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

**Questions or comments**

Contact [www.cdc.gov/cdc-info](http://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](http://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](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html)
- Vaccine information statements: [www.cdc.gov/vaccines/hcp/vis/index.html](http://www.cdc.gov/vaccines/hcp/vis/index.html)
- Travel vaccine recommendations: [www.cdc.gov/travel](http://www.cdc.gov/travel)
- Recommended Child and Adolescent Immunization Schedule, United States, 2022: [www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html](http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html)

* Download the CDC Vaccine Schedules app for providers at [www.cdc.gov/vaccines/schedules/hcp/schedule-app.html](http://www.cdc.gov/vaccines/schedules/hcp/schedule-app.html).
<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>
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<tbody>
<tr>
<td>Influenza inactivated (IIV4) or Influenza recombinant (RIV4)</td>
<td>1 dose annually</td>
<td>or</td>
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<tr>
<td>Influenza live, attenuated (LAIV4)</td>
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<tr>
<td>Tetanus, diphtheria, pertussis (Td or Tdap)</td>
<td>1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)</td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
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<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>1 or 2 doses depending on indication (if born in 1957 or later)</td>
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<td>Varicella (VAR)</td>
<td>2 doses (if born in 1980 or later)</td>
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<td>2 doses</td>
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<td>Zoster recombinant (RZV)</td>
<td>2 doses for immunocompromising conditions (see notes)</td>
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<td>2 doses</td>
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<tr>
<td>Human papillomavirus (HPV)</td>
<td>2 or 3 doses depending on age at initial vaccination or condition 27 through 45 years</td>
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<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td>1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)</td>
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<td>1 dose PCV15 followed by PPSV23 OR 1 dose PCV20</td>
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<td>Hepatitis A (HepA)</td>
<td>2 or 3 doses depending on vaccine</td>
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<td>Hepatitis B (HepB)</td>
<td>2, 3, or 4 doses depending on vaccine or condition</td>
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<td>Meningococcal A, C, W, Y (MenACWY)</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
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<tr>
<td>Meningococcal B (MenB)</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
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<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>1 or 3 doses depending on indication</td>
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</table>

- **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>
<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>
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<tbody>
<tr>
<td>IIV4 or RIV4</td>
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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.
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/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.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 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 (Twinrix 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)

**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)

**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 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)

**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/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.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 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 (Twinrix 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)

**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)

**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; health care and public safety 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

*Note: Anyone age 60 years or older who does not meet risk-based recommendations may still receive Hepatitis B vaccination.

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

### 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:** Pregnancy testing is not needed before vaccination; HPV vaccination is not recommended until after pregnancy; no intervention needed if inadvertently vaccinated while pregnant

### 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](http://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
- **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 percentages ≥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 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
  - **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

### 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

### Influenza vaccination
- **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

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

### Meningococcal vaccination
- **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

- **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).

**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.

**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, congenital or acquired asplenia, sickle cell disease, or other hemoglobinopathies.

- **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, congenital or acquired asplenia, sickle cell disease, or other hemoglobinopathies.

- **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).**

**Notes**

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

**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) and [www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm](http://www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.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

- **Notes:**

  - **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.

**Varicella vaccination**

- **Routine vaccination**
  - **Previously did not receive primary varicella vaccination series:**
    - 1 dose varicella-containing vaccine; 2-dose series 4–8 weeks apart if previously not received any varicella-containing vaccine, regardless of whether U.S.-born before 1980

- **Immunocompromising conditions:** VAR contraindicated.

**Zoster vaccination**

- **Routine vaccination**
  - **Age 50 years or older:** 2-dose series of Zostavax (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).

- **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).
# Recommended Adult Immunization Schedule, United States, 2022

*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>Contraindications</th>
<th>Precautions</th>
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</thead>
<tbody>
<tr>
<td>Influenza, egg-based, inactivated injectable (IIV4)</td>
<td>- 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)&lt;br&gt;- Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg)</td>
<td>- Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine&lt;br&gt;- 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.&lt;br&gt;- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Influenza, cell culture-based inactivated injectable ([ccIIV4], Flucelvax® Quadrivalent)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component of ccIIV4</td>
<td>- Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine&lt;br&gt;- 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.&lt;br&gt;- Moderate or severe acute illness with or without fever</td>
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<tr>
<td>Influenza, recombinant injectable ([RIV4], Flublok® Quadrivalent)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component of RIV4</td>
<td>- Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine&lt;br&gt;- 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.&lt;br&gt;- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Influenza, live attenuated [LAIV4, Flumist® Quadrivalent]</td>
<td>- 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)&lt;br&gt;- Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg)&lt;br&gt;- Adults age 50 years or older&lt;br&gt;- Anatomic or functional asplenia&lt;br&gt;- Immune compromised due to any cause including, but not limited to, medications and HIV infection&lt;br&gt;- Close contacts or caregivers of severely immunosuppressed persons who require a protected environment&lt;br&gt;- Pregnancy&lt;br&gt;- Cochlear implant&lt;br&gt;- Active communication between the cerebrospinal fluid (CSF) and the oropharynx, nasopharynx, nose, ear, or any other cranial CSF leak&lt;br&gt;- 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.</td>
<td>- Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine&lt;br&gt;- Asthma in persons aged 5 years old or older&lt;br&gt;- 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.&lt;br&gt;- 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))&lt;br&gt;- Moderate or severe acute illness with or without fever</td>
</tr>
</tbody>
</table>

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).
### Appended Tables

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

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindications</th>
<th>Precautions</th>
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</table>
| Haemophilus influenzae type b (Hib) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup>  
  - For Hibrix, ActHib, and PedvaxHIB only: History of severe allergic reaction to dry natural latex | - Moderate or severe acute illness with or without fever |
| Hepatitis A (HepA) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup> including neomycin | - Moderate or severe acute illness with or without fever |
| Hepatitis B (HepB) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup> including yeast  
  - For Heplisav-B only: Pregnancy | - Moderate or severe acute illness with or without fever |
| Hepatitis A- Hepatitis B vaccine (HepA-HepB, [Twintiv<sup>®</sup>]) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup> including neomycin and yeast | - Moderate or severe acute illness with or without fever |
| Human papillomavirus (HPV) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup>  
  - Pregnancy  
  - Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent | - Recent (<11 months) receipt of antibody-containing blood product (specific interval depends on product)  
  - History of 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 |
| Measles, mumps, rubella (MMR) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup>  
  - 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 | - Moderate or severe acute illness with or without fever |
| Meningococcal ACYW (MenACYW)  
  [MenACYW-CRM (Menveo<sup>®</sup>); MenACYW-D (Menactra<sup>®</sup>); MenACYW-TT (MenQuadri<sup>®</sup>)] | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup>  
  - For MenACYW-D and MenACYW-CRM only: severe allergic reaction to any diphtheria toxoid– or CRM197–containing vaccine  
  - For MenACYW-TT only: severe allergic reaction to a tetanus toxoid-containing vaccine | - Moderate or severe acute illness with or without fever |
| Meningococcal B (MenB)  
  [MenB-4C (Bexsero); MenB-FHb (Trumenba)] | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup>  
  - Pregnancy  
  - For MenB-4C only: Latex sensitivity  
  - Moderate or severe acute illness with or without fever | - Moderate or severe acute illness with or without fever |
| Pneumococcal conjugate (PCV15) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup>  
  - Severe allergic reaction (e.g., anaphylaxis) to any diphtheria-toxoid–containing vaccine or to its vaccine component<sup>1</sup> | - Moderate or severe acute illness with or without fever |
| Pneumococcal conjugate (PCV20) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup>  
  - Severe allergic reaction (e.g., anaphylaxis) to any diphtheria-toxoid–containing vaccine or to its vaccine component<sup>1</sup> | - Moderate or severe acute illness with or without fever |
| Pneumococcal polysaccharide (PPSV23) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup> | - Moderate or severe acute illness with or without fever |
| Tetanus, diphtheria, and acellular pertussis (Tdap)  
  Tetanus, diphtheria (Td) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup>  
  - 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 DTP, DTaP, or Tdap | - Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus-toxoid–containing vaccine  
  - 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  
  - Severe or moderate 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) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup>  
  - 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 | - Recent (<11 months) receipt of antibody-containing blood product (specific interval depends on product)  
  - Receipt of specific antiviral drugs (acyclovir, foscarnet, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination)  
  - Use of aspirin or aspirin-containing products  
  - Severe or moderate acute illness with or without fever |
| Zoster recombinant vaccine (RZV) | - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>1</sup> | - Moderate or severe acute illness with or without fever  
  - Current herpes zoster infection |

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-licensed-use-united-states.