### 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 recommended vaccinations by medical condition or other indication** *(Table 2)*
3. **Review vaccine types, frequencies, intervals, and considerations for special situations** *(Notes)*
4. **Review contraindications and precautions for vaccine types** *(Appendix)*

#### Vaccines in the Adult Immunization Schedule*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Haemophilus influenzae</em> type b vaccine</td>
<td>Hib</td>
<td>ActHIB*</td>
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<tr>
<td></td>
<td></td>
<td>Hiberix*</td>
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<tr>
<td></td>
<td></td>
<td>PedvaxHIB*</td>
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<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Havrix*</td>
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<tr>
<td></td>
<td></td>
<td>Vaqta*</td>
</tr>
<tr>
<td>Hepatitis A and hepatitis B vaccine</td>
<td>HepA-HepB</td>
<td>Twinrix*</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix-B*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recombivax HB*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heplisav-B*</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil 9*</td>
</tr>
<tr>
<td>Influenza vaccine (inactive)</td>
<td>IIV4</td>
<td>Many brands</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV4</td>
<td>FluMist™ Quadrivalent</td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td>RIV4</td>
<td>Flublok™ Quadrivalent</td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R II*</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-D</td>
<td>Menactra*</td>
</tr>
<tr>
<td></td>
<td>MenACWY-CRM</td>
<td>Meneveo*</td>
</tr>
<tr>
<td></td>
<td>MenACWY-TT</td>
<td>MenQuadrix*</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td>Bexsero*</td>
</tr>
<tr>
<td></td>
<td>MenB-FHbp</td>
<td>Trumenba*</td>
</tr>
<tr>
<td>Pneumococcal 15-valent conjugate vaccine</td>
<td>PCV15</td>
<td>Vaxneuvance™</td>
</tr>
<tr>
<td>Pneumococcal 20-valent conjugate vaccine</td>
<td>PCV20</td>
<td>Prevnar 20™</td>
</tr>
<tr>
<td>Pneumococcal 23-valent polysaccharide vaccine</td>
<td>PPSV23</td>
<td>Pneumovax 23*</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
<td>Tenivac™</td>
</tr>
<tr>
<td></td>
<td>Tdap</td>
<td>Adacel®</td>
</tr>
<tr>
<td></td>
<td>Tdap</td>
<td>Boostrix®</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax®</td>
</tr>
<tr>
<td>Zoster vaccine, recombinant</td>
<td>RZV</td>
<td>Shingrix</td>
</tr>
</tbody>
</table>

*Administer recommended vaccines if vaccination history is incomplete or unknown. Do not restart 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.

#### 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 pneumococcal 23-valent polysaccharide (PPSV23) and zoster (RZV) vaccines are covered by the Vaccine Injury Compensation Program. Information on how to file a vaccine injury claim is available at www.hrsa.gov/vaccinecompensation.

#### 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/general-recs/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/vis/index.html
- Travel vaccine recommendations: www.cdc.gov/travel
- Recommended Child and Adolescent Immunization Schedule, United States, 2022: www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html
## Table 1: Recommended Adult Immunization Schedule by Age Group, United States, 2022

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>19–26 years</th>
<th>27–49 years</th>
<th>50–64 years</th>
<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Influenza inactivated (IIV4) or</strong></td>
<td></td>
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<td></td>
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<tr>
<td><strong>Influenza recombinant (RIV4)</strong></td>
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</tr>
<tr>
<td><strong>Influenza live, attenuated (LAIV4)</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tetanus, diphtheria, pertussis (Tdap or Td)</strong></td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measles, mumps, rubella (MMR)</strong></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td><strong>Varicella (VAR)</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Zoster recombinant (RZV)</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Human papillomavirus (HPV)</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pneumococcal (PCV15, PCV20, PPSV23)</strong></td>
<td></td>
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<td></td>
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<tr>
<td><strong>Hepatitis A (HepA)</strong></td>
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<tr>
<td><strong>Hepatitis B (HepB)</strong></td>
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<td></td>
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<tr>
<td><strong>Meningococcal A, C, W, Y (MenACWY)</strong></td>
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<td></td>
<td></td>
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<tr>
<td><strong>Meningococcal B (MenB)</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Haemophilus influenzae type b (Hib)</strong></td>
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</tr>
</tbody>
</table>

### Notes:
- 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.

- 1 dose PCV15 followed by PPSV23
- 1 dose PCV20 (see notes)
- 1 dose PCV15 followed by PPSV23
- 1 dose PCV20
### Table 2

Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2022

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>Immuno-compromised (excluding HIV infection)</th>
<th>HIV infection CD4 percentage and count</th>
<th>Asplenia, complement deficiencies</th>
<th>End-stage renal disease, or on hemodialysis</th>
<th>Heart or lung disease; alcoholism¹</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Health care personnel²</th>
<th>Men who have sex with men</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIV4 or RIV4 LAIV4</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>1 dose annually</td>
<td>Precaution</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tdap or Td</td>
<td>1 dose Tdap each pregnancy</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMR</td>
<td>Contraindicated*</td>
<td>Contraindicated</td>
<td>1 or 2 doses depending on indication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR</td>
<td>Contraindicated*</td>
<td>Contraindicated</td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RZV</td>
<td>2 doses at age ≥19 years</td>
<td>2 doses at age ≥50 years</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV</td>
<td>Not Recommended*</td>
<td>3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years depending on age at initial vaccination or condition</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td></td>
<td></td>
<td>1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)</td>
<td></td>
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<td></td>
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<tr>
<td>HepA</td>
<td></td>
<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>HepB</td>
<td>3 doses (see notes)</td>
<td></td>
<td>2, 3, or 4 doses depending on vaccine or condition</td>
<td></td>
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<tr>
<td>MenACWY</td>
<td></td>
<td></td>
<td></td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MenB</td>
<td>Precaution</td>
<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hib</td>
<td></td>
<td></td>
<td>3 doses HSCT³ recipients only</td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

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1. Precaution for LAIV4 does not apply to alcoholism. 2. See notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations. 3. Hematopoietic stem cell transplant.
Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2022

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

COVID-19 Vaccination
COVID-19 vaccines are recommended within the scope of the Emergency Use Authorization or Biologics License Application for the particular vaccine. ACIP recommendations for the use of COVID-19 vaccines can be found at www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/covid-19.html. CDC’s interim clinical considerations for use of COVID-19 vaccines can be found at www.cdc.gov/vaccine. ACIP recommendations for the use of COVID-19 vaccines can be found at www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/covid-19.html.

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 transplantation, regardless of Hib vaccination history

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 Heplisav-B* are used at least 4 weeks apart
  - 3-dose series Engerix-B 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 (Twinrix) 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 (Twinrix) accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months
  - 4-dose series Engerix-B at 0, 1, 2, and 6 months for persons on adult hemodialysis (note: each dosage is double that of normal adult dose, i.e., 2 mL instead of 1 mL)

*Note: Heplisav-B not recommended in pregnancy due to lack of safety data in pregnant women

Special situations
- Age 60 years or older* and at risk for hepatitis B virus infection: 2-dose (Heplisav-B) or 3-dose (Engerix-B, Recombivax HB) series or 3-dose series HepA-HepB (Twinrix) as above
- 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 the 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; public health personnel with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids; hemodialysis, peritoneal dialysis, home dialysis, and predialysis patients; patients with diabetes)
- Incarcerated persons
- Travel in countries with high or intermediate endemic hepatitis B

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
**Influenza vaccination**

**Routine vaccination**
- **Age 19 years or older:** 1 dose any influenza vaccine appropriate for age and health status annually
- For the 2021–2022 season, see www.cdc.gov/mmwr/volumes/70/rr/rr7005a1.htm
- For the 2022–23 season, see the 2022–23 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: see Appendix listing contraindications and precautions
- **Severe allergic reaction** (e.g., anaphylaxis) to a vaccine component or a previous dose of any influenza vaccine: see Appendix listing contraindications and precautions
- **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 women of childbearing age with no evidence of immunity to rubella:** 1 dose
- **HIV infection with 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 household 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; MMR contraindicated
- **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 measles or mumps or 1 dose for 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 measles or mumps or at least 1 dose for 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, ravulizumab) use: 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/rr6909a1.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); 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
Recommended Adult Immunization Schedule, United States, 2022

**Notes**

- **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/rr6909a1.htm](http://www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm).

**Note:** MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, if feasible.

### Pneumococcal vaccination

#### Routine vaccination

- **Age 65 years or older** who have not previously received a pneumococcal conjugate vaccine 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.
- For guidance for patients who have already received a previous dose of PCV13 and/or PPSV23, see [www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm](http://www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm).

#### Special situations

- **Age 19–64 years** with certain underlying medical conditions or other risk factors: who have not previously received a pneumococcal conjugate vaccine 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.
- For guidance for patients who have already received a previous dose of PCV13 and/or PPSV23, see [www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm](http://www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm).

**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.

### 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 after Tdap and another dose Td or Tdap 6–12 months after last Td or Tdap (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/rr/mm6903a5.htm](http://www.cdc.gov/mmwr/volumes/69/rr/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 women 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 ≥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 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 (administer RZV at least 2 months after ZVL)

#### Special situations

- **Pregnancy:** There is currently no ACIP recommendation for RZV use in pregnancy. Consider delaying RZV until after pregnancy.
- **Immunocompromising conditions (including HIV):** RZV recommended for use in persons age 19 years or older who are or will be immunodeficient or immunosuppressed because of disease or therapy. For detailed information, see [www.cdc.gov/mmwr/volumes/71/wr/mm7103a2.htm](http://www.cdc.gov/mmwr/volumes/71/wr/mm7103a2.htm).
## Appendix

### Recommended Adult Immunization Schedule, United States, 2022

**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](www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html) and ACIP’s Recommendations for the Prevention and Control of 2021-22 Seasonal Influenza with Vaccines available at [www.cdc.gov/mmwr/volumes/70/rr/rr7005a1.htm](www.cdc.gov/mmwr/volumes/70/rr/rr7005a1.htm)

Interim clinical considerations for use of COVID-19 vaccines including contraindications and precautions can be found at [www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html](www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html)

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindications¹</th>
<th>Precautions²</th>
</tr>
</thead>
</table>
| Influenza, egg-based, inactivated injectable (IIV4) | • Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency)  
  • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component³ (excluding egg) | • Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine  
  • Persons with egg allergy with symptoms 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 IIV4, 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, cell culture-based inactivated injectable ([ccIIV4), Flucelvax® Quadrivalent] | • Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component³ of ccIIV4 | • Guillain-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 IIV, RIV, or LAIV of any valency. If using ccIIV4, 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, recombinant injectable ([RIV4), Flublok® Quadrivalent] | • Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component³ of RIV4 | • Guillain-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 IIV, ccIIV, or LAIV of any valency. If using RIV4, 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® Quadrivalent] | • Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency)  
  • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component³ (excluding egg)  
  • Adults age 50 years or older  
  • Anatomic or functional asplenia  
  • 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  
  • Active communication between the cerebrospinal fluid (CSF) and the oropharynx, nasopharynx, nose, ear, or any other cranial CSF leak  
  • Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous 5 days, or baloxavir within the previous 17 days. | • Guillain-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 egg allergy with symptoms 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 LAIV4 (which is egg based), administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist.  
  • 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](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](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-licensed-use-united-states](www.fda.gov/vaccines-blood-biologics/approved-products/vaccines-licensed-use-united-states).
### Recommended Adult Immunization Schedule, United States, 2022

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindications</th>
<th>Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Haemophilus influenzae type b (Hib)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1} including neomycin&lt;br&gt;• For Hibrix, ActHib, and PedvaxHIB only: History of severe allergic reaction to dry natural latex&lt;br&gt;• For Heplisav-B only: Pregnancy&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Hepatitis A (HepA)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1} including neomycin&lt;br&gt;• For HepA-Heplas B [Twinrix®]: Pregnancy&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Hepatitis B (HepB)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1} including neomycin and yeast&lt;br&gt;• For MenACWY-TT only: severe allergic reaction to a tetanus toxoid–containing vaccine&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Hepatitis A- Hepatitis B vaccine [HepA-Heplas B, [Twinrix®]]</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1} including neomycin and yeast&lt;br&gt;• Pregnancy&lt;br&gt;• Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Measles, mumps, rubella (MMR)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1} including neomycin and yeast&lt;br&gt;• Pregnancy&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Human papillomavirus (HPV)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product)&lt;br&gt;• Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Meningococcal ACWY (MenACWY)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1} including neomycin and yeast&lt;br&gt;• Pregnancy&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
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<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1} including neomycin and yeast&lt;br&gt;• Pregnancy&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
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<tr>
<td><strong>Meningococcal B (MenB)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1} including neomycin and yeast&lt;br&gt;• Pregnancy&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Pneumococcal conjugate (PCV15)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product)&lt;br&gt;• Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Pneumococcal conjugate (PCV20)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1} including neomycin and yeast&lt;br&gt;• Pregnancy&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Pneumococcal polysaccharide (PPSV23)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1} including neomycin and yeast&lt;br&gt;• Pregnancy&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Tetanus, diphtheria, and acellular pertussis (Td)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid–containing vaccine&lt;br&gt;• History of Arthus-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 tetanus toxoid—containing vaccine&lt;br&gt;• Moderate or severe acute illness with or without fever&lt;br&gt;• 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&lt;br&gt;• Use of aspirin or aspirin-containing products&lt;br&gt;• Current herpes zoster infection&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
</tr>
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<td><strong>Tetanus, diphtheria (Td)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
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</tr>
<tr>
<td><strong>Varicella (VAR)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid–containing vaccine&lt;br&gt;• History of Arthus-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 tetanus toxoid—containing vaccine&lt;br&gt;• Moderate or severe acute illness with or without fever&lt;br&gt;• 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&lt;br&gt;• Use of aspirin or aspirin-containing products&lt;br&gt;• Current herpes zoster infection&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Zoster recombinant vaccine (RZV)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine componentootnote{1}</td>
<td>• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product)&lt;br&gt;• Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination)&lt;br&gt;• Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent&lt;br&gt;• Use of aspirin or aspirin-containing products&lt;br&gt;• Current herpes zoster infection&lt;br&gt;• Moderate or severe acute illness with or without fever</td>
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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
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