertussis vaccination

Routine vaccination

- **Previously did not receive Tdap at or after age 11 years:** 1 dose Tdap, then Td or Tdap every 10 years

Special situations

- **Previously did not receive primary vaccination series for tetanus, diphtheria, or pertussis:** 1 dose Tdap followed by 1 dose Td or Tdap at least 4 weeks later, and a third dose of Td or Tdap 6–12 months later (Tdap can be substituted for any Td dose, but preferred as first dose), Td or Tdap every 10 years thereafter
- **Pregnancy:** 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36
- **Wound management:** Persons with 3 or more doses of tetanus-toxoid-containing vaccine: For clean and minor wounds, administer Tdap or Td if more than 10 years since last dose of tetanus-toxoid-containing vaccine; for all other wounds, administer Tdap or Td if more than 5 years since last dose of tetanus-toxoid-containing vaccine. Tdap is preferred for persons who have not previously received Tdap or whose Tdap history is unknown. If a tetanus-toxoid-containing vaccine is indicated for a pregnant woman, use Tdap. For detailed information, see www.cdc.gov/mmwr/volumes/69/wr/mm6903a5.htm

Varicella vaccination

Routine vaccination

- **No evidence of immunity to varicella:** 2-dose series 4–8 weeks apart if previously did not receive varicella-containing vaccine (VAR or MMRV [measles-mumps-rubella-varicella vaccine] for children); if previously received 1 dose varicella-containing vaccine, 1 dose at least 4 weeks after first dose
- **Evidence of immunity:** U.S.-born before 1980 (except for pregnant persons and health care personnel [see below]), documentation of 2 doses varicella-containing vaccine at least 4 weeks apart, diagnosis or verification of history of varicella or herpes zoster by a health care provider, laboratory evidence of immunity or disease

Special situations

- **Pregnancy with no evidence of immunity to varicella:** VAR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose if previously received 1 dose varicella-containing vaccine or dose 1 of 2-dose series (dose 2, 4–8 weeks later) if previously did not receive any varicella-containing vaccine, regardless of whether U.S.-born before 1980
- **Health care personnel with no evidence of immunity to varicella:** 1 dose if previously received 1 dose varicella-containing vaccine; 2-dose series 4–8 weeks apart if previously did not receive any varicella-containing vaccine, regardless of whether U.S.-born before 1980
- **HIV infection with CD4 percentages $\geq 15\%$ and CD4 count ≥ 200 cells/mm³ with no evidence of immunity:** Vaccination may be considered (2 doses 3 months apart); VAR contraindicated for HIV infection with CD4 percentage $<15\%$ or CD4 count <200 cells/mm³
- **Severe immunocompromising conditions:** VAR contraindicated

Zoster vaccination

Routine vaccination

- **Age 50 years or older*:** 2-dose series recombinant zoster vaccine (RZV, Shingrix) 2–6 months apart (minimum interval: 4 weeks); repeat dose if administered too soon), regardless of previous herpes zoster or history of zoster vaccine live (ZVL, Zostavax) vaccination.

***Note:** Serologic evidence of prior varicella is not necessary for zoster vaccination. However, if serologic evidence of varicella susceptibility becomes available, providers should follow ACIP guidelines for varicella vaccination first. RZV is not indicated for the prevention of varicella, and there are limited data on the use of RZV in persons without a history of varicella or varicella vaccination.

Special situations

- **Pregnancy:** There is currently no ACIP recommendation for RZV use in pregnancy. Consider delaying RZV until after pregnancy.
- **Immunocompromising conditions (including persons with HIV regardless of CD4 count)*:** 2-dose series recombinant zoster vaccine (RZV, Shingrix) 2–6 months apart (minimum interval: 4 weeks); repeat dose if administered too soon). For detailed information, see www.cdc.gov/shingles/vaccination/immunocompromised-adults.html
- ****Note:** If there is no documented history of varicella, varicella vaccination, or herpes zoster, providers should refer to the clinical considerations for use of RZV in immunocompromised adults aged ≥ 19 years and the ACIP varicella vaccine recommendations for further guidance: www.cdc.gov/mmwr/volumes/71/wr/mm7103a2.htm

Guide to Contraindications and Precautions to Commonly Used Vaccines

Adapted from Table 4-1 in *Advisory Committee on Immunization Practices (ACIP) General Best Practice Guidelines for Immunization: Contraindication and Precautions available at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html and ACIP's Recommendations for the Prevention and Control of 2022-23 Seasonal Influenza with Vaccines available at www.cdc.gov/mmwr/volumes/71/rrrr7101a.htm*

For COVID-19 vaccine contraindications and precautions see

www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#contraindications

Vaccine	Contraindicated or Not Recommended ¹	Precautions ²
Influenza, egg-based, inactivated (Flucelvax) ³	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, ccIV, RIV, or LAV of any valency) Severe allergic reaction (e.g., anaphylaxis) to any vaccine component⁴ (excluding egg) 	<ul style="list-style-type: none"> Gullain-Barré syndrome (GBS), within 6 weeks after a previous dose of any type of influenza vaccine Moderate or severe acute illness with or without fever
Influenza, cell culture-based inactivated, inactivated (Flucelvax ³ Quadrivalent)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) to any ccIV of any valency, or to any component⁴ of ccIV 	<ul style="list-style-type: none"> Gullain-Barré syndrome (GBS), within 6 weeks after a previous dose of any type of influenza vaccine Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IV, RIV, or LAV, or of any valency⁵. If using ccIV, administer in a setting with appropriate medical personnel who can recognize and manage severe allergic reactions. May consult an allergist. Moderate or severe acute illness with or without fever
Influenza, recombinant injectable (Rivvax, Publio ⁴ Quadrivalent)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component⁴ of RIV 	<ul style="list-style-type: none"> Gullain-Barré syndrome (GBS), within 6 weeks after a previous dose of any type of influenza vaccine Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IV, ccIV, RIV, or LAV of any valency. If using RIV, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. Moderate or severe acute illness with or without fever
Influenza, live attenuated (LAIV4, Flumist ⁴ Quadrivalent)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, ccIV, RIV, or LAV of any valency) Severe allergic reaction (e.g., anaphylaxis) to any vaccine component⁴ (excluding egg) Anatomic or functional splenia Immunocompromised due to any cause including, but not limited to, medications and HIV infection Close contacts or caregivers of severely immunosuppressed persons who require a protected environment Pregnancy Cochlear implant 	<ul style="list-style-type: none"> Gullain-Barré syndrome (GBS), within 6 weeks after a previous dose of any type of influenza vaccine Asthma in persons aged 5 years old or older Persons with underlying medical conditions (other than those listed under contraindications) that might predispose to complications after wild-type influenza virus infection (e.g., chronic pulmonary, cardiovascular (except isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus)) Moderate or severe acute illness with or without fever

1. When a contraindication is present, a vaccine should NOT be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html

2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html

3. Vaccination providers should check FDA-approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at www.fda.gov/vaccines-blood-biologics/approved-products/vaccines/licenses/eu-use-united-states.

Vaccine	Contraindicated or Not Recommended ^a	Precautions ^b
<i>Hemophilus influenzae</i> type b (Hib)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ For Hibvax, ActiB, and PreHibB only: history of severe allergic reaction to any natural latex 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Hepatitis A (HepA)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ including neomycin 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Hepatitis B (HepB)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ including yeast Pregnancy: HepBvax-B and PreHebivax are not recommended due to lack of safety data in pregnant persons. Use other Hepatitis B vaccines if HepB is indicated² 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Hepatitis A–Hepatitis B vaccine (HepA–HepB, [Trinivax] ³)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ including neomycin and yeast 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Human papillomavirus (HPV)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ Pregnancy: HPV vaccination not recommended⁴ 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Measles, mumps, rubella (MMR)	<ul style="list-style-type: none"> Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) Pregnancy Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent 	<ul style="list-style-type: none"> Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product) Thrombocytopenia or thrombocytopenic purpura Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing Moderate or severe acute illness with or without fever
Meningococcal ACWY (MenACWY)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ For MenACWY-D and MenACWY-CRM only: severe allergic reaction to any diphtheria toxin or CRM 197-containing vaccine For MenACWY-TT only: severe allergic reaction to a tetanus toxin-containing vaccine 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Meningococcal B (MenB)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ 	<ul style="list-style-type: none"> Pregnancy For MenB-4C only: Latex sensitivity Moderate or severe acute illness with or without fever
Meningococcal conjugate (PCV15, PCV20)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ Severe allergic reaction (e.g., anaphylaxis) to any diphtheria toxin-containing vaccine or to its vaccine component¹ 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Pharmococcal polysaccharide (PPSV23)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Tetanus, diphtheria, and acellular pertussis (Tdap)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ For Tdap only: Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTPe, DTap or Tdap 	<ul style="list-style-type: none"> Gullin-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid-containing vaccine History of Arthur-type hypersensitivity reactions after a previous dose of diphtheria toxoid-containing or tetanus-toxoid-containing vaccine; defer vaccination until at least 10 years have elapsed since the last reaction Moderate or severe acute illness with or without fever For Tdap only: Progressive or unstable neurological disorder, uncontrolled seizures or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized
Varicella (VAR)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) Pregnancy Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent 	<ul style="list-style-type: none"> Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product) Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination) Use of aspirin or aspirin-containing products Moderate or severe acute illness with or without fever
Zoster recombinant vaccine (RZV)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever Current herpes zoster infection

- When a contraindication is present, a vaccine should NOT be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/imz/ACIP-IGCS/General-IGCS/contraindications.html
- When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/imz/ACIP-IGCS/General-IGCS/contraindications.html
- Vaccine guidelines for immunization. www.cdc.gov/vaccines/imz/ACIP-IGCS/General-IGCS/contraindications.html
- For information on FDA-approved products, visit www.fda.gov/vaccines-blood-biologics/development-products/vaccines-licensed-use-unlabeled
- For information on the pregnancy exposure registries for persons who were inadvertently vaccinated with Hepatitis B or PreHebivax while pregnant, please visit www.hebhep.com/registry or www.prehep.com/registry