Recommendations from the Combined Immunization Schedule WG for the 2023 Immunization Schedules for Children/Adolescents and Adults

Sybil Cineas, MD, FAAP, FACP (ACIP Combined Immunization WG Chair)
A. Patricia Wodi, MD (CDC Co-Lead)
Neil Murthy, MD, MPH, MSJ (CDC Co-Lead)

ACIP Meeting
October 20, 2022
The Combined Immunization Schedule WG updates the child/adolescent and adult immunization schedules annually.

- Child/adolescent immunization schedule: recommendations for persons 18 years of age or younger
- Adult immunization schedule: recommendations for persons 19 years of age or older

The goal of the Combined Immunization Schedule WG is to better harmonize the child/adolescent and adult schedules.

New policies are not established in the proposed schedules.

- Annual schedules reflect recommendations already approved by ACIP
Combined Immunization Schedule Work Group 2022

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Veronica McNally

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Thank You

Kevin Ault, MD, FACOG, FIDSA

ACIP Term: 10/26/2018 - 9/26/2022

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Acknowledgements

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  - Tami Skoff
  - Tatiana Lanzieri
**Reason Topic is Being Presented to ACIP**

- ACIP approval of the proposed schedules is necessary prior to publication in Morbidity and Mortality Weekly Report in February 2023.

<table>
<thead>
<tr>
<th>Child/Adolescent Schedule</th>
<th>Both Schedules</th>
<th>Adult Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>• American Academy of Pediatrics (AAP)</td>
<td>• American Academy of Family Physicians (AAFP)</td>
<td>• American College of Physicians (ACP)</td>
</tr>
<tr>
<td>• National Association of Pediatric Nurse Practitioners (NAPNAP)</td>
<td>• American Academy of Physician Associates (AAPA)</td>
<td>• Society for Healthcare Epidemiology of America (SHEA)</td>
</tr>
<tr>
<td></td>
<td>• American College of Obstetricians and Gynecologists (ACOG)</td>
<td>• American Pharmacists Association (APhA)</td>
</tr>
<tr>
<td></td>
<td>• American College of Nurse-Midwives (ACNM)</td>
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</tbody>
</table>
Disclaimer

- The use of vaccine trade names is for identification purposes only and does not imply endorsement by the Centers for Disease Control and Prevention.

- The 2023 schedules presented in the following slides are drafts and are therefore subject to change based on ACIP’s discussion and vote.
Outline

- Harmonization between the child/adolescent and adult schedules
- Edits to all tables
- Content changes of the notes
- Content changes to the appendix listing contraindications and precautions
- Discussion and Vote
Proposed Updates to the 2023 Child/Adolescent Immunization Schedule

Changes to Tables
- Cover Page
- Table 1
- Table 2
- Table 3

Changes to Vaccination Notes
- COVID-19
- Dengue
- Hepatitis B
- Influenza
- Measles, Mumps and Rubella
- Meningococcal A,C,W,,Y
- Meningococcal B
- Pneumococcal
- Polio

Changes to Appendix
- Column Header
- Influenza
- Hepatitis B
- Human Papillomavirus
- Measles, Mumps, Rubella
- Varicella
### Vaccines in the Child and Adolescent Immunization Schedule*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td>1) CV-19 mRNA</td>
<td>Comirnaty™/Pfizer-BioNTech COVID-19 Vaccine</td>
</tr>
<tr>
<td></td>
<td>2) CV-19 mRNA</td>
<td>SpikeVax™/Moderna COVID-19 Vaccine</td>
</tr>
<tr>
<td></td>
<td>3) CV-19 mRNA</td>
<td>Pfizer-BioNTech COVID-19 Vaccine, Bivalent</td>
</tr>
<tr>
<td></td>
<td>4) CV-19 mRNA</td>
<td>Moderna COVID-19 Vaccine, Bivalent</td>
</tr>
<tr>
<td></td>
<td>5) CV-19 mRNA</td>
<td>Novavax COVID-19 Vaccine</td>
</tr>
<tr>
<td>Whooping cough vaccine</td>
<td>WHOOP</td>
<td></td>
</tr>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis vaccine</td>
<td>DTAp</td>
<td>Diphacel™ or Infanrix™</td>
</tr>
<tr>
<td>Diphtheria, tetanus vaccine</td>
<td>DT</td>
<td>No trade name</td>
</tr>
<tr>
<td>Haemophilus influenza type b vaccine</td>
<td>Hib</td>
<td>Act Hib™ or Afribac®</td>
</tr>
<tr>
<td>Bacillus Calmette-Guerin vaccine</td>
<td>BCG</td>
<td>No trade name</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HAV-A</td>
<td>Havrix® or Vaqta®</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Entercapir® or Recombivax HB®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil® or Cervarix®</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>IIV4, IIV3</td>
<td>Flucelar®, Flumist®, Fluenzyme Q®</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIVX</td>
<td>FluMist Quadrivalent</td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>MMR II, MMR ProFlex®</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenA/CW, MenB/CW, MenC/Y</td>
<td>Menactra® or Menveo®</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C, MenB-PRP</td>
<td>Bexsero®</td>
</tr>
<tr>
<td>Pneumococcal conjugate vaccine</td>
<td>PCV13, PCV15</td>
<td>Premier 13® or Quadravax™</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide vaccine</td>
<td>PPV23</td>
<td>Pneumovax 23®</td>
</tr>
<tr>
<td>Poliovirus vaccine (inactivated)</td>
<td>IPV</td>
<td>IPV®</td>
</tr>
<tr>
<td>Poliomyelitis vaccine</td>
<td>Rotavirus vaccine</td>
<td>Rotarix® or Rotavac®</td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel® orBoostrix®</td>
</tr>
<tr>
<td>Tetanus and diphtheria vaccine</td>
<td>Td</td>
<td>Tdimer® or Tdilene®</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax® or Variovar®</td>
</tr>
</tbody>
</table>

### How to use the child and adolescent immunization schedule

1. **Determine recommended vaccine by age** (Table 1)
2. **Determine recommended interval for catch-up vaccination** (Table 3)
3. **Assess need for additional recommended vaccines by medical condition or other indication** (Table 3)
4. **Review vaccine types, frequencies, intervals, and considerations for special situations** (Notes)
5. **Review contraindications and precautions for vaccine types** (Appendix)

**Report**
- Suspected cases of reportable vaccine-preventable diseases or outbreaks to your state or local health department.
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov or 800-822-7967

**Questions or comments**
Contact www.cdc.gov/vaccines 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/vis-statements.html

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*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 Academy of Pediatrics (www.aap.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), American College of Nurse-Midwives (www.midwif.org), American Academy of Physician Assistants (www.aapa.org), and National Association of Pediatric Nurse Practitioners (www.napnnp.org).*
# Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger

**2023**

## Vaccines in the Child and Adolescent Immunization Schedule*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td>tSARS-CoV-2mRNA</td>
<td>Comirnaty®/Moderna® COVID-19 Vaccine, SpikeVax®/Moderna® COVID-19 Vaccine</td>
</tr>
<tr>
<td></td>
<td>2zSARS-CoV-2mRNA</td>
<td>Pfizer-BioNTech COVID-19 Vaccine, BNT162b2/Moderna COVID-19 Vaccine, BNT162b2/Moderna COVID-19 Vaccine</td>
</tr>
<tr>
<td></td>
<td>tSARS-CoV-2mRNA</td>
<td>Novavax® COVID-19 Vaccine</td>
</tr>
</tbody>
</table>

### Disease-causing pathogens

- Diphtheria, tetanus, and acellular pertussis vaccine: DTaP
- Diphtheria, tetanus vaccine: DT
- Haemophilus influenzae type b vaccine: HiB
- Hepatitis A vaccine: HepA
- Hepatitis B vaccine: HepB
- Human papillomavirus vaccine: HPV
- Influenza vaccine (inactivated): Flucelvax® Quadrivalent
- Measles, mumps, and rubella vaccine: MMR
- Meningococcal serogroups A, C, W, Y vaccine: MenACYW-D, MenACWY-CRM197, MenACWY-TT
- Meningococcal serogroup B vaccine: MenB-4C
- Pneumococcal conjugate vaccine: PCV13
- Pneumococcal polysaccharide vaccine: PPSV23
- Poliovirus vaccine (inactivated): IPV
- Rotavirus vaccine: RotaTeq®
- Tetanus, diphtheria, and acellular pertussis vaccine: TDaP
- Tetanus and diphtheria vaccine: Td
- Varicella vaccine: Varivax®

### Contraindications vaccine dose combination vaccines instead of separate vaccines

- DTaP: Hepatitis A and inactivated poliovirus vaccine
- DTaP: Inactivated poliovirus, and Haemophilus influenzae type b vaccine
- DTaP: Inactivated poliovirus, Haemophilus influenzae type b, and Hepatitis B vaccine
- Measles, mumps, rubella, and varicella vaccine

*Advisories recommended vaccines if immunization history is incomplete or unknown. Do not stop or add doses to vaccine series for extended intervals between doses. When a vaccine is not administered at the recommended age, administer at a subsequent visit. The use of trade names is for identification purposes only and does not imply endorsement by the ACP or CDC.
# Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger

## Vaccines in the Child and Adolescent Immunization Schedule*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td>1vCOVID-mRNA</td>
<td>Comirnaty™/Pfizer-BioNTech COVID-19 Vaccine</td>
</tr>
<tr>
<td></td>
<td>2vCOVID-mRNA</td>
<td>Pfizer-BioNTech COVID-19 Vaccine, Moderna COVID-19 Vaccine</td>
</tr>
<tr>
<td></td>
<td>1vCOVID-αS</td>
<td>Moderna COVID-19 Vaccine, AlphaSgree®</td>
</tr>
<tr>
<td>Dengue vaccine</td>
<td>DENMohD</td>
<td>Dengvaxia*</td>
</tr>
<tr>
<td>Diphteria, tetanus, and acellular pertussis vaccine</td>
<td>DTaP</td>
<td>Diphyl*</td>
</tr>
<tr>
<td>Diphtheria, tetanus vaccine</td>
<td>DT</td>
<td>Diphyl*</td>
</tr>
<tr>
<td>Haemophilus influenzae type b vaccine</td>
<td>Hb (PRP-T)</td>
<td>Acip®</td>
</tr>
<tr>
<td></td>
<td>Hb (PRP-OMP)</td>
<td>PediaSure®</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Havrix®</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix B®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil®</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>IV4</td>
<td>Multiple</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>Menomune®</td>
</tr>
<tr>
<td></td>
<td>MenACWY-IT</td>
<td>MeneQuen*</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td>Berlex®</td>
</tr>
<tr>
<td></td>
<td>MenB-4F</td>
<td>Berlex®</td>
</tr>
<tr>
<td>Pneumococcal conjugate vaccine</td>
<td>PCV13</td>
<td>Prevenar 13®</td>
</tr>
<tr>
<td></td>
<td>PCV15</td>
<td>Prevenar 15®</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide vaccine</td>
<td>PPV23</td>
<td>Pneumovax 23®</td>
</tr>
<tr>
<td>Poliomyelitis vaccine (inactivated)</td>
<td>IPV</td>
<td>PSL*</td>
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<tr>
<td>Rotavirus vaccine</td>
<td>RV1</td>
<td>Rotarix®</td>
</tr>
<tr>
<td></td>
<td>RV5</td>
<td>Rotarix®</td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel®</td>
</tr>
<tr>
<td>Tetanus and diphtheria vaccine</td>
<td>Td</td>
<td>Tdaco®</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>var</td>
<td>Zostavax®</td>
</tr>
<tr>
<td>Combination vaccines (one combination vaccine instead of separate injections when appropriate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTaP, hepatitis B, and inactivated poliovirus vaccine</td>
<td>DTaP-HepB-IPV</td>
<td>Pediarix®</td>
</tr>
<tr>
<td>DTaP, inactivated poliovirus, and Haemophilus influenzae type b vaccine</td>
<td>DTaP-IPV/Hib</td>
<td>Pentacel®</td>
</tr>
<tr>
<td>DTaP and inactivated poliovirus vaccine</td>
<td>DTaP-IPV</td>
<td>Kinrix®</td>
</tr>
<tr>
<td>DTaP, inactivated poliovirus, Haemophilus influenzae type b, and hepatitis B vaccine</td>
<td>DTaP-IPV-Hib-HepB</td>
<td>Quadracel®</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY</td>
<td>MeneQuen*</td>
</tr>
<tr>
<td></td>
<td>MenB-4F</td>
<td>Berlex®</td>
</tr>
</tbody>
</table>

*Advisable recommended vaccines if immunization history is incomplete or unknown. Do not repeat or add doses to vaccine series for extended interval between doses. When a vaccine is not administered at the recommended age, administer at a subsequent visit. The use of trade names is for identification purposes only and does not imply endorsement by the AIP or CDC.

## How to use the child and adolescent immunization schedule

1. Determine recommended vaccine by age (Table 1)
2. Determine recommended interval for catch-up vaccination (Table 2)
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Questions or comments
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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)

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Helpful information
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- 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/visindex.html](http://www.cdc.gov/vaccines/hcp/vis/visindex.html)

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U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
## Table 1

**Routine Immunization Schedule**
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Birth</th>
<th>1 mo</th>
<th>2 mos</th>
<th>4 mos</th>
<th>6 mos</th>
<th>9 mos</th>
<th>12 mos</th>
<th>15 mos</th>
<th>18 mos</th>
<th>19-23 mos</th>
<th>2-3 yrs</th>
<th>4-6 yrs</th>
<th>7-10 yrs</th>
<th>11-12 yrs</th>
<th>13-16 yrs</th>
<th>16 yrs</th>
<th>17-18 yrs</th>
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</thead>
<tbody>
<tr>
<td>MMR</td>
<td>1 dose</td>
<td>2 dose</td>
<td>3 dose</td>
<td>4 dose</td>
<td>5 dose</td>
<td>2 dose</td>
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<td>4 dose</td>
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</tr>
<tr>
<td>RotaV</td>
<td>1 dose</td>
<td>2 dose</td>
<td>3 dose</td>
<td>4 dose</td>
<td>5 dose</td>
<td>2 dose</td>
<td>3 dose</td>
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<td>4 dose</td>
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</tr>
<tr>
<td>Diphteria, tetanus, acellular pertussis (DTaP&lt;7 yrs)</td>
<td>1 dose</td>
<td>2 dose</td>
<td>3 dose</td>
<td>4 dose</td>
<td>5 dose</td>
<td>2 dose</td>
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<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>1 dose</td>
<td>2 dose</td>
<td>3 dose</td>
<td>4 dose</td>
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<tr>
<td>Pneumococcal conjugate (PCV13, PCV15)</td>
<td>1 dose</td>
<td>2 dose</td>
<td>3 dose</td>
<td>4 dose</td>
<td>5 dose</td>
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<tr>
<td>Influenza A H1n1pdm09</td>
<td>1 dose</td>
<td>2 dose</td>
<td>3 dose</td>
<td>4 dose</td>
<td>5 dose</td>
<td>2 dose</td>
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<td>4 dose</td>
<td>4 dose</td>
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<tr>
<td></td>
<td>2 or 3-dose primary series and booster (See Notes)</td>
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<tr>
<td>Influenza (IV4)</td>
<td>Annual vaccination 1 or 2 doses</td>
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<td>Diphtheria (Diphtheria) 9-16 yrs</td>
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<td>2 or 3-dose primary series and booster (See Notes)</td>
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- Range of recommended ages for all children
- Range of recommended ages for catch-up vaccination
- Range of recommended ages for certain high-risk groups
- Recommended vaccination can begin in this age group
- Recommended vaccination based on shared clinical decision making
- No recommendation/not applicable

Table 1: Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023.

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars.

To determine minimum intervals between doses, see the catch-up schedule (Table 3).
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Birth</th>
<th>1 mo</th>
<th>2 mos</th>
<th>4 mos</th>
<th>6 mos</th>
<th>9 mos</th>
<th>12 mos</th>
<th>15 mos</th>
<th>18 mos</th>
<th>10-12 mos</th>
<th>2-3 yrs</th>
<th>4-6 yrs</th>
<th>7-10 yrs</th>
<th>11-12 yrs</th>
<th>13-15 yrs</th>
<th>16 yrs</th>
<th>17-18 yrs</th>
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<tbody>
<tr>
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<tr>
<td>Rotavirus (RV1/RV2)</td>
<td>1st dose</td>
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<td>Pertussis, tetanus, acellular pertussis (DTaP)</td>
<td>1st dose</td>
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<tr>
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<tr>
<td>Pneumococcal conjugate PCV13/PFS123</td>
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<tr>
<td>Inactivated poliovirus (IPV) 1-18 yrs</td>
<td>1st dose</td>
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<td>COVID-19 (1stdCMV, mRNA, 2ndCMV, mRNA, 3rdCMW)</td>
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<td>Measles, mumps, rubella (MMR)</td>
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<td>Hepatitis A (HepA)</td>
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<td>Tetanus, diptheria, acellular pertussis (Tdap)</td>
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<td>Pneumococcal polysaccharide (PPSV23)</td>
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<tr>
<td>Diphtheria (Diphtheria) 9-16 yrs</td>
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</table>

**Table 1: Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023**

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars.

To determine minimum intervals between doses, see the catch-up schedule (Table 2).
**Table 1**
Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Birth</th>
<th>1 mes</th>
<th>2 mes</th>
<th>4 mes</th>
<th>6 mes</th>
<th>8 mes</th>
<th>12 mes</th>
<th>15 mes</th>
<th>18 mes</th>
<th>18-23 mes</th>
<th>2-3 yr</th>
<th>4-6 yr</th>
<th>7-10 yr</th>
<th>11-13 yr</th>
<th>12-15 yr</th>
<th>16 yr</th>
<th>17-18 yr</th>
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<tbody>
<tr>
<td>Hepatitis B (HepB)</td>
<td>1st dose</td>
<td>2nd dose</td>
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<tr>
<td>Rotavirus (RV) (2-dose series)</td>
<td>1st dose</td>
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<tr>
<td>Diphtheria, tetanus, acellular pertussis (DTaP)</td>
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<td>Haemophilus influenza type b (Hib)</td>
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<td>Inactivated poliovirus (IPV &lt; 18 yr)</td>
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<td>COVID-19 (1xCOVID-mRNA, 3xCOVID-mRNA, 1xCOVID-DNA)</td>
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<td>Influenza (IV4)</td>
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<td>Measles, mumps, rubella (MMR)</td>
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<td>Varicella (VAR)</td>
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<td>Hepatitis A (HepA)</td>
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<td>Human papillomavirus (HPV)</td>
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<tr>
<td>Meningococcal (MenACWY)</td>
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<tr>
<td>Measles-containing (MenACW/D, MenACW/GM)</td>
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<tr>
<td>Pneumococcal polysaccharides (PPV23)</td>
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<tr>
<td>Diphtheria (DIP4ACD; 9-16 yr)</td>
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</tbody>
</table>

Note: These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2).
Table 2

Catch-up Immunization Schedule
Table 2
Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 Month Behind, United States, 2023

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child’s age. Always use this table in conjunction with Table 1 and the Notes that follow.

### Children age 4 months through 18 years

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Dose 1 to Dose 2</th>
<th>Dose 2 to Dose 3</th>
<th>Minimum Interval Between Doses</th>
<th>Dose 3 to Dose 4</th>
<th>Dose 4 to Dose 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>6 weeks</td>
<td>6 weeks and at least 10 weeks after first dose</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine</td>
<td>6 weeks</td>
<td>6 weeks and at least 10 weeks after first dose</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pertussis, influenza type b</td>
<td>6 weeks</td>
<td>6 weeks and at least 10 weeks after first dose</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenza type b</td>
<td>6 weeks</td>
<td>6 weeks and at least 10 weeks after first dose</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal conjugate</td>
<td>6 weeks</td>
<td>6 weeks and at least 10 weeks after first dose</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal A/CWY</td>
<td>6 weeks</td>
<td>6 weeks and at least 10 weeks after first dose</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal ACYW</td>
<td>6 weeks</td>
<td>6 weeks and at least 10 weeks after first dose</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus A</td>
<td>N/A</td>
<td>6 weeks and at least 16 weeks after first dose</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus C</td>
<td>N/A</td>
<td>6 weeks and at least 16 weeks after first dose</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus Y</td>
<td>N/A</td>
<td>6 weeks and at least 16 weeks after first dose</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
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</tr>
</tbody>
</table>

### Children and adolescents age 7 through 18 years

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Dose 1 to Dose 2</th>
<th>Dose 2 to Dose 3</th>
<th>Minimum Interval Between Doses</th>
<th>Dose 3 to Dose 4</th>
<th>Dose 4 to Dose 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meningococcal A/CWY</td>
<td>7 years</td>
<td>6 weeks and at least 10 weeks after first dose</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
<td></td>
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</tr>
<tr>
<td>Meningococcal A/CYW</td>
<td>7 years</td>
<td>6 weeks and at least 10 weeks after first dose</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus</td>
<td>9 years</td>
<td>Routine dosing intervals are recommended</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus A</td>
<td>N/A</td>
<td>6 months and at least 16 weeks after first dose</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus C</td>
<td>N/A</td>
<td>6 months and at least 16 weeks after first dose</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus Y</td>
<td>N/A</td>
<td>6 months and at least 16 weeks after first dose</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella</td>
<td>N/A</td>
<td>6 weeks and at least 16 weeks after first dose</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
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</tr>
<tr>
<td>Varicella</td>
<td>N/A</td>
<td>6 weeks and at least 16 weeks after first dose</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
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<tr>
<td>Dengue</td>
<td>9 years</td>
<td>6 months</td>
<td>6 months</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
<td>6 months or when all doses are completed</td>
</tr>
</tbody>
</table>
Table 3

Immunization by Medical Indication
## Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2023

Always use this table in conjunction with Table 1 and the Notes that follow.

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>Pregnancy</th>
<th>HIV infection/AIDS*</th>
<th>HIV infection/AIDS*</th>
<th>Kidney failure, end-stage renal disease, or on hemodialysis</th>
<th>Heart disease or chronic lung disease</th>
<th>C/S leak or cochlear implant</th>
<th>Aplastic or persistent complement component deficiencies</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td></td>
<td>*</td>
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<tr>
<td>Rotavirus</td>
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<td><strong>SCID</strong></td>
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<tr>
<td>Diphtheria, tetanus, and acellular pertussis (DTaP)</td>
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<tr>
<td>Hemophilus influenza type b</td>
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<tr>
<td>Pneumococcal conjugate</td>
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<tr>
<td>Inactivated poliovirus</td>
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### COVID-19

- **See Notes**
- **See Notes**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>HIV infection/AIDS*</th>
<th>HIV infection/AIDS*</th>
<th>Kidney failure, end-stage renal disease, or on hemodialysis</th>
<th>Heart disease or chronic lung disease</th>
<th>C/S leak or cochlear implant</th>
<th>Aplastic or persistent complement component deficiencies</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
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</thead>
<tbody>
<tr>
<td>Influenza A/B/B4</td>
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<tr>
<td>Influenza (LAN)</td>
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<tr>
<td>Mumps, mumps, rubella</td>
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<tr>
<td>Varicella</td>
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<tr>
<td>Hepatitis A</td>
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<tr>
<td>Tetanus, diphtheria, and acellular pertussis (Tdap)</td>
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<tr>
<td>Human papillomavirus B</td>
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<tr>
<td>Varicella strengthen</td>
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<tr>
<td>Meningococcal ACWY</td>
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<tr>
<td>Meningococcal B</td>
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<tr>
<td>Pneumococcal polysaccharide</td>
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<tr>
<td>Dengue</td>
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</table>

- **Vaccination according to the routine schedule recommended**
- **Recommended for persons with an additional risk factor for which the vaccine would be indicated**
- **Vaccination is recommended, and additional doses may be necessary based on medical condition or vaccine. See Notes.**
- **Precaution—vaccine might be indicated if benefit of protection outweighs risk of adverse reaction.**
- **Contraindicated or not recommended—vaccine should not be administered.**
- **No recommendation/not applicable**

---

a. For additional information regarding HIV laboratory parameters and use of the vaccines, see the General Adult Guidelines for Immunization, “HIV and Immune Competence,” available at www.cdc.gov/vaccines/hcp/сет/working-group-reports-general-immune-comp.html and Table 4-1 [footnote J] at www.cdc.gov/vaccines/hcp/сет/working-group-reports-general-immune-comp.html.

b. Severe Combined Immunodeficiency

c. LANP contraindicated for children 2-4 years of age with asthma or wheezing during the preceding 12 months.
Notes
The National Vaccine Injury Compensation Program (VICP) is a no-fault alternative to the traditional legal system for resolving vaccine injury claims. All vaccines included in the child and adolescent vaccines are covered by VICP except for PPSV23 and COVID-19 vaccines. COVID-19 vaccines that are authorized or approved by the FDA are covered by the Countermeasures Injury Compensation Program (CICP). For more information, see www.hrsa.gov/vaccinecompensation/index.html or https://www.hrsa.gov/cicp.
**COVID-19 vaccination**

**Minimum age:** 6 months 
**Vaccines:** Moderna and Pfizer-BioNTech COVID-19 vaccines, 12 years (Novavax COVID-19 Vaccine)

**Routine vaccination**
- **Primary series:**
  - Age 6 months—4 years: 2-dose series at 0, 4—8 weeks (Moderna) or 3-dose series at 0, 3—11 weeks (Pfizer-BioNTech)
  - Age 5—11 years: 2-dose series at 0, 4—8 weeks (Moderna) or 2-dose series at 0, 3—8 weeks (Pfizer-BioNTech)
  - Age 12—17 years: 2-dose series at 0, 4—8 weeks (Moderna) or 2-dose series at 0, 3—8 weeks (Novavax, Pfizer-BioNTech)

**For booster dose recommendations see [www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html)**

**Special situations**

**Persons who are moderately or severely immunocompromised**
- **Primary series:**
  - Age 6 months—4 years: 3-dose series at 0, 4, 8 weeks (Moderna) or 3-dose series at 0, 3, 11 weeks (Pfizer-BioNTech)
  - Age 5—11 years: 3-dose series at 0, 4, 8 weeks (Moderna) or 3-dose series at 0, 3, 7 weeks (Pfizer-BioNTech)
  - Age 12—18 years: 2-dose series at 0, 3 weeks (Moderna) or 2-dose series at 0, 3 weeks (Novavax, Pfizer-BioNTech)
- **Booster dose:** see [www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html)
- **Pre-exposure prophylaxis may be considered to complement COVID-19 vaccination:** see [www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html)

**Dengue vaccination**

**Minimum age:** 9 years

**Routine vaccination**
- Age 9—16 years living in areas with endemic dengue
- Age 6—16 years who have laboratory confirmation of previous dengue infection
- Age 2—16 years admitted to a hospital with dengue fever

**For updated guidance on dengue vaccine use in newborns and until 2 years of age see [www.cdc.gov/dengue/vaccine-high-risk-infants.html](http://www.cdc.gov/dengue/vaccine-high-risk-infants.html)**

**Diphtheria, tetanus, and pertussis (DTPa) vaccination**

**Minimum age:** 6 weeks (4 doses for pentavalent or Pentacito®)

**Routine vaccination**
- 5-dose series at age 2, 4, 6, 15—18 months, and 4—6 years
- **Prophylactically:** Dose 5 may be administered as early as age 12 months if at least 6 months have elapsed since dose 4.
- **Retrospectively:** A 4th dose that was inadvertently administered as early as age 12 months may be counted if at least 4 months have elapsed since dose 3.

**Catch-up vaccination**
- Dose 5 is not necessary if dose 4 was administered at age 4 years or older and at least 6 months after dose 3.
- **For other catch-up guidance, see Table 2.**

**Special situations**

**Wound management in children less than age 7 years with history of 3 or more doses of tetanus toxoid-containing vaccine for all wounds except clean and minor wounds:**
- Administer DTPa if more than 5 years since last dose of tetanus toxoid-containing vaccine. For detailed information, see [www.cdc.gov/mmwr/preview/mmwrhtml/mm6710a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6710a1.htm).
Routine vaccination

• Primary series:
  - Age 6 months–4 years: 2-dose series at 0, 4–8 weeks (Moderna) or 3-dose series at 0, 3–8, 11–16 weeks (Pfizer-BioNTech)
  - Age 5–11 years: 2-dose series at 0, 4–8 weeks (Moderna) or 2-dose series at 0, 3–8 weeks (Pfizer-BioNTech)
  - Age 12–18 years: 2-dose series at 0, 4–8 weeks (Moderna) or 2-dose series at 0, 3–8 weeks (Novavax, Pfizer-BioNTech)

• For booster dose recommendations see www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html

Special situations

- Wound management in children less than age 7 years with history of 3 or more doses of tetanus-toxoid-containing vaccine. For all wounds, except dental and minor wounds, administer DT if more than 5 years since last dose of tetanus-toxoid-containing vaccine. For detailed information, see www.cdc.gov/hhm/volumes/67/mm67022a.htm.
Special situations

Persons who are moderately or severely immunocompromised

- **Primary series**
  - Age 6 months–4 years: 3-dose series at 0, 4, 8 weeks (Moderna) or 3-dose series at 0, 3, 11 weeks (Pfizer-BioNTech)
  - Age 5–11 years: 3-dose series at 0, 4, 8 weeks (Moderna) or 3-dose series at 0, 3, 7 weeks (Pfizer-BioNTech)
  - Age 12–18 years: 3-dose series at 0, 4, 8 weeks (Moderna) or 2-dose series at 0, 3 weeks (Novavax) or 3-dose series at 0, 3, 7 weeks (Pfizer-BioNTech)

- **Booster dose:** see www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html

- **Pre-exposure prophylaxis** may be considered to complement COVID-19 vaccination. See www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html
For vaccination recommendations for persons ages 19 years or older, see the Recommended Adult Immunization Schedule, 2023.

**Additional information**

- Consult relevant ACIP statements for detailed recommendations at www.cdc.gov/vaccines/hcp/acip-recs/index.html.
- For calculating intervals between doses, 3 weeks = 21 days, 4 weeks = 28 days, and intervals of >4 months are determined by calendar months.
- Within a number range (e.g., 12–18), a dash (-) should be used to indicate "through".
- Vaccine doses administered ≥4 days before the minimum age or interval are considered valid. Doses of any vaccine administered ≥5 days earlier than the minimum age or minimum interval should not be counted as valid and should be repeated as age appropriate. The repeat dose should be spaced after the invalid dose by the recommended minimum interval. For further details, see Table 3-1. Recommended and minimum ages and intervals between vaccine doses, in General Best Practice Guidelines for Immunization at www.cdc.gov/vaccines/hcp/guidance/general-recommendations.html.
- Information on travel vaccination requirements and recommendations is available at www.cdc.gov/travel/.
- The National Vaccine Injury Compensation Program (VICP) is a no-fault alternative to the traditional legal system for resolving vaccine injury claims. All routine childhood and adolescent vaccines are covered by VICP except for pneumococcal polysaccharide vaccine (PPSV23).
- For more information, see www.immunization.today/vaccine-compensation/index.html.

---


Routine vaccination

- Add bullet: Dengue vaccine should not be administered to children traveling to or visiting endemic dengue areas.
**Routine vaccination**

**Mother is HBsAg-positive**

- **Birth dose (monovalent HepB vaccine only):** administer HepB vaccine and hepatitis B immune globulin (HBIG) (in separate limbs) within 12 hours of birth, regardless of birth weight.

- **Birth weight <2000 grams:** administer 3 additional doses of HepB vaccine beginning at age 1 month (total of 4 doses)

- **Final (3rd or 4th) dose:** administer at age 6 months (minimum age 24 weeks)

- Test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months. Do not test before age 9 months.
**Hepatitis B vaccination**

**Routine vaccination**

**Mother is HBsAg-unknown**

If other evidence suggestive of maternal hepatitis B infection exists (e.g., presence of HBV DNA, HBeAg-positive, or mother known to have chronic hepatitis B infection), manage infant as if mother is HBsAg-positive:

- **Birth dose (monovalent HepB vaccine only):**
  - Birth weight ≥2,000 grams: administer HepB vaccine within 12 hours of birth. Determine mother’s HBsAg status as soon as possible. If mother is determined to be HBsAg-positive, administer HBIG as soon as possible (in separate limbs), but no later than 7 days of age.
  - Birth weight <2,000 grams: administer HepB vaccine and HBIG (in separate limbs) within 12 hours of birth. Administer 3 additional doses of HepB vaccine beginning at age 1 month (total of 4 doses).
- **Final (3rd or 4th) dose:** administer at age 6 months (minimum age 24 weeks)

If mother is determined to be HBsAg-positive or if status remains unknown, test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months after final dose. Do not test before age 9 months.
Catch-up vaccination

Added bullet:

- Adolescents aged 18 years or older may receive:
  - **Heplisav-B®**: 2-dose series at least 4 weeks apart
  - **PreHevbrio®**: 3-dose series at 0, 1, and 6 months
  - Combined HepA and HepB vaccine, **Twinrix®**: 3-dose series (0, 1, and 6 months) or 4-dose series (3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months).
Special situations
Revised bullet:

- **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 IV4 or LAIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions.
Special situations

Added bullet:

Close contacts (e.g., caregivers, healthcare personnel) 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.
Special situations

- International travel
  - Infants age 6-11 months: 1 dose before departure; revaccinate with 2-dose series at age 12-15 months (12 months for children in high-risk areas) and dose 2 as early as 4 weeks later.
  - Unvaccinated children age 12 months or older: 2-dose series at least 4 weeks apart before departure.

- In mumps outbreak settings, for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6701a7.htm

MMR vaccination

In mumps outbreak settings, for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6701a7.htm
Added a sentence:

* Menveo has two formulations: One-vial (all liquid) and Two-vial (lyophilized and liquid). Menveo one-vial formulation should **NOT** be used before age 10 years.
Special situations

Revised bullet:
Anatomic or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:

- **Bexsero®**: 2-dose series at least 1 month apart
- **Trumenba®**: 3-dose series 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)
Routine, Catch-up, and Special situations

- Added PCV15
- Replaced PCV13 with PCV
- Added note: PCV13 and PCV15 can be used interchangeably for children who are healthy or have underlying conditions. No additional PCV15 is indicated for children who have received 4 doses of PCV13 or another age appropriate complete PCV13 series.
- Deleted bullet: Chronic liver disease, alcoholism
• Adolescents aged 18 years 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
Appendix

Contraindications and Precautions
Appendix

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023

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/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
# Appendix

## Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindicated or Not Recommended</th>
<th>Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dengue (DENACYD)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>• Pregnancy</td>
</tr>
<tr>
<td></td>
<td>• 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)</td>
<td>• HIV infection with evidence of severe immunosuppression</td>
</tr>
<tr>
<td></td>
<td>• Lack of laboratory confirmation of a previous Dengue infection</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Diphtheria, tetanus, pertussis (DTaP)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>• Guillain-Baré syndrome (GBS) within 6 weeks after previous dose of tetanus toxoid-containing vaccine</td>
</tr>
<tr>
<td><strong>Tetanus, diphthera (DT)</strong></td>
<td>• For DTaP 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 or DTaP</td>
<td>• History of Arthus-type hypersensitivity reactions after a previous dose of diptheria-toxoid—containing or tetanus-toxoid—containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid—containing vaccine</td>
</tr>
<tr>
<td></td>
<td>• For DTaP only: Progressive neurologic disorders, including infanteile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status clarified and stabilized</td>
<td>• For DTaP only: Personal or family (i.e., sibling or parent) history of seizures of any etiology</td>
</tr>
<tr>
<td><strong>Hemophilius influenzae type b (HiB)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• For Hib, ActHib, and Pedvax-Hib only: History of severe allergic reaction to dry natural latex</td>
<td>• Less than age 6 weeks</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?</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Including neomycin</td>
<td>• Use other hepatitis B vaccines if indicated.</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?</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Including neomycin and yeast</td>
<td>• For Hib, ActHib, and Pedvax-Hib only: History of severe allergic reaction to dry natural latex</td>
</tr>
<tr>
<td><strong>Hepatitis A-Hepatitis B vaccine [HepA-HepB: Twinrix™]</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Including neomycin and yeast</td>
<td>• Use other hepatitis B vaccines if indicated.</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?</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Pregnancy: HPV vaccination not recommended.</td>
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</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?</td>
<td>• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
</tr>
<tr>
<td></td>
<td>• Including neomycin and yeast</td>
<td>• History of thrombocytopenia or thrombocytopenic purpura</td>
</tr>
<tr>
<td><strong>Mumps, mumps, rubella, and varicella (MMRV)</strong></td>
<td>• 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)</td>
<td>• Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing</td>
</tr>
<tr>
<td></td>
<td>• Pregnancy</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent</td>
<td>• For MMRV only: Personal or family (i.e., sibling or parent) history of seizures of any etiology</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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4. For information on the pregnancy exposure registries for persons who were inadvertently vaccinated with HepB-HV or PreHevB while pregnant, please visit heplisavbpregnancyregistry.com/ or www.prehevb.com/#safety.
# Appendix

## Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023

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<th>Vaccine</th>
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<tr>
<td>Dengue (DENACYO)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>Diphtheria, tetanus, pertussis (DTap)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>Guillain-Barré syndrome (GBS) within 6 weeks after previous dose of tetanus toxoid-containing vaccine</td>
</tr>
<tr>
<td>Hemophilus influenzae type b (HiB)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component? including neonomycin</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component? including yeast</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
</tr>
<tr>
<td>Meningococcal disease (MMR)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing</td>
</tr>
<tr>
<td>Pneumococcal vaccine (PCV)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>History of severe reaction to dry natural latex</td>
</tr>
<tr>
<td>Pneumococcal conjugate vaccine (PCV)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
</tr>
<tr>
<td>Poliovirus vaccine</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
</tr>
<tr>
<td>Rotavirus vaccine (RV)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?</td>
<td>Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
</tr>
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<th>Vaccine</th>
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<th>Precautions²</th>
</tr>
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| Dengue (DENACYO)                | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?  
• 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)  
• Lack of laboratory confirmation of a previous Dengue infection | • Pregnancy  
• HIV infection without evidence of severe immunosuppression  
• Moderate or severe acute illness with or without fever |
| Diphtheria, tetanus, pertussis (DTP)  
Tetanus, diphthera (DT)         | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?  
• For DTaP 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 or DTaP | • Guillain-Baré syndrome (GBS) within 6 weeks after previous dose of tetanus toxoid—containing vaccine  
• History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria—tetanus—containing vaccine or tetanus toxoid—containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid—containing vaccine  
• For DTaP only: Progressive neurologic disorders, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status clarified and stabilized  
• Moderate or severe acute illness with or without fever |
| Hemophilus influenzae type b ( Hib) | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?  
• For Hib, ActHIB, and Pedvax Hib only: History of severe allergic reaction to dry natural latex  
• Less than age 6 weeks | • 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? including neomycin and yeast  
• Less than age 6 weeks | • 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? including yeast  
• Hepatitis B and PreHevBio are not recommended during pregnancy due to a lack of safety data in pregnant women  
Use other hepatitis B vaccines if indicated. | • Moderate or severe acute illness with or without fever |
| Hepatitis A, Hepatitis B vaccine (HepA, HepB) (Twintip) | | |
| Human papillomavirus (HPV)      | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component? including yeast  
• Pregnancy: HPV vaccination not recommended | • Moderate or severe acute illness with or without fever |
| Mumps, rubella, mumps-rubella (MMR)  
Mumps, rubella, and varicella (MMRV) | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component?  
• 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)  
• 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  
• For MMRV only: Personal or family (i.e., sibling or parent) history of seizures of any etiology |

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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<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Recent (&lt;11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
</tr>
<tr>
<td>Measles, mumps, rubella, and varicella (MMRV)</td>
<td>• 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)</td>
<td>• History of thrombocytopenia or thrombocytopenic purpura</td>
</tr>
<tr>
<td></td>
<td>• Pregnancy</td>
<td>• Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing</td>
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<td>• Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Menincocecal ACWY (MenACWY)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• For MenACWY-CRM only: Preterm birth less than 9 months of age</td>
</tr>
<tr>
<td>MenACWY-CRM (Menovec&lt;sup&gt;®&lt;/sup&gt;); MenACWY-D Menactra&lt;sup&gt;®&lt;/sup&gt;; MenACWY-TT MenQuadrif&lt;sup&gt;®&lt;/sup&gt;)</td>
<td>• For MenACWY-CRM only: Severe allergic reaction to any diphtheria toxoid- or CRM197-containing vaccine</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• For MenACWY-TT only: Severe allergic reaction to a tetanus toxoid-containing vaccine</td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Pregnancy</td>
</tr>
<tr>
<td>MenB-4C (Bexsero&lt;sup&gt;®&lt;/sup&gt;); MenB-PRP [Trunham&lt;sup&gt;®&lt;/sup&gt;])</td>
<td></td>
<td>• For MenB-4C only: Latex sensitivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal conjugate (PCV)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Poliovirus vaccine, inactivated (IPV)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotavirus (RV) [RV1 (Rotarix&lt;sup&gt;®&lt;/sup&gt;), RIV (Rotarix&lt;sup&gt;®&lt;/sup&gt;)]</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Altered immunocompetence other than SCID</td>
</tr>
<tr>
<td></td>
<td>• Severe combined immunodeficiency (SCID)</td>
<td>Chronic gastrointestinal disease</td>
</tr>
<tr>
<td></td>
<td>• History of intussusception</td>
<td>RV1 only Spina bifida or bladder exstrophy</td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis (Tdap)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Tetanus, diphtheria (Td)</td>
<td>• 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 DTap, DTaP, or Tdap</td>
<td>Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus-toxoid-containing vaccine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>History of Anaphylaxis reactions after a previous dose of diphtheria toxoid-containing vaccine</td>
</tr>
<tr>
<td>Varicella (VAC)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Guillain-Barré syndrome within 7 days after a previous dose of tetanus-toxoid-containing vaccine</td>
</tr>
<tr>
<td></td>
<td>• Severe immunodeficiency, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised</td>
<td>History of Anaphylaxis reactions after a previous dose of diphtheria toxoid-containing vaccine</td>
</tr>
<tr>
<td></td>
<td>• Pregnancy</td>
<td>Defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid-containing vaccine</td>
</tr>
<tr>
<td></td>
<td>• Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent</td>
<td>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</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
</tbody>
</table>

<sup>1</sup> If using MMRV, see MMR/MMRV for additional precautions
Thank You!

Questions?

For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
2023 Adult Immunization Schedule

LCDR Neil Murthy, US Public Health Service
Proposed Updates to the 2023 Adult Immunization Schedule

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- Influenza
- Measles, Mumps and Rubella
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**Table:**

<table>
<thead>
<tr>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
</tr>
<tr>
<td>Hepatitis B</td>
</tr>
<tr>
<td>Influenza</td>
</tr>
<tr>
<td>Measles, Mumps and Rubella</td>
</tr>
<tr>
<td>Meningococcal</td>
</tr>
<tr>
<td>Pneumococcal</td>
</tr>
<tr>
<td>Polio</td>
</tr>
<tr>
<td>Tetanus, diphtheria, and pertussis</td>
</tr>
<tr>
<td>Zoster</td>
</tr>
</tbody>
</table>
Proposed Updates to the 2023 Adult Immunization Schedule

Changes to Tables
- Cover Page
- Table 1
- Table 2

Changes to Vaccination Notes
- COVID-19
- Hepatitis B
- Influenza
- Measles, Mumps and Rubella
- Meningococcal
- Pneumococcal
- Polio
- Tetanus, diphtheria, and pertussis
- Zoster

Changes to Appendix
- Column Header
- Influenza
- Hepatitis B
- Human Papillomavirus
How to use the adult immunization schedule

1 Determine recommended vaccinations by age (Table 1)
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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>Haemophilus influenzae type b vaccine</td>
<td>Hib, HiB®</td>
<td>Hibrix®</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA, A, A/V</td>
<td>Vaqta®</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB, Engerix® B, Havrix®</td>
<td>Recombivax HB®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil®</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>Influenza vaccine (Flu, Attenuated)</td>
<td>FluMist® Quadrivalent, Flublok® Quadrivalent</td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td>Influenza A, B, C vaccine</td>
<td>Fluarix®</td>
</tr>
<tr>
<td>Mumps, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>ProQuad®</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W vaccine</td>
<td>MenACWY-D, MenACWY-CRM197</td>
<td>Menactra®</td>
</tr>
<tr>
<td>Meningococcal serogroups B vaccine</td>
<td>MenB-4C, MenB-FlbP, Trumenba®</td>
<td>Menveo®</td>
</tr>
<tr>
<td>Pneumococcal conjugate vaccine</td>
<td>PCV15</td>
<td>Vacfree®</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide vaccine</td>
<td>PPSV23</td>
<td>Prevnar 20®</td>
</tr>
<tr>
<td>Poliovirus vaccine</td>
<td>IPV</td>
<td>IPV®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
<td>Tetanus®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Acellvax®</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax®</td>
</tr>
<tr>
<td>Zoster vaccine, recombinant</td>
<td>RVV</td>
<td>Shingrix®</td>
</tr>
</tbody>
</table>

*Administer recommended vaccines if vaccination history is incomplete or unknown. Do not restart or add dose 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 PPSV23, RZV, and COVID-19 vaccines are covered by the Vaccine Injury Compensation Program. COVID-19 vaccines that are authorized or approved by the FDA are covered by the Countermeasures Injury Compensation Program. For more information, see www.hrsa.gov/vaccinecompensation or www.hrsa.gov/dcp

Questions or comments
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Helpful information
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- 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

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
# 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. Access 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).

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### Vaccines in the Adult Immunization Schedule*

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<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19 vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mRNA</td>
<td></td>
<td>Community, Pfizer-BioNTech COVID-19 Vaccine (SPK-0090), Moderna COVID-19 Vaccine (BNT162b2)</td>
</tr>
<tr>
<td>Virus-like particle</td>
<td></td>
<td>Novavax COVID-19 Vaccine (Nvxtv)</td>
</tr>
<tr>
<td>Hemophilus influenzae type b vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hib</td>
<td></td>
<td>ActHIB, Hiblence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pedia HibVax, Vaqta</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td></td>
<td>HepA, Havrix</td>
</tr>
<tr>
<td>Hepatitis A and hepatitis B vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Twinrix, Engerix B</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td></td>
<td>Engerix B, Hexvax B, Recombivax HB, Gardasil 9</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td></td>
<td>HPV, Gardasil, Gardasil 9, Cervarix, Cervaflex</td>
</tr>
<tr>
<td>Influenza vaccine (activated)</td>
<td></td>
<td>Fluvax, Fluvirin, Fluvirine, Flulaval, Flublok, Flublok Quadrivalent, Fluvirin Quadrivalent, Fluvirin Xtra</td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMR</td>
<td></td>
<td>MMR, MMR-I</td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Abbreviations recommended if vaccine history is incomplete or unknown. Do not restart or add a dose to a 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.

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**Report**

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to the local or state health department.
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- Vaccine information statements: www.cdc.gov/vaccines/hcp/vaccines/index.html
- Travel vaccine recommendations: www.cdc.gov/travel

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**U.S. Department of Health and Human Services
centers for Disease Control and Prevention**

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Recommended Adult Immunization Schedule for ages 19 years or older

How to use the adult immunization schedule

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<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19 vaccine</td>
<td>mRNA</td>
<td>Comirnaty® (Pfizer-BioNTech COVID-19 Vaccine) SPERSE® (Modern COVID-19 Vaccine)</td>
</tr>
<tr>
<td></td>
<td>mRNA</td>
<td>Spikevax® (Moderna COVID-19 Vaccine) Biontex</td>
</tr>
<tr>
<td>Haemophilus influenza type b vaccine</td>
<td>Hib</td>
<td>ActHib® Hibi® Hibitrix® Pentacel®</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Hexasave® Vaqta®</td>
</tr>
<tr>
<td></td>
<td>HepA-HepB</td>
<td>Tevahep® Enage® Hiba® HepaB® Prevenix® Recombivax HB® Goodall®</td>
</tr>
</tbody>
</table>

*Advisors recommended vaccines if vaccination history is incomplete or unknown. Do not restart or add dose 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 Adult Immunization Schedule for ages 19 years or older

**2023**

#### How to use the adult immunization schedule

1. **Determine recommended vaccinations by age** (Table 1)
2. **Access need for additional recommended vaccinations by medical condition or other indication** (Table 2)
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<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2xCOVID-mRNA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1xCOVID-19</td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenza type b vaccine</td>
<td>Hib</td>
<td>ActHIB®, Hibero®, ProHib®, Havrix®, Vocera®</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A and hepatitis B vaccine</td>
<td>HepA/HepB</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Enferin®-B®, Hepatitis B, PreHepatitis® Recombivax®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil®</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>IFNA</td>
<td>Many brands</td>
</tr>
<tr>
<td>Influenza vaccine (live, quadrivalent)</td>
<td>LAMIV</td>
<td>Fluvirin® Quadrivalent</td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td>RIV4</td>
<td>M-RIIV®, Priora®</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACYW-D</td>
<td>Menactra®, MercoV®, MenQuadri®, Bexsero®, Trumune®, Vaxogenys®</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal conjugate vaccine</td>
<td>PCV13</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal polysaccharide vaccine</td>
<td>PCV20</td>
<td>Pneumovax 20®</td>
</tr>
<tr>
<td>Poliovirus vaccine</td>
<td>IPV</td>
<td>IPV®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
<td>Tetanex®, Tdax®, Adacel®, Boostrix®, Varivax®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids and acellular pertussis vaccine</td>
<td>Tdap</td>
<td></td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td></td>
</tr>
<tr>
<td>Zoster vaccine, recombinant</td>
<td>RZV</td>
<td>Shingrix®</td>
</tr>
</tbody>
</table>

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*Additional recommended vaccines: vaccination history is incomplete or unknown. Do not restart or add dose 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.*

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

#### Injury claims
- All vaccines included in the adult immunization schedule except PPSV23, RZV, and COVID-19 vaccines are covered by the Vaccine Injury Compensation Program.
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#### Questions or comments
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#### Helpful information
- General Best Practice Guidelines for Immunization (including contraindications and precautions): www.cdc.gov/vaccines/hcp/guideline/recs/index.html.
- Vaccine information statements: www.cdc.gov/vaccines/hcp/vss宣/index.html.
- Travel vaccine recommendations: www.cdc.gov/travel.
- Recommended Childhood and Adolescent Immunization Schedule, United States, 2023: www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html.
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Vaccines in the Adult Immunization Schedule*

| Vaccines in the Adult Immunization Schedule* | Recommended
|---------------------------------------------|----------------
| COVID-19 vaccine                             | 1≤COVID-19 mRNA
| Community/Pfizer/BioNTech COVID-19 Vaccine  | 2≤COVID-19 mRNA
| SKYRMA®/Moderna COVID-19 Vaccine, Bivalent  | 1≤COVID-19 mRNA
| Pfizer/BioNTech COVID-19 Vaccine, Bivalent  | 2≤COVID-19 mRNA
| Moderna COVID-19 Vaccine, Bivalent          | 1≤COVID-19 mRNA
| Novavax COVID-19 Vaccine                    | 2≤COVID-19 mRNA
| Hepatitis A vaccine                         | HepA
| HAVrix®                                     | HAVrix®
| Vaccines (HepA-Ig)                          | Vaccines (HepA-Ig)
| Hepatitis A and hepatitis B vaccine         | HepA-HepB
| Tekiva®                                     | Tekiva®
| Hepatitis B vaccine                         | HepB
| En-Received® B                              | En-Received® B
| HAVAC®-B                                    | HAVAC®-B
| PreHeb®                                    | PreHeb®
| Recombiva® H1                                | Recombiva® H1
| Gardasil® 9v                                  | Gardasil® 9v
| Influenza vaccine (inactivated)             | IF4, V
| Influenza vaccine (live, attenuated)        | IF14, LAIV, Flublok® Quadrivalent, Flublok® Quadrivalent
| Influenza vaccine (recombinant)             | IFIV, MMR
| Mumps, measles, and rubella vaccine         | MMR
| MenACWY-D                                   | MenACWY-D
| MenACWY-CRM                                  | MenACWY-CRM
| MenACWYTT                                   | MenACWYTT
| MenB-4C                                     | MenB-4C
| MenB-FLhp                                   | MenB-FLhp
| PCV15                                       | PCV15
| PCV20                                       | PCV20
| Pneumovax® 23™                              | Pneumovax® 23™
| PPSV23                                      | PPSV23
| Poliovirus vaccine                           | IPV
| IPV+                                        | IPV+
| Tetanus and diphtheria toxoids              | Td
| Tdab                                        | Tdab
| Tdap                                        | Tdap
| Tetanus and diphtheria toxoids and acellular pertussis vaccine | Tetanus and diphtheria toxoids and acellular pertussis vaccine
| Varicella vaccine                            | VAR
| Zoster vaccine, recombinant                  | ZRV

Recommended for ages 19 years or older.

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• Vaccine information statements at www.cdc.gov/vaccines/hcp/vaccines-gen/wwvgen/index.html.
• Manual for the Surveillance of Vaccine-Preventable Diseases (including case identification and outbreak responses) at www.cdc.gov/vaccines/vpd/manual.
• Travel vaccine recommendations at www.cdc.gov/travel.
Recommended Adult Immunization Schedule
for ages 19 years or older

UNITED STATES

2023

How to use the adult immunization schedule

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<tbody>
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<td>Hib</td>
<td>ActHIB®, Hibermune®, PedvaxHib®, Havrix®, Vaqta®</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>ENGERIX-B®, HEPATONATE®, ProHeVax®, Recombivax HB®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil® Many brands</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>INF</td>
<td>FluMist®, Fluarix Quadrivalent</td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td>RI4</td>
<td>Fluzone, Fluvirin, Fluvax Quadrivalent</td>
</tr>
<tr>
<td>Mumps, measles, and rubella vaccine</td>
<td>MMR</td>
<td>Merck®</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-D</td>
<td>Menene®, Menicot®, Menvea®, Neisvac-C®, Trumavax®</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal conjugate vaccine</td>
<td>PCV13</td>
<td>Prevnar 23®</td>
</tr>
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<td>PPSV23</td>
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</tr>
<tr>
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<td>IPV</td>
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</tr>
<tr>
<td>Varicella vaccine, recombinant</td>
<td>ZDV</td>
<td></td>
</tr>
</tbody>
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- Vaccine information statements: www.cdc.gov/vaccines/hcp/recs/guidelines/index.html
- Travel vaccine recommendations: www.cdc.gov/travel
- Recommended Childhood and Adolescent Immunization Schedule: United States, 2023: www.cdc.gov/vaccines/schedules/hcp/child- adolescent.html

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

*See individual vaccines’ labeling for complete contraindications, precautions, and adverse effects. CDC recommends vaccinations based on licensure history in the U.S. and effectiveness of vaccines. CDC does not recommend additional vaccinations outside the schedule. These are general recommendations. Providers may choose to administer additional vaccines if they are within the indicated age range and licensed in the state or jurisdiction of the patient. Providers should obtain patient-specific medical history and screen for vaccine contraindications and precautions before administering vaccines. Providers should refer to the Advisory Committee on Immunization Practices (ACIP) recommendations and the CDC’s online schedule for the most current recommendations.
Recommended Adult Immunization Schedule for ages 19 years or older

How to use the adult immunization schedule

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2. Access 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>COVID-19 vaccine</td>
<td>1x Cov-19 mRNA</td>
<td>Comirnaty™/Pfizer-BioNTech COVID-19 Vaccine</td>
</tr>
<tr>
<td></td>
<td>2x Cov-19 mRNA</td>
<td>COVID-19 Vaccine (Modern)</td>
</tr>
<tr>
<td></td>
<td>1x Cov-195</td>
<td>Moderna COVID-19 Vaccine, Bivalent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pfizer-BioNTech COVID-19 Vaccine, Bivalent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Novavax COVID-19 Vaccine</td>
</tr>
<tr>
<td>Hemophilus influenzae type b vaccine</td>
<td>Hib</td>
<td>ActHIB®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hibercen®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pedia Hib®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hibblen®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Havrix®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vaqta®</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Eneric®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hepatitis A Vaccine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HepBl</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hepatitis B Vaccine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gardasil® 9</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil® 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cervarix®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gardasil® 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flublok® Quadrivalent</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>FluA</td>
<td>Fluzone® Quadrivalent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fluzone High-Dose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fluzone Extra-Protect</td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R® Ill</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ProQuad®</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-D</td>
<td>Menactra®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menomune®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menomune®:CRM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menomune®:YTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menomune®-4C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menomune®-FLBp</td>
</tr>
<tr>
<td>Pneumococcal conjugate vaccine</td>
<td>PCV13</td>
<td>Trumune®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vancenove®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prevnar 20™</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide vaccine</td>
<td>PPSV23</td>
<td>Pneumovax 23®</td>
</tr>
<tr>
<td>Poliovirus vaccine</td>
<td>IPV</td>
<td>IPV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IPV</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
<td>Tetanix®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tdrix®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boostrix®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boostrix®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Varivax®</td>
</tr>
<tr>
<td>Varicella vaccine, recombinant</td>
<td>ZVZ</td>
<td>Shingrix</td>
</tr>
</tbody>
</table>


Report
- Suspected cases of reportable vaccine-preventable diseases or outbreaks to local or state health department.
- Clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (www.vaes.hhs.gov or 800-822-7567).

Injury claims
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Questions or comments
- Contact www.cdc.gov/cdc-inf or 800-CDC-INF0 (800-232-4636) in English or Spanish, 8 a.m.-8 p.m. ET, Monday through Friday, excluding holidays.
- Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html.

Helpful information
- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/vaccines/hcp/recs/index.html
- General Best Practice Guidelines for Immunization (including contraindications and precautions): www.cdc.gov/vaccines/hcp/recs/general-recs/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/recs/vs/index.html
- 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

Annual recommendation statement: www.cdc.gov/vaccines/hcp/acip-recs/vacc recs-series.html

U.S. Department of Health and Human Services Centers for Disease Control and Prevention

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Recommended Adult Immunization Schedule for ages 19 years or older

UNITED STATES 2023

How to use the adult immunization schedule

1. Determine recommended vaccinations by age (Table 1)
2. Access 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>COVID-19 vaccine</td>
<td>1×COVID-mRNA</td>
<td>Comirnaty®/Pfizer-BioNTech COVID-19 Vaccine</td>
</tr>
<tr>
<td></td>
<td>2×COVID-mRNA</td>
<td>Pfizer-BioNTech COVID-19 Vaccine, Bivalent</td>
</tr>
<tr>
<td></td>
<td>1×COVID-45</td>
<td>Moderna COVID-19 Vaccine, Bivalent</td>
</tr>
<tr>
<td>Haemophilus influenzae type b vaccine</td>
<td>Hib</td>
<td>ActHIB®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hibero®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prevnar® 4Hib</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Havrix®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vactria®</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Enervas®-B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hepatitis-B Vax Plus®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ProHeptato®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recombivax HB®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil® 9D</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>INF</td>
<td>Many brands</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flumist® Quadrivalent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flublok® Quadrivalent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M-M-R® II</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Priora®</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>Mercoxi®</td>
</tr>
<tr>
<td></td>
<td>MenACWYTT</td>
<td>MenQuadrix®</td>
</tr>
<tr>
<td></td>
<td>MenACWY</td>
<td>Bexsero®</td>
</tr>
</tbody>
</table>
| Meningococcal serogroup B vaccine | MenB | MenB-Pedia 
| | PCV15 | CoverVac® |
| | PCV20 | Prevart 20® |
| Pneumococcal conjugate vaccine | PCV15, PCV20 | Vaxneussix® |
| | | Prevenar 20® |
| Pneumococcal polysaccharide vaccine | PPS23 | Pneumovax 23® |
| Poliovirus vaccine | IPV | IPV® |
| Tetanus and diphtheria toxoids | Td | Tetancel® |
| | | Tedax® |
| | | Boostrix® |
| Tetanus and diphtheria toxoids and acellular pertussis vaccine | Tdap | Adacel® |
| | | Boostrix® |
| Varicella vaccine | VAR | Varivax® |
| Zoster vaccine, recombinant | RZV | Shingrix® |

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 800-822-7567

Injury claims

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Questions or comments

Contact www.cdc.gov/cdcinfo 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/recs/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/vaccines/index.html
- Travel vaccine recommendations: www.cdc.gov/travel
- Recommended Childhood and Adolescent Immunization Schedule, United States, 2023: www.cdc.gov/vaccines/hcp/schedules/2023-2024-schedule.html

U.S. Department of Health and Human Services Centers for Disease Control and Prevention
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. Access 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>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19 vaccine</td>
<td>tSARS-CoV-2 mRNA</td>
<td>Coronavirus™, Pfizer-BioNTech COVID-19 Vaccine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mRNA</td>
<td>Moderna COVID-19 Vaccine, Moderna</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mRNA</td>
<td>Novavax COVID-19 Vaccine, Novavax</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mRNA</td>
<td>Sanofi Pasteur</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mRNA</td>
<td>Merck</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mRNA</td>
<td>Janssen</td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b vaccine</td>
<td>Hib</td>
<td>Hibitrix™, PedvaxHib™</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Havrix™, Vaqta®</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A and hepatitis B vaccine</td>
<td>HepA/HepB</td>
<td>Twinrix®</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix-B®</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Femrix-B®</td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil®</td>
<td></td>
</tr>
<tr>
<td>Influenza vaccine (activated)</td>
<td>FLU-V</td>
<td>Fluvirin®</td>
<td></td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>RV4</td>
<td>Flublok® Quadrivalent</td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R®</td>
<td></td>
</tr>
<tr>
<td>Measles still required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-C</td>
<td>Menactra®</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MenACWY-CRM</td>
<td>Menveo®</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MenACWY-TT</td>
<td>MenQuadrix®</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MenB-4C</td>
<td>Bevaxero®</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal conjugate vaccine</td>
<td>PCV13</td>
<td>TrumAVIA™</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal polysaccharide vaccine</td>
<td>PCV20</td>
<td>Prevnar 20™</td>
<td></td>
</tr>
<tr>
<td>Poliovirus vaccine</td>
<td>IPV</td>
<td>PAVOX 23™</td>
<td></td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Tet / DTP</td>
<td>Tetrix®, Tevax®</td>
<td></td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Boostrix®</td>
<td></td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VIVAR</td>
<td>Varivax®</td>
<td></td>
</tr>
<tr>
<td>Zoster vaccine, recombinant</td>
<td>ZTIV</td>
<td>ShINGrix®</td>
<td></td>
</tr>
</tbody>
</table>

*Available, recommended, or optional.†The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

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• General Best Practice Guidelines for Immunization (including contraindications and precautions): www.cdc.gov/vaccines/hcp/recs/general-recs/index.html
• Vaccine information statements: www.cdc.gov/vaccines/hcp/vpd-vac/index.html
• 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-vodrs-taap.html

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

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Table One

The Recommended Adult Immunization Schedule
<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>COVID-19</td>
<td>2- or 3-dose primary series and booster (See Notes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza inactivated (IV4) or influenza recombinant (RIV4)</td>
<td>1 dose annually or 1 dose annually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza live, attenuated (LAIV)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Tdap or Td)</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>
<td>For healthcare personnel, see notes</td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>1 or 2 doses depending on indication (if born in 1957 or later)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td>2 doses (if born in 1980 or later)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster recombinant (ZEV)</td>
<td>2 doses for immunocompromising conditions (see notes)</td>
<td>2 doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td>2 or 3 doses depending on age at initial vaccination or condition</td>
<td>27 through 45 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td>1 dose PCV15 followed by PPSV23</td>
<td>1 dose PCV15 followed by PPSV23</td>
<td>1 dose PCV15 followed by PPSV23</td>
<td>1 dose PCV15 followed by PPSV23</td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td>2, 3, or 4 doses depending on vaccine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td>2, 3, or 4 doses depending on vaccine or condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal A, C, W, Y (MenACWY)</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>1 or 3 doses depending on indication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaccine</td>
<td>19–26 years</td>
<td>27–49 years</td>
<td>50–64 years</td>
<td>≥65 years</td>
</tr>
<tr>
<td>----------------------------------------------</td>
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<td>-------------</td>
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<tr>
<td><strong>COVID-19</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza inactivated (IV4) or</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza recombinant (RIV4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza live, attenuated (LAIV4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tetanus, diphtheria, pertussis</strong> (Tdap or</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Td)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 dose Tdap each pregnancy; 1 dose Td/Tdap</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for wound management (see notes)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measles, mumps, rubella (MMR)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Varicella (VAR)</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2 doses (if born in 1980 or later)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Zoster recombinant (RZV)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 doses for immunocompromising conditions</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(see notes)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Human papillomavirus (HPV)</strong></td>
<td>2 or 3 doses</td>
<td>27 through</td>
<td>1 dose PCV15 followed by PCV20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>depending on</td>
<td>45 years</td>
<td>or PCV15 followed by PCV20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>age at initial</td>
<td></td>
<td>OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>vaccination or</td>
<td></td>
<td>1 dose PCV15 followed by</td>
<td></td>
</tr>
<tr>
<td><strong>Pneumococcal</strong> (PCV15, PCV20, PCV23)</td>
<td></td>
<td></td>
<td>PCV23</td>
<td></td>
</tr>
<tr>
<td><strong>Hepatitis A (HepA)</strong></td>
<td>2, 3, or 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>doses depending on vaccine</td>
<td>doses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hepatitis B (HepB)</strong></td>
<td>2, 3, or 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>doses depending on vaccine or condition</td>
<td>doses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meningococcal A, C, W, Y</strong> (MenACWY)</td>
<td>1 or 2 doses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>depending on indication, see notes for booster recommendations</td>
<td>doses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meningococcal B (MenB)</strong></td>
<td>2 or 3 doses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>depending on vaccine and indication, see notes for booster recommendations</td>
<td>doses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Haemophilus influenzae type b (Hib)</strong></td>
<td>1 or 3 doses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>depending on indication</td>
<td>doses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Recommended vaccination for adults who meet age requirement.
- 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 1: Recommended Adult Immunization Schedule by Age Group, United States, 2023

<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>COVID-19</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza inactivated (IIV4) or influenza recombinant (RIV4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza live, attenuated (LAIV)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Tdap or Td)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster recombinant (RZV)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal A, C, W, Y (MenACWY)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Haemophilus influenzae type b</em> (Hib)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</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>19–26 years</th>
<th>27–49 years</th>
<th>50–64 years</th>
<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COVID-19</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza inactivated (IIV4) or influenza recombinant (RIV4)</td>
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<tr>
<td>Influenza live, attenuated (LAIV)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Tdap or Td)</td>
<td></td>
<td>1 dose annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td></td>
<td></td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
<td>For healthcare personnel, see notes</td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster recombinant (RZV)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td></td>
<td></td>
<td>2 doses for immunocompromising conditions (see notes)</td>
<td>2 doses</td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td></td>
<td></td>
<td>1 dose PCV15 followed by PPSV23 OR 1 dose PCV20</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td></td>
<td></td>
<td>2, 3, or 4 doses depending on vaccine</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td></td>
<td></td>
<td>2, 3, or 4 doses depending on vaccine or condition</td>
<td></td>
</tr>
<tr>
<td>Meningococcal A, C, W, Y (MenACWY)</td>
<td></td>
<td></td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
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<tr>
<td><em>Haemophilus influenzae type b</em> (Hib)</td>
<td></td>
<td></td>
<td>1 or 3 doses depending on indication</td>
<td></td>
</tr>
</tbody>
</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>19–26 years</th>
<th>27–49 years</th>
<th>50–64 years</th>
<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza inactivated (IV4) or</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza recombinant (RV4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza live, attenuated (LAV4)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Tdap or Td)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster recombinant (RZV)</td>
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<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Meningococcal A, C, W, Y (MenACWY)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Haemophilus influenzae</em> type b (Hib)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

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

- **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>19–26 years</th>
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<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza inactivated (IV4) or Influenza recombinant (RIV4)</td>
<td></td>
<td></td>
<td>1 dose annually</td>
<td></td>
</tr>
<tr>
<td>Influenza live, attenuated (LAVIV4)</td>
<td></td>
<td></td>
<td>1 dose annually</td>
<td></td>
</tr>
<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>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>For healthcare personnel, see notes</td>
<td>1 or 2 doses depending on indication (if born in 1957 or later)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td></td>
<td></td>
<td>2 doses (if born in 1980 or later)</td>
<td></td>
</tr>
<tr>
<td>Zoster recombinant (RZV)</td>
<td></td>
<td></td>
<td>2 doses for immunocompromising conditions (see notes)</td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td>2 or 3 doses depending on age at initial vaccination or condition</td>
<td>27 through 45 years</td>
<td>1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td>2, 3, or 4 doses depending on vaccine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td>2, 3, or 4 doses depending on vaccine or condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal A, C, W, Y (MenACWY)</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>1 or 3 doses depending on indication</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</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>19–26 years</th>
<th>27–49 years</th>
<th>50–64 years</th>
<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td>2- or 3-dose primary series and booster (see Notes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza inactivated (IBV4) or influenza recombinant (IVR4)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Influenza live, attenuated (LAVIV)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Tdap or Td)</td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td>2 doses (if born in 1980 or later)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster recombinant (RSV)</td>
<td>2 doses for immunocompromising conditions (see notes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td>2 or 3 doses depending on age at initial vaccination or condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td>1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td>2, 3, or 4 doses depending on vaccine or condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal A, C, W, Y (MenACWY)</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>1 or 3 doses depending on indication</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</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

**2, 3, or 4 doses depending on vaccine**
Table 2

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

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>Immunocompromised (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; alcoholism</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Health care personnel(b)</th>
<th>Men who have sex with men</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td></td>
<td>See Notes</td>
<td></td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal</td>
<td></td>
<td>See Notes</td>
<td></td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAIV4</td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tdap or Td</td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>MMR</td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td>1 or 2 doses depending on indication</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>VAR</td>
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<td>RZV</td>
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<td>Contraindicated</td>
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<td>2 doses at age ≥19 years</td>
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<td>HPV</td>
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<td>Not Recommended</td>
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<td>2 doses at age ≥50 years</td>
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<tr>
<td>Pneumococcal</td>
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<td>3 doses through age 26 years</td>
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<td>2 or 3 doses through age 26 years depending on age at initial vaccination or condition</td>
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</tr>
<tr>
<td>(PCV15; PCV20,</td>
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<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>
<td></td>
</tr>
<tr>
<td>HepA</td>
<td></td>
<td></td>
<td></td>
<td>2 doses</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>HepB</td>
<td></td>
<td>3 doses (see notes)</td>
<td></td>
<td>2, 3, or 4 doses depending on vaccine or condition</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>
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</tr>
<tr>
<td>MenB</td>
<td></td>
<td>Precaution</td>
<td></td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td></td>
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<tr>
<td>Hib</td>
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<td></td>
<td>3 doses H SCT recipients only</td>
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</tbody>
</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.
- Precaution—vaccination might be indicated if benefit of protection outweighs risk of adverse reaction.
- Contraindicated or not recommended—vaccine should not be administered.

- 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.
## Table 2

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

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>Immunocompromised (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; alcoholism*</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Health care personnel*</th>
<th>Men who have sex with men</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td>See Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>IIIV4 or RIV4</td>
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<td>LAIV4</td>
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<tr>
<td>Tdap or Td</td>
<td></td>
<td>1 dose Tdap if indicated at recommended dose</td>
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<td>VAR</td>
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<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td></td>
<td>3 doses through age 26 years</td>
<td></td>
<td>2 or 3 doses through age 26 years depending on age at initial vaccination or condition</td>
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<td>HepA</td>
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<td></td>
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<tr>
<td>HepB</td>
<td></td>
<td>3 doses (see notes)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>MenACWY</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MenB</td>
<td></td>
<td>Precaution</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
<td></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.**
- **Precaution—vaccination might be indicated if benefit of protection outweighs risk of adverse reaction.**
- **Contraindicated or not recommended—vaccine should not be administered.**
- **Vaccinate after pregnancy.**

*See notes for influenza, hepatitis B, measles, mumps, and rubella, and varicella vaccinations. a. Hematopoietic stem cell transplant.
# Table 2

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

<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; alcoholism*</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Health care personnel*</th>
<th>Men who have sex with men</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td></td>
<td></td>
<td>1 dose annually</td>
<td></td>
<td>Precaution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IIIV4 or RIV4</td>
<td></td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>LAIV4</td>
<td></td>
<td></td>
<td>Contraindicated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tdap or Td</td>
<td></td>
<td>1 dose Tdap each pregnancy</td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<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>
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<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>Contraindicated</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>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td>1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)</td>
<td></td>
<td>2 doses</td>
<td>3 doses</td>
<td>3 doses through age 26 years</td>
<td>1 dose</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 doses depending on vaccine</td>
<td>1 dose</td>
<td>2 or 3 doses depending on vaccine</td>
</tr>
<tr>
<td>HepA</td>
<td></td>
<td></td>
<td>2 doses</td>
<td>3 doses</td>
<td>3 doses through age 26 years</td>
<td>1 dose</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2, 3, or 4 doses depending on vaccine or condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HepB</td>
<td></td>
<td></td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MenACWY</td>
<td></td>
<td></td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>MenB</td>
<td>Precaution</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>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hib</td>
<td></td>
<td></td>
<td>3 doses HCTI recipients only</td>
<td>1 dose</td>
<td>Precaution—vaccination might be indicated if benefit of protection outweighs risk of adverse reaction</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

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

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)
- 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

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, PreHevBrio®, or Recombivax HB at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 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: 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

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

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 may be considered to complement COVID-19 vaccination. See www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html

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

**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/covid-19-considerations/imunocompromised-us.html](http://www.cdc.gov/vaccines/covid-19/covid-19-considerations/imunocompromised-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/covid-19-considerations/imunocompromised-us.html](http://www.cdc.gov/vaccines/covid-19/covid-19-considerations/imunocompromised-us.html)

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**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 vaccine history

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**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 Vaxigrip 6–18 months apart [minimum interval: 6 months]) or 3-dose series HepA–HepB (Twinrix at 0, 1, 6 months [minimum interval: dose 1 to dose 2: 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**

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**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 HepB are used at least 4 weeks apart
  - 3-dose series Engerix-B, PreHepB*, or Recombivax HB at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 2–4 weeks / dose 2 to dose 3: 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: 2–4 weeks / dose 2 to dose 3: 3–8 weeks / dose 1 to dose 3: 16 weeks])
  - 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

**Note:** HepB-lsbz and PreHepB are not recommended in pregnancy due to lack of safety data in pregnant women
Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2023

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](http://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](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html)
- **Pre-exposure prophylaxis** may be considered to complement COVID-19 vaccination. See [www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html)#immunocompromised


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*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

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**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: 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 [Twinrix] 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)

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**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 Hepatitis B® are used at least 4 weeks apart
  - 3-dose series Engerix-B, PreHepBrio®, or Recombivax HB at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 2-4 weeks; dose 2 to dose 3: 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

*Note:* Hepatitis B and PreHepBrio are not recommended in pregnancy due to lack of safety data in pregnant women
Routine vaccination

- Added description of the primary series
**Routine vaccination**

- Hyperlink to see latest booster dose recommendations
Special situations

• Primary series description for persons who are moderately or severely immunocompromised
Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2023

**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](http://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)
  - **Booster dose:** see [www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html)
- **Pre-exposure prophylaxis** may be considered to complement COVID-19 vaccination. See [www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-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 effective 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])
  - 1-dose series (Aquamune), 2-doses series (Aquamune HB)

**Special situations**
- At risk for hepatitis A
- Chronic liver disease, including 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**

- Travel in countries with high or intermediate endemic hepatitis A (HepA-HepB [Twinrix] 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

**Note:** HepBsvs-8 and PreHbVario are not recommended in pregnancy due to lack of safety data in pregnant women
Pre-exposure prophylaxis considerations for persons who are moderately or severely immunocompromised
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)
- **Pre-exposure prophylaxis may be considered to complement COVID-19 vaccination. See www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-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 (Twixrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 1–4 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
  - Immunocompromised
- Men who have sex with men
- People with hemophilia
- People Injecting drugs
- People 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 [Twixrix] 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 HepB are given at least 4 weeks apart
  - Hepatitis B booster is available: 10μg recombinant Hepatonin®*, Recombivax HB®
- Chronic liver disease
- Immunocompromised
- HIV infection
- Men who have sex with men
- People Injecting drugs
- People experiencing homelessness
- Work with hepatitis A virus in research laboratory or with nonhuman primates with hepatitis A virus infection

**Special situations**
- Travel in countries with high or intermediate endemic hepatitis A (HepA-HepB [Twixrix] 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)

**Additional resources on COVID-19 schedules and EUA indications**
Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2023

**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)

**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]) of 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: 1–5 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, 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

**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 Hepatitis B are used at least 4 weeks apart
  - 3-dose series Engerix-B, PreHevBri, 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: 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

**Note:** Hepaliv-B and PreHevBri are not recommended in pregnancy due to lack of safety data in pregnant women
Routine vaccination

- Revised the descriptions of the 2-, 3-, and 4-dose series.
Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2023

Notes

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)
- Booster dose: see www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html
- Pre-exposure prophylaxis may be considered to complement COVID-19 vaccination. See www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-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 interval: 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 [Twinrix] 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 Heplisav-B® are used at least 4 weeks apart
  - 3-dose series Engerix-B, ProHevac®, 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

*Note: Heplisav-B and ProHevac® are not recommended in pregnancy due to lack of safety data in pregnant women
Routine vaccination

- Note describes that Heplisav-B and PreHevbrio are not recommended in pregnancy.
Notes

Recommended Adult Immunization Schedule, United States, 2023

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 treatment:
  - Age 15 years or older at initial vaccination:
    - 3-dose series at 0, 1–2 months, doses 1 to 2 to dose 3: 12 weeks / dose 1 to dose 3: 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.

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-IIV4), quadrivalent recombinant influenza vaccine (RIV4), or quadrivalent adjuvanted inactivated influenza vaccine (allIV4) is preferred. If none of these three vaccines is available, then any other age-appropriate influenza vaccine should be used.

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 IIV4 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

Special situations

- Incarceration
- Travel in countries with high or intermediate endemic hepatitis B

Routinely recommended

- 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, 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)
Routine vaccination

- Added two bullets for persons who are 60 years of age and older
**Recommended Adult Immunization Schedule, United States, 2023**

### 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.

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

### 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-IIV4), quadrivalent recombinant influenza vaccine (RIV4), or quadrivalent adjuvanted inactivated influenza vaccine (ALL IV4) 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/mmwr/volumes/71/mm7110t1.htm](http://www.cdc.gov/mmwr/volumes/71/mm7110t1.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 IIV4 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**
- 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, alamineaminotransferase [ALT] or aspartateaminotransferase [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).
Recommended Adult Immunization Schedule, United States, 2023

**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.

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

**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-IIV4), quadrivalent recombinant influenza vaccine (RIIV4), or quadrivalent adjuvanted inactivated influenza vaccine (AllIIV4) 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 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 IIV4 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
- 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, alamine transaminase [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 relationship; 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 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)
Routine vaccination

- Risk factors for Hepatitis B infection are listed
Special situations

• Describes regimen for patients on hemodialysis
Notes

Recommended Adult Immunization Schedule, United States, 2023

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, and 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-IVV), quadrivalent recombinant influenza vaccine (RIV4), or quadrivalent adjuvanted inactivated influenza vaccine (allIV4) is preferred. If none of these three vaccines is available, any other age-appropriate influenza vaccine should be used.
- For the 2022–2023 season, see www.cdc.gov/mmwr/volumes/71/mm71101a1.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 epiephrine or another emergency medical intervention): Any influenza vaccine appropriate for age and health status may be administered. If using egg-based IIV4 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 caretaking 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
Routine vaccination
• Sub-bullet added for persons 65 years of age or older
Notes

Recommended Adult Immunization Schedule, United States, 2023

- 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 Dialysate 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)

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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 IIV4 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
**Routine vaccination**

- Added hyperlink to the 2022-2023 influenza recommendations and a bullet for the 2023-2024 influenza recommendations.
Special situations

- Modified the bullet for egg-allergy
Recommended Adult Immunization Schedule, United States, 2023

**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**
- 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)

**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 (RIV4), or quadrivalent adjuvanted inactivated influenza vaccine (all IV4) 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/mmwr/volumes/71/mm71011a1.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/visiting 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.
Special situations

• Added a bullet about close contacts to those who are severely immunosuppressed
Recommended Adult Immunization Schedule, United States, 2023

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-IIV4), quadrivalent recombinant influenza vaccine (RIV4), or quadrivalent adjuvanted inactivated influenza vaccine (allIV4) 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/mmwr/volumes/71/mmrrt101a1.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 IIV4 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, health care workers) of severely immunosuppressed persons who require a protected environment: these persons should not receive LAIV4. LAIV4 is given, they should avoid contact with/visiting 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
Recommended Adult Immunization Schedule, United States, 2023

Notes

- 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 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 if previously did not receive any doses of MMR or 1 dose if previously received 1 dose MMR

Meningococcal vaccination

Special situations for MenACWY

- Antimicrobial prophylaxis (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., celiacumab, ravulizumab) use, or microbiologists routinely exposed to Neisseria meningitidis:
  - 2-dose primary series MenB-4C (Bexsero) at least 1 month apart or 2-dose series MenB-4C (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-4Fap are not interchangeable (use same product for all doses in series)

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-4Fap (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-4Fap are not interchangeable (use same product for all doses in series)

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

Recommended Adult Immunization Schedule, United States, 2023

- 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 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 if previously did not receive any doses of MMR or 1 dose if previously received 1 dose MMR

Meningococcal vaccination

Special situations for MenACWY

- 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 2-dose series MenB-FHbp (Trumenba) at 6 months (if dose 3 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)

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 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 2-dose primary series MenB-FHbp (Trumenba) at 6 months (if dose 2 was administered less than 6 months after dose 1, dose 3 not needed if 2 dose 2 was 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)
- 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, Menevo, or MenQuadrix) and revaccinate every 2 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 those listed under “Special situations” 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/mm69065a1.htm

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

- Added additional dose guidance in mumps outbreak settings

**Meningococcal vaccination**

- Special situations for MenACWY
  - 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 2 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 any 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/rr69009a1.htm).
Recommended Adult Immunization Schedule, United States, 2023

Notes

- 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 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 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/mm6701a7.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 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), 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, 6, 12 months if dose 2 was administered less than 6 months after dose 1, administer dose 3 at least 4 months after dose 1; MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series)

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 2 was 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/wr/mm6909a1.htm

Note: MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, if feasible.
Recommended Adult Immunization Schedule, United States, 2023

- 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 (birth certificate), 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 percentage ≥ 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 < 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 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/62/ww/mm62019a7.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 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), 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 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)

- Travel in countries with hyperendemic or epidemic meningococcal disease, or microbiologists routinely exposed to Neisseria meningitidis: 1 dose MenACWY (Meningoc, Menveo, or MenQuadrif) at least 6 months apart 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 (Meningoc, Menveo, or MenQuadrif)

- 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

Note: MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, if feasible.
Recommended Adult Immunization Schedule, United States, 2023

Notes

- 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 (for 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 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/62/wr/mm6201f2a7.htm](http://www.cdc.gov/mmwr/volumes/62/wr/mm6201f2a7.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 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), persistent complement component deficiency, complement inhibitor (e.g., echinocystis, raveluzumab) 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 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)

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)

- Anatomical or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., echinocystis, raveluzumab) 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 less than 6 months after dose 1, dose 3 not needed; if dose 4 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/rr69090a1.htm](http://www.cdc.gov/mmwr/volumes/69/rr/rr69090a1.htm)

Note: MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, if feasible.
Recommended Adult Immunization Schedule, United States, 2023

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/rr/mm7104a1.htm.

- 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.

**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/rr/mm7104a1.htm.

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

Polio 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/vdp/polio/hcp/recommendations.html
**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 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](http://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.

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

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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 a dose of Td at least 4 weeks later, and a third dose of Tdap at 18 months later. DTap can be substituted for Td if the local health department prefers. Td or Tdap can be given at any visit each year. Preference is to administer the Tdap vaccine during each pregnancy to prevent pertussis in newborns.

**Wound management:** Doses of tetanus-toxoid-containing vaccine for minor wounds or tetanus toxoid-containing vaccine for deep puncture wounds and tetanus toxoid-containing vaccine for deep puncture wounds greater than or equal to 5 cm should be given if the patient has not received tetanus toxoid-containing vaccine within the past 10 years. Tetanus toxoid-containing vaccine that is indicated for a pregnant woman, use Tdap. For detailed information, see [www.cdc.gov/mmwr/volumes/68/rr/mm6805a5.htm](http://www.cdc.gov/mmwr/volumes/68/rr/mm6805a5.htm).

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**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](http://www.cdc.gov/vaccines/vpd/polio/hcp/recommendations.html)
Recommended Adult Immunization Schedule, United States, 2023

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 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](http://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.

**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).

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/68/wr/mm680903a5.htm](http://www.cdc.gov/mmwr/volumes/68/wr/mm680903a5.htm).

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](http://www.cdc.gov/vaccines/vpd/polio/hcp/recommendations.html).
Recommended Adult Immunization Schedule, United States, 2023

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 PPV23 given at least 1 year after the PCV15 dose. A minimum interval of 8 weeks between PCV15 and PPV23 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 PPV23 in these vulnerable groups.

- For guidance for patients who have already received a previous dose of PCV13 and/or PPV23, see www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm.

- 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/pneumonia/hcp/pneumovax.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.

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 PPV23 given at least 1 year after the PCV15 dose. A minimum interval of 8 weeks between PCV15 and PPV23 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 PPV23 in these vulnerable groups.

- For guidance for patients who have already received a previous dose of PCV13 and/or PPV23, see www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm

Polio 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

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/68/wr/mm680903a5.htm
Recommended Adult Immunization Schedule, United States, 2023

**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.
- 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/pneumococcal/index.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.

**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/pubs/polio/hcp/recommendations.html

**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 early pregnancy, preferably in early part of gestational weeks 27–28.
- 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/68/ww/mm680305.htm
Recommended Adult Immunization Schedule, United States, 2023

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 PPV23 given at least 1 year after the PCV15 dose. A minimum interval of 8 weeks between PCV15 and PPV23 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 PPV23 in these vulnerable groups.
- For guidance for patients who have already received a previous dose of PCV13 and/or PPV23, see www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm.
- 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/pneuomoapp.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.

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 PPV23 given at least 1 year after the PCV15 dose. A minimum interval of 8 weeks between PCV15 and PPV23 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 PPV23 in these vulnerable groups.
- For guidance for patients who have already received a previous dose of PCV13 and/or PPV23, see www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm.

Tetanus, diphtheria, and pertussis vaccination

**Routine vaccination**
- Previously did not receive Tdap at least 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 (Td 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 for 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/68/wr/mm680903a5.htm

Polio 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
Recommended Adult Immunization Schedule, United States, 2023

**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/mm7104a1.htm.
  
  - 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, 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, lattrogenic infantile hemangiomas, leukemia, lymphomas, multiple myeloma, nephrotic syndrome, solid organ transplants, sickle cell disease or other hemoglobinopathies.

- **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/mm7104a1.htm.

**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 (Td 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/68/ww/mm6803a5.htm

**Polio 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
Recommended Adult Immunization Schedule, United States, 2023

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.

- 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.

**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.

Tetanus, diphtheria, and pertussis vaccination

**Routine vaccination**

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

**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 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/68/wr/mm6803a5.htm.

Polio 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
Recommended Adult Immunization Schedule, United States, 2023

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 cerebral spinal 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.

- 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.

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 cerebral spinal 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

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/68/wr/mm680903a5.htm

Polio 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
**Recommended Adult Immunization Schedule, United States, 2023**

### 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 PCV15 and/or PPSV23, see [www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm](http://www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm).
- For guidance on determining which pneumococcal vaccine a patient needs and when, please refer to the mobile app which can be downloaded here: [www.cdc.gov/vaccines/vpd/pneumococcal/app.html](http://www.cdc.gov/vaccines/vpd/pneumococcal/app.html).

**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).

### 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](http://www.cdc.gov/mmwr/volumes/69/wr/mm6903a5.htm).

### Polio 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](http://www.cdc.gov/vaccines/vpd/polio/hcp/recommendations.html).
Special situations

- Minor edits to improve clarity of the language.
Recommended Adult Immunization Schedule, United States, 2023

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 on patients who have already received a previous dose of PCV13 and/or PPSV23, see www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm.

- 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/pneumonia/hcp/pneumovax.html

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 on patients who have already received a previous dose of PCV13 and/or PPSV23, see www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm.

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 6 months 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

Polio 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
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/mm² 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/mm².
- 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.
- Immunosuppressing 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).
  - Note: If there is no documented history of varicella, varicella vaccination, or prior history of 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
Recommended Adult Immunization Schedule, United States, 2023

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/mm$^3$ 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/mm$^3$.
- 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 prior history of 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
Routine vaccination

- Note added to provide some background on serologic evidence of prior varicella

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 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

Recommended Adult Immunization Schedule, United States, 2023
**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 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 prior history of 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
Recommended Adult Immunization Schedule, United States, 2023

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 $\geq 15\%$ and CD4 count $\geq 200$ cells/mm$^3$ 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/mm$^3$.
- 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).

**Note: If there is no documented history of varicella, varicella vaccination, or prior history of herpes zoster, providers should refer to the clinical considerations for use of RZV in immunocompromised adults aged $\geq 19$ years and the ACIP varicella vaccine recommendations for further guidance: www.cdc.gov/mmwr/volumes/71/wr/mm7103a2.htm

- Added language to clarify the immunocompromising bullet
### 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 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).

**Note:** If there is no documented history of varicella, varicella vaccination, or prior history of 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
Special situations

- Note added to provide some background on history prior varicella infection, varicella vaccination, or prior herpes zoster
Recommended Adult Immunization Schedule, United States, 2023

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 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 zoster 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 prior history of 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
# Appendix

## Recommended Adult Immunization Schedule, United States, 2023

**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/appendix.html](www.cdc.gov/vaccines/hcp/acip-recs/general-recs/appendix.html) and ACIP Recommendations for the Prevention and Control of 2022-23 Seasonal Influenza with Vaccines available at [www.cdc.gov/mmwr/volumes/71/rr/rr7103.htm](www.cdc.gov/mmwr/volumes/71/rr/rr7103.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 or Not Recommended</th>
<th>Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza, egg-based, inactivated injectable (IV4)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cell culture-based IV, or LAIV of any variety)</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine</td>
</tr>
<tr>
<td></td>
<td>• Severe allergic reaction to any vaccine component (excluding egg)</td>
<td></td>
</tr>
<tr>
<td>Influenza, cell culture-based inactivated injectable [IV4, FluFixVax, Quadrivalent]</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) to any cell IV of any variety, or to any component of cell IV</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine</td>
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<tr>
<td></td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine</td>
<td></td>
</tr>
<tr>
<td>Influenza, recombinant DNA, injectable [IV4, Flumist* Quadrivalent]</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) to any IV of any variety, or to any component of IV4</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine</td>
</tr>
<tr>
<td></td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine</td>
<td></td>
</tr>
<tr>
<td>Influenza, live attenuated [LAIV, Flumist* Quadrivalent]</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cell culture-based IV, or LAIV of any variety)</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine</td>
</tr>
<tr>
<td></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg)</td>
<td></td>
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<tr>
<td></td>
<td>• Anatomic or functional asplenia</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Immunocompromised due to any cause including, but not limited to, medications and IV infections</td>
<td></td>
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<td></td>
<td>• Close contacts or caregivers of severely immunosuppressed persons who require a protected environment</td>
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<td>• Pregnancy</td>
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<td>• Cochlear implant</td>
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<td></td>
<td>• Active communication between the cerebrospinal fluid (CSF) and the oropharynx, nasopharynx, nose, ear, or any other cranial CSF leak</td>
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<td></td>
<td>• Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, periameviral within the previous 5 days, or baloxavir within the previous 17 days.</td>
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</tr>
</tbody>
</table>

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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/appendix.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/appendix.html
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<tr>
<th>Vaccine</th>
<th>Contraindicated or Not Recommended¹</th>
<th>Precautions²</th>
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<tbody>
<tr>
<td>Influenza, egg-based, inactivated injectable (IV4)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cell IV, RIV, or LAIV of any valency) • 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 • Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Influenza, cell culture-based inactivated injectable ([cell IV4], Flucelvax Quadrivalent)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) to any cell IV of any valency, or to any component of cell IV4</td>
<td>• 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 IV, RIV, or LAIV of any valency. If using cell IV4, 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</td>
</tr>
<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 • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IV, cell IV, 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</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 IV, cell IV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg) • 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.</td>
<td>• 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 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</td>
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<td>-----------------------------------------------------------------</td>
</tr>
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| Influenza, egg-based, inactivated injectable (IV4) | - Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cDlV, RIV, or LAIV of any valency)  
  - Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg) | • Guillain-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 injectable ([cDlV4]; Flucelvax® Quadivalent) | - Severe allergic reaction (e.g., anaphylaxis) to any cDlV of any valency, or to any component of cDlV4 | • 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 IV, RIV, or LAIV of any valency; if using cDlV4, 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® Quadivalent) | - Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component 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 IV, cDlV, 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, Flumisol® Quadivalent] | - Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cDlV, RIV, or LAIV of any valency)  
  - Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg)  
  - 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 3 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 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 |
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<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine</td>
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<td></td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Influenza, cell culture-based inactivated injectable (IV4) Fluivax Quadivalent</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) to any or all of the four valencies, or to any component (e.g., ccIV4)</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IV, IV, or LAIV of any valency if using ccIV4, administer in a medical setting under the supervision of a health care provider who can recognize and manage severe allergic reactions. May consult an allergist.</td>
</tr>
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<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Influenza, recombinant injectable (IV4; Flucelvax Quadivalent)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) to any or all of the four valencies, or to any component (e.g., ccIV4)</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine</td>
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<td>• Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IV, IV, or LAIV of any valency if using ccIV4, administer in a medical setting under the supervision of a health care provider who can recognize and manage severe allergic reactions. May consult an allergist.</td>
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<td></td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Influenza, live attenuated (LAIV, FluMist Quadivalent)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, IV, IV, or LAIV of any valency)</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine</td>
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<td>• Anatomic or functional asplenia</td>
<td>• Asthma in persons aged 5 years old or older</td>
</tr>
<tr>
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<td>• Immuno-suppressed due to any cause including, but not limited to, medications and HIV infection</td>
<td>• Persons with underlying medical conditions other than those listed under contraindications that might predispose to complications of wild-type influenza virus infection (e.g., chronic pulmonary, cardiovascular, renal, hepatic, neurologic, hematologic, or metabolic disorders including diabetes mellitus)</td>
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<td>• Close contact or close caregiver of severely immunosuppressed persons who require a protected environment</td>
<td>• Moderate or severe acute illness with or without fever</td>
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| Influenza, egg-based, inactivated injectable (IV4) | • Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cldIV, RIV, or LAIV of any valency)  
• Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg) | • Guillain-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 injectable (cldIV4, Flucelvax Quadrivalent) | • Severe allergic reaction (e.g., anaphylaxis) to any cldIV of any valency, or to any component of cldIV4 | • 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 IV, RIV, or LAIV of any valency. If using cldIV4, 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 ([RV4), Flublok Quadrivalent] | • Severe allergic reaction (e.g., anaphylaxis) to any RV of any valency, or to any component of RV4 | • 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 IV, RIV, or LAIV of any valency. If using RV4, 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 ([LAIV), Flumist Quadrivalent] | • Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cldIV, RIV, or LAIV of any valency)  
• Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg)  
• 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 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 |
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| Influenza, egg-based, inactivated injectable (IV4) | • Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cdIV, IV, or LAIV of any valency)  
• Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg) |
| Influenza, cell culture inactivated injectable (ccIV4), Fluocell, Quadrivalent |  |
| Influenza, recombinant injectable (IRV4), Flucelvax Quadrivalent | • Severe allergic reaction (e.g., anaphylaxis) to any FIV of any valency, or to any component of FIV4  |
| Influenza, live attenuated (LAIV, Flumist Quadrivalent) | • Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cdIV, IV, or LAIV of any valency)  
• Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg)  
• Anatomic or functional asplenia  
• Immunocompromised due to any cause including, but not limited to, medications and HIV infection  
• Close contacts or caregivers of severely immunocompromised 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. |

**Precautions**

- Removed having an “egg allergy” from the precautions column

- Guillain-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

- 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 IV, cdIV, IV, or LAIV of any valency. If using cdIV, 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

- Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine
  - 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

- Asthma in persons aged 5 years old or older
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<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose of vaccine or a vaccine component¹</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Pneumococcal vaccine (7vPCV)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose of vaccine or a vaccine component¹</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Pneumococcal vaccine (13vPCV)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose of vaccine or a vaccine component¹</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose of vaccine or a vaccine component¹</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose of vaccine or a vaccine component¹</td>
<td>Allergic or severe acute illness with or without fever</td>
</tr>
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<td>Pneumococcal vaccine (7vPCV)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose of vaccine or a vaccine component¹</td>
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<td>Pneumococcal polysaccharide (PPSV23)</td>
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¹. When a contraindication is present, a vaccine should NOT be administered. Kroger A, Baht A, Hunter R. ACP General Best Practice Guidelines for Immunization. www.acponline.org/practice/guidelines/immunization.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, Baht A, Hunter R. ACP General Best Practice Guidelines for Immunization. www.acponline.org/practice/guidelines/immunization.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-biologicals/approved-products/vaccines-licensed-use-united-states.

⁴. For information on the pregnancy exposure registry for persons who were inadvertently vaccinated with Haemophilus b or Pneumococcal while pregnant, please visit hepatitispregnancyregistry.com or www.prebevadose.com/astary
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| *Haemophilus influenzae type b* (Hib)        | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>3</sup>  
  • For Hiberix, 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>2</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>2</sup> including yeast  
  • Pregnancy: Heplisa-B and PreHevBrio are not recommended due to lack of safety data in pregnant persons. Use other hepatitis B vaccines if HepB is indicated | • Moderate or severe acute illness with or without fever                      |
| Hepatitis A- Hepatitis B vaccine             | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component<sup>2</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>2</sup>  
  • Pregnancy: HPV vaccination not recommended                                               | • Moderate or severe acute illness with or without fever                      |
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| Haemophilus influenza type b (Hib)          | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component²
  • For Hiberix, 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 component² 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 component² including yeast
  • Pregnancy: Hepisoy-B and PreHebino are not recommended due to lack of safety data in pregnant persons,
  Use other hepatitis B vaccines if HepB is indicated | • Moderate or severe acute illness with or without fever |
| Hepatitis A- Hepatitis B vaccine [HepA-HepB, (Twinrix®)] | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component² 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 component²
  • Pregnancy: HPV vaccination not recommended                                                                 | • Moderate or severe acute illness with or without fever |
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<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component³</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
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<td>- For Hiberix, ActHib, and PedvaxHib only: History of severe allergic reaction to dry natural latex</td>
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<td>Hepatitis A (HepA)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component² including neomycin</td>
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<td>Hepatitis B (HepB)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component² including yeast</td>
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<td>- Pregnancy: Heplisav-B and PreHevBrio are not recommended due to lack of safety data in pregnant persons. Use other hepatitis B vaccines if HepB is indicated</td>
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</tr>
<tr>
<td>Hepatitis A- Hepatitis B vaccine [HepA-HepB, (Twinrix®)]</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component³ including neomycin and yeast</td>
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</table>
Thank You!

Questions?

For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
2022 Adult Immunization Schedule
### 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>Meningococcal type B vaccine</td>
<td>Hib</td>
<td>ActHIB®, Hibrix®, PedVax®HB®</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Havrix®, VacA®</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®, Recombivax® HB®, HepBiv®B®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil® 9®</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>IIV4, IIV5</td>
<td>Many brands</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV, RVA</td>
<td>FluMist®, Quadrivalent</td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td>MMR</td>
<td>Fluvirin® Quadvax®</td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R®</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-D, MenACWY-CRM, MenACWY-TT</td>
<td>Menveo®, MenQuadrivalent®</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C, MenB-Hib</td>
<td>Bexsero®</td>
</tr>
<tr>
<td>Pneumococcal 15-valent conjugate vaccine</td>
<td>PCV15</td>
<td>Meneisce®</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>PCV23S</td>
<td>Prevnar® 23®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
<td>Tetenac®, TdVac®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Adsace®, Boostrix®</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VVAR</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. Use of trade names is for identification purposes only and does not imply endorsement by the ACP 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), and American Academy of Physician Associates (www.aapa.org), and Society for Healthcare Epidemiology of America (www.shea-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 pneumococcal 23-valent polysaccharide (PCV23) 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/cdcinfo or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays.

Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html.

### 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>
<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>Influenza inactivated (IV4) or Influenza recombinant (RIV4)</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
</tr>
<tr>
<td>Influenza live, attenuated (LAIV4)</td>
<td>or</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Tdap or Td)</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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<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td></td>
<td></td>
<td>1 or 2 doses depending on indication (if born in 1997 or later)</td>
<td></td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td></td>
<td></td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses</td>
</tr>
<tr>
<td>Zoster recombinant (RSV)</td>
<td></td>
<td></td>
<td>2 doses for immunocompromising conditions (see notes)</td>
<td>2 doses</td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td>2 or 3 doses depending on age at initial vaccination or condition</td>
<td>27 through 45 years</td>
<td>2 doses</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>1 dose PCV15 followed by PPSV23 OR 1 dose PCV20</td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td></td>
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<tr>
<td>Hepatitis B (HepB)</td>
<td></td>
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<tr>
<td>Meningococcal A, C, W, Y (MenACWY)</td>
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<tr>
<td>Meningococcal B (MenB)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>19 through 23 years</td>
<td></td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td>1 or 3 doses depending on indication</td>
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</tbody>
</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>Immunocompromised (excluding HIV infection)</th>
<th>HIV Infection</th>
<th>Asplenia, complement deficiencies</th>
<th>End-stage renal disease, or on hemodialysis</th>
<th>Heart or lung disease; alcoholism</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Health care personnel</th>
<th>Men who have sex with men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tdap or Td</td>
<td>1 dose Tdap each pregnancy</td>
<td></td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>MMR</td>
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<td>RZV</td>
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<tr>
<td>HPV</td>
<td>Not Recommended</td>
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<td></td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td>3 doses through age 26 years</td>
<td>1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)</td>
<td></td>
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<tr>
<td>HepA</td>
<td></td>
<td>2 doses at age ≥19 years</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>HepB</td>
<td>3 doses (see notes)</td>
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<tr>
<td>MenACWY</td>
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<tr>
<td>MenB</td>
<td>Precaution</td>
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<td></td>
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<td>Hib</td>
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</tr>
</tbody>
</table>

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](http://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 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 [Twixir 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 [Twixir] 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 Hepasol-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 [Twixir 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 (Twixir) 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 dose is double that of normal adult dose, i.e., 2 ml instead of 1 ml).

**Note:** Hepasol-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 (Hepasol-B®) or 3-dose (Engerix B®), Recombivax HB® series or 3-dose series HepA-HepB (Twixir) 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 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; persons 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: 2 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.
Notes

Recommended Adult Immunization Schedule, United States, 2022

- 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

- 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/mm7005s1.htm
- For the 2022–2023 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 these 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 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 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

Meningococcal vaccination

Special situations for MenACWYW

- 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 MenQuadrax) 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 MenQuadrax) 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 MenQuadrax)

- 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/mm6909a1.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 2-dose primary series MenB-FHbp (Trumenba) at 0, 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 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/mm6909a1.htm

Note: MenB vaccines may be administered simultaneously with MenACWY vaccine 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 6 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 on patients who have already received a previous dose of PCV15 and/or PPSV23, see www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm.

Special situations

- Age 19–64 years with certain underlying medical conditions or other risk factors: 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 6 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 on patients who have already received a previous dose of PCV15 and/or PPSV23, see www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm.

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 dose 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 10 years if Td or Tdpa within 10 years since last dose of tetanus-toxoid-containing vaccine; for all other wounds, administer Tdap or Tdpa 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/mm69038a1.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 MMRI) (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: US-born before 1980 (except for pregnant women and health care personnel) See above)

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 of 1 dose of series (dose 2–4–8 weeks later) if previously did not receive varicella-containing vaccine, regardless of whether US-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 US-born before 1980
- HIV infection with CD4 percentage ≤ 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/mm71032a1.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](http://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>
</tr>
</thead>
</table>
| Influenza, egg-based, inactivated injectable (IVI4) | - Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cIV, IVI, or LAIV of any valency)  
  - Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (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 IV, 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 [cIV], Fluboost® Quadrivalent | - Severe allergic reaction (e.g., anaphylaxis) to any cIV of any valency, or to any component of cIV | - 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 IV, cIV, or LAIV of any valency. If using cIV, 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 (IVI4), Flublok® Quadrivalent | - Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component of RIV | - 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 IV, cIV, or LAIV 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 [LAVI4, Flumist® Quadrivalent] | - Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cIV, or LAIV of any valency)  
  - Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (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 immunocompromised 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, persimmon within the previous 5 days, or balsam 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 LAVI4, 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, Bahtla S, 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, Bahtla S, 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](http://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><em>Haemophilus influenzae</em> type b (Hib)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><em>Hepatitis A</em> (HepA)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component including hepasyn</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><em>Hepatitis B</em> (HepB)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component including hepasyn</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><em>Hepatitis A-Hepatitis B vaccine</em></td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component including neomycin and yeast</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Metaxel, mumps, rubella (MMR)</td>
<td>- Severe immunodeficiency (e.g., hemolytic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised)</td>
<td>- Pregnancy</td>
</tr>
<tr>
<td>Meningococcal ACWY (MenACWY)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Pneumococcal conjugate (PCV13)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Pneumococcal conjugate (PCV23)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide (PPV23)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis (Tdap)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Zoster recombiant vaccine (ZSV)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>- 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. (Knorr A, Balta L, Hunter R. ACP General Best Practice Guidelines for Immunization. www.cdph.acp.org/gbg/revisedgbc/revisedgbc.html#contraindications)

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. (Knorr A, Balta L, Hunter R. ACP General Best Practice Guidelines for Immunization. www.cdph.acp.org/gbg/revisedgbc/revisedgbc.html#contraindications)

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-united-states.
2022 Child and Adolescent Immunization Schedule
### Vaccines in the Child and Adolescent Immunization Schedule

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dengue vaccine</td>
<td>DEN/DCYD</td>
<td>Dengvaxia®</td>
</tr>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis vaccine</td>
<td>DTaP</td>
<td>Daptacel®</td>
</tr>
<tr>
<td>Diphtheria, tetanus vaccine</td>
<td>DT</td>
<td>Infantrix®</td>
</tr>
<tr>
<td>Haemophilus influenza type b vaccine</td>
<td>Hb (PRP-T)</td>
<td>ActHIB®</td>
</tr>
<tr>
<td>Haemophilus influenza type b vaccine</td>
<td>Hb (PRP-OMP)</td>
<td>Hibtact®</td>
</tr>
<tr>
<td>Haemophilus influenza type b vaccine</td>
<td>Hb (PRP)</td>
<td>Pedvax HIB®</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix®-B®</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Recombivax HB®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil®</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>IVIV</td>
<td>Flumist®</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV</td>
<td>Fluvirin®</td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R-P®</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-D</td>
<td>Menactra®</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenACWY-TT</td>
<td>MenQuadriv®</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-13C</td>
<td>Beextra®</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-HPB</td>
<td>Trumena®</td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate vaccine</td>
<td>PCV13</td>
<td>Prevenar 13®</td>
</tr>
<tr>
<td>Pneumococcal 23-valent polysaccharide vaccine</td>
<td>PCV23A</td>
<td>Prevenar 23®</td>
</tr>
<tr>
<td>Poliovirus vaccine (inactivated)</td>
<td>IPV</td>
<td>IPV®</td>
</tr>
<tr>
<td>Rotavirus vaccine</td>
<td>RV</td>
<td>Rotarix®</td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel®</td>
</tr>
<tr>
<td>Tetanus and diphtheria vaccine</td>
<td>Td</td>
<td>TdVac®</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax®</td>
</tr>
</tbody>
</table>

#### How to use the child and adolescent immunization schedule

1. Determine recommended vaccine by age (Table 1)
2. Determine interval for catch-up vaccination (Table 2)
3. Assess need for additional recommended vaccines by medical condition or other indication (Table 3)
4. Review vaccine types, frequencies, intervals, and considerations for special situations (Notes)
5. Review contraindications and precautions for vaccine types (Appendix)

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**Report**
- Suspected cases of reportable vaccine-preventable diseases or outbreaks to your state or local health department.
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov or 800-822-7967

**Questions or comments**
Contact www.cdc.gov/cdc-info or 800-CDC-INFO (800-232-0636). In English or Spanish, 8 a.m.-8 p.m. ET, Monday through Friday, excluding holidays.

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**Helpful information**
- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/vaccines/hcp/acip-recc/index.html
- General Best Practice Guidelines for Immunization (including contraindications and precautions): www.cdc.gov/vaccines/hcp/acip-recc/general-recc/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/vision/index.html

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**U.S. Department of Health and Human Services**
Centers for Disease Control and Prevention

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*Disclaimer: The information on this page has been compiled from sources that CDC believes to be reliable but the agency cannot guarantee the accuracy of any one report. The reported cases may not reflect the true burden of disease in the United States. For up-to-date information, please visit the CDC's website.
## Table 1
Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2022

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars.

To determine minimum intervals between doses, see the catch-up schedule (Table 2).

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Birth</th>
<th>1 mo</th>
<th>2 mos</th>
<th>4 mos</th>
<th>6 mos</th>
<th>9 mos</th>
<th>12 mos</th>
<th>15 mos</th>
<th>18 mos</th>
<th>19-23 mos</th>
<th>2-3 yrs</th>
<th>4-6 yrs</th>
<th>7-10 yrs</th>
<th>11-12 yrs</th>
<th>13-15 yrs</th>
<th>16 yrs</th>
<th>17-18 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B (HepB)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
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<tr>
<td>Rotavirus (RV1, RV2) (2-dose series), RV3 (3-dose series)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>See Notes</td>
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<tr>
<td>Diphtheria, tetanus, acellular pertussis (DTaP ≤7 yrs)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
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<tr>
<td>Haemophilus influenzae type b (HiB)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>See Notes</td>
<td>3rd dose or 4th dose</td>
<td>See Notes</td>
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<tr>
<td>Pneumococcal conjugate (PCV13)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
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<tr>
<td>Inactivated poliovirus (IPV ≤18 yrs)</td>
<td>1st dose</td>
<td>2nd dose</td>
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<tr>
<td>Influenza (IV4)</td>
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<td>Influenza (LAN/IV4)</td>
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<tr>
<td>Measles, mumps, rubella (MMR)</td>
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<tr>
<td>Varicella (VAR)</td>
<td>See Notes</td>
<td></td>
<td>1st dose</td>
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<td>2nd dose</td>
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<tr>
<td>Tdap, tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)</td>
<td>See Notes</td>
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<tr>
<td>Human papillomavirus (HPV)</td>
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<tr>
<td>Meningococcal (C, W135) (≥2 mos, ≥2 mos, ≥2 mos, ≥2 years)</td>
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<tr>
<td>Meningococcal B (Meningococcal B)</td>
<td>See Notes</td>
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<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
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<tr>
<td>Dengue (DENV4/6) (≥1-16 yrs)</td>
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</tr>
</tbody>
</table>

- **Range of recommended ages for all children**
- **Range of recommended ages for catch-up vaccination**
- **Range of recommended ages for certain high-risk groups**
- **Recommended vaccination can begin in this age group**
- **Recommended vaccination based on shared clinical decision-making**
- **No recommendation/not applicable**
# Table 2: Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 Month Behind, United States, 2022

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. Always use this table in conjunction with Table 1 and the Notes that follow.

### Children ages 1 month through 6 years

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Minimum Interval Between Doses</th>
<th>Children 3 to Dose 4</th>
<th>Dose 4 to Dose 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>Birth</td>
<td>Dose 1 to Dose 2</td>
<td>Dose 2 to Dose 3</td>
<td>Dose 3 to Dose 4</td>
</tr>
<tr>
<td></td>
<td>4 weeks</td>
<td>8 weeks and at least 16 weeks after first dose</td>
<td>Minimum age for the final dose is 24 weeks</td>
<td></td>
</tr>
<tr>
<td>Rotavirus</td>
<td>Maximum age for first dose is 14 weeks, 6 days.</td>
<td>4 weeks maximum age for final dose is 8 months, 0 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>6 months</td>
<td>6 months</td>
</tr>
<tr>
<td>Haemophilus influenzae type b</td>
<td>6 weeks</td>
<td>No further doses needed if first dose was administered before the 1st birthday</td>
<td>No further doses needed if previous dose was administered at age 15 months or older</td>
<td>No further doses needed if current age is younger than 12 months and first dose was administered at any age 7 months and older</td>
</tr>
<tr>
<td>Pneumococcal conjugate</td>
<td>6 weeks</td>
<td>No further doses needed for healthy children if first dose was administered at age 24 months or older</td>
<td>8 weeks</td>
<td>8 weeks (as final dose) This dose only necessary for children age 12 through 59 months who received 3 doses before the 1st birthday.</td>
</tr>
<tr>
<td>Inactivated poliovirus</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>6 weeks</td>
<td>6 months (minimum age 4 years for final dose)</td>
</tr>
<tr>
<td>Measles, mumps, rubella</td>
<td>12 months</td>
<td>4 weeks</td>
<td>6 months (as final dose)</td>
<td>6 months (as final dose)</td>
</tr>
<tr>
<td>Varicella</td>
<td>12 months</td>
<td>3 months</td>
<td>6 months (as final dose)</td>
<td>6 months (as final dose)</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>12 months</td>
<td>6 months</td>
<td>6 months (as final dose)</td>
<td>6 months (as final dose)</td>
</tr>
<tr>
<td>Meningooccal ACWV</td>
<td>2 months</td>
<td>See Notes</td>
<td>See Notes</td>
<td>See Notes</td>
</tr>
</tbody>
</table>

### Children and adolescents age 7 through 18 years

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Minimum Interval Between Doses</th>
<th>Children 3 to Dose 4</th>
<th>Dose 4 to Dose 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetanus, diphtheria, tetanus, diphtheria, and acellular pertussis</td>
<td>7 years</td>
<td>4 weeks</td>
<td>4 weeks if first dose of DTap/DTaP was administered before the 1st birthday</td>
<td>6 months (as final dose) if first dose of DTap/DTaP was administered at any age 6 months or older</td>
</tr>
<tr>
<td>Human papillomavirus</td>
<td>9 years</td>
<td>Routine dosing intervals are recommended.</td>
<td>4 weeks if first dose of DTaP/DT was administered before the 1st birthday</td>
<td>6 months if first dose of DTaP/DT was administered before the 1st birthday</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>N/A</td>
<td>6 months</td>
<td>8 weeks and at least 16 weeks after first dose</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>N/A</td>
<td>4 weeks</td>
<td>A fourth dose is not necessary if the third dose was administered at age 4 years or older and at least 6 months after the previous dose.</td>
<td></td>
</tr>
<tr>
<td>Inactivated poliovirus</td>
<td>N/A</td>
<td>4 weeks</td>
<td>6 months</td>
<td>6 months (as final dose)</td>
</tr>
<tr>
<td>Measles, mumps, rubella</td>
<td>N/A</td>
<td>4 weeks</td>
<td>3 months if younger than age 13 years</td>
<td>4 weeks if age 13 years or older</td>
</tr>
<tr>
<td>Varicella</td>
<td>N/A</td>
<td>4 weeks</td>
<td>6 months</td>
<td>6 months</td>
</tr>
<tr>
<td>Dengue</td>
<td>9 years</td>
<td>6 months</td>
<td>6 months</td>
<td>6 months</td>
</tr>
</tbody>
</table>
### Table 3

**Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2022**

Always use this table in conjunction with Table 1 and the Notes that follow.

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>INDICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<tr>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td></td>
</tr>
<tr>
<td>Rotavirus</td>
<td></td>
</tr>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis (DTaP)</td>
<td></td>
</tr>
<tr>
<td>Hemophilus influenzae type b</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal conjugate</td>
<td></td>
</tr>
<tr>
<td>Inactivated poliovirus</td>
<td></td>
</tr>
<tr>
<td>Influenza (IV)</td>
<td></td>
</tr>
<tr>
<td>Influenza (LAIV)</td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella</td>
<td></td>
</tr>
<tr>
<td>Varicella</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A</td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis (Tdap)</td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus</td>
<td></td>
</tr>
<tr>
<td>Meningococcal ACWY</td>
<td></td>
</tr>
<tr>
<td>Meningococcal B</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal polyvalent</td>
<td></td>
</tr>
<tr>
<td>Dengue</td>
<td></td>
</tr>
</tbody>
</table>

1. For additional information regarding HIV laboratory parameters and use of live vaccines, see the General Best Practice Guidelines for Immunization, "Altered Immune Competence," at www.cdc.gov/vaccines/hcp/ads-recs/general-recs/immunocompetence.html and Table 4-1 (footnote J) at www.cdc.gov/vaccines/hcp/ads-recs/general-recs/contraindications.html.

2. Severe Combined Immune Deficiency

3. IAFM contraindicated for children 2-4 years of age with asthma or wheezing during the preceding 12 months.
Dengue vaccination (minimum age: 9 years)

**Routine vaccination**
- Age 5–16 years living in dengue endemic areas AND have laboratory confirmation of previous dengue infection
- 3-dose series administered at 6, 6, and 12 months
- Endemic areas include Puerto Rico, American Samoa, US Virgin Islands, Federated States of Micronesia, Republic of Marshall Islands, and the Republic of Palau. For updated guidance on dengue endemic areas and pre-vaccination laboratory testing see www.cdc.gov/mmwr/volumes/70/mm7006a1.htm. This can be found at www.cdc.gov/vaccines/schedules/cpclinicians-guidance-dengue.jpg

**Diphtheria, tetanus, and pertussis (DTP) vaccine** (minimum age: 6 weeks [4 years for infants or Quadracel®])

**Routine vaccination**
- 5-dose series at ages 2, 4, 6, 15–18 months, 4–6 years
  - Prospectively: Dose 4 may be administered as early as age 12 months if at least 6 months have elapsed since dose 3.
  - Retrospectively: A 4th dose that was inadvertently administered as early as age 12 months may be counted if at least 4 months have elapsed since dose 3.

**Catch-up vaccination**
- Dose 5 is not necessary if dose 4 was administered at age 4 years or older and at least 6 months after dose 3.
- For other catch-up guidance, see Table 2.

**Special situations**
- Wound management in children less than age 7 years with history of 3 or more doses of tetanus toxoid-containing vaccine. For all wounds except clean and minor wounds, administer DTaP if more than 5 years since last dose of tetanus toxoid-containing vaccine. For detailed information, see www.cdc.gov/mmwr/volumes/67/mm6701z1.htm.

**Haemophilus influenzae type b** (minimum age: 6 weeks)

**Routine vaccination**
- ACHIP®, Hibtect®, Pentacel®, or Vaalib*: 4-dose series [3 dose primary series at age 2, 4, and 6 months, followed by a booster dose* at age 12–15 months]
  - *Vaalib* is not recommended for use as a booster dose. A different Hib-containing vaccine should be used for the booster dose.
- PedvaxHIB®: 3-dose series [2-dose primary series at age 2 and 4 months, followed by a booster dose at age 12–15 months]

**Catch-up vaccination**
- Dose 1 at age 7–11 months: Administer dose 2 at least 4 weeks later and dose 3 (final dose) at age 12–15 months or 8 weeks after dose 2 (whichever is later).
- Dose 1 at age 12–14 months: Administer dose 2 (final dose) at least 8 weeks after dose 1.

**Special situations**
- Unvaccinated children up to 15 years of age who are not at increased risk: Do not require catch-up vaccination for other catch-up guidance, see Table 2. *Vaalib*® can be used for catch-up vaccination in children less than age 5 years. Follow the catch-up schedule even if *Vaalib*® is used for one or more doses. For detailed information on use of *Vaalib*® see www.cdc.gov/mmwr/volumes/67/mm6705z1.htm.

**Notes**
For vaccination recommendations for persons ages 19 years or older, see the Recommended Adult Immunization Schedule, 2022.
**Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2022**

**Notes**

**Hepatitis A vaccination (minimum age: 12 months for routine vaccination)**

**Routine vaccination**
- 2-dose series (minimum interval 6 months) at age 12–23 months

**Catch-up vaccination**
- Unvaccinated persons through age 18 years should complete a 2-dose series (minimum interval 6 months).
- Persons who previously received 1 dose at age 12 months or older should receive dose 2 at least 6 months after dose 1.
- Adolescents age 18 years or older may receive the combined HepA and HepB vaccine, Twinrix®, as a 3-dose series (0, 1, and 6 months) or 4-dose series (3 doses at 0, 1, 2, and 6–12 months), followed by a booster dose at 12 months.

**International travel**
- Persons traveling to or working in countries with High or Intermediate endemic hepatitis A (www.cdc.gov/travel/).
- Infants age 6–11 months: 1 dose before departure; revaccinate with 2 doses, separated by at least 6 months, between age 12–17 months.
- Unvaccinated age 12 months or older: Administer dose 1 as soon as travel is considered.

**Hepatitis B vaccination (minimum age: birth)**

**Birth dose (monovalent HepB vaccine only)**
- **Mother is HBsAg negative:**
  - All medically stable infants ≥2,000 grams: 1 dose within 24 hours of birth
  - Infants <2,000 grams: Administer dose 1 at chronological age 1 month or hospital discharge (whichever is earlier) and even if weight is still <2,000 grams.
- **Mother is HBsAg positive:**
  - Administer HepB vaccine and hepatitis B immune globulin (HBIG) (in separate limbs) within 12 hours of birth, regardless of birth weight. For infants <2,000 grams, administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
  - Test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months after final dose.
- **Mother’s HBsAg status is unknown:**
  - Administer HepB vaccine within 12 hours of birth, regardless of birth weight.
  - For infants ≥2,000 grams, administer HBIG in addition to HepB vaccine (in separate limbs) within 12 hours of birth. Administer 3 additional doses of vaccine total of 4 doses) beginning at age 1 month.
  - Determine mother’s HBsAg status as soon as possible. If mother is HBsAg positive, administer HBIG to infants ≥2,000 grams as soon as possible, but no later than 7 days of age.

**Routine series**
- 3-dose series at age 0, 1–2, 6–18 months (use monovalent HepB vaccine for doses administered before age 6 weeks)
- Infants who did not receive a birth dose should begin the series as soon as feasible (see Table 2).

**Human papillomavirus (HPV) vaccination (minimum age: 9 years)**

**Routine and catch-up vaccination**
- HPV vaccination routinely recommended at age 11–12 years and catch-up HPV vaccination recommended for all persons through age 18 years if not adequately vaccinated
- 2–3 dose series depending on age at initial vaccination:
  - Age 9–14 years at initial vaccination: 2-dose series at 0, 6–12 months (minimum interval 5 months), repeat dose if administered too soon
  - Age 15 years or older at initial vaccination: 3-dose series at 0, 1–2 months, 5–12 months; dose 1 to dose 2: 2–4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon
- Interrupted schedule: 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.

**Special situations**
- Immunocompromising conditions, including HIV infection:
  - 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
- History of sexual abuse or assault: Start at age 9 years.

**Influenza vaccination (minimum age: 6 months [HIV], 2 years [LAIV4], 18 years [recombinant influenza vaccine, RIV4])**

**Routine vaccination**
- Use any influenza vaccine appropriate for age and health status annually:
  - 2 doses, separated by at least 4 weeks, for children age 6 months–8 years who have received fewer than 2 influenza vaccine doses before July 1, 2021, or whose influenza vaccination history is unknown (administer dose 2 even if the child turns 9 between receipt of dose 1 and dose 2).
  - 1 dose for children age 6 months–8 years who have received at least 2 influenza vaccine doses before July 1, 2021
  - 2 doses for all persons ages 9 years or older.
- For the 2021–2022 season, see www.cdc.gov/mmwr/volumes/70/mm/7005a1.htm.
- For the 2022–2023 season, see the 2022–2023 ACIP influenza vaccine recommendations.

**Special situations**
- Egg allergy, hive only: Any influenza vaccine appropriate for age and health status annually.
- Egg allergy with symptoms other than hives (e.g., angioedema, respiratory distress) or required epinephrine or other 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.

**Measles, mumps, and rubella vaccination (minimum age: 12 months for routine vaccination)**

**Routine vaccination**
- 2-dose series at age 12–15 months, age 4–6 years
- MMIR or MMIR may be administered
- MMIR should be administered at age 12 months
- MMIR may be used if parent or caregiver expresses a preference.

**Catch-up vaccination**
- Unvaccinated children and adolescents: 2-dose series at least 4 weeks apart
- The maximum age for use of MMIR is 12 years.
- Minimum interval between MMIR doses: 3 months

**Special situations**
- International travel:
  - Infants age 6–11 months: 1 dose before departure; revaccinate with 2-dose series at age 12–15 months (12 months for children in high-risk areas) and dose 2 as early as 4 weeks later.
  - Unvaccinated children age 12 months or older: 2-dose series at least 4 weeks apart before departure.
Notes

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2022

Meningococcal serogroup A, C, W, Y vaccination
(minimum age: 2 months [MenACWY-CRM, Menveo], 9 months [MenACWY-D, Menactra]), 2 years [MenACWY-TT, MenQuadrifi]

Routine vaccination
* 2-dose series at age 11–12 years; 16 years

Catch-up vaccination
* Age: 13–15 years: 1 dose now and booster at age 16–18 years (minimum interval: 8 weeks)

Special situations
Anatomic or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eczulizumab, ravulizumab) use:
- Menveo:
  - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4.6, and 12 months)
  - Dose 1 at age 3–6 months: 3, 4, or 6-dose series (dose 2 and dose 3 if applicable) at least 8 weeks prior to the first dose at age 2 months or older, followed by an additional dose at least 12 weeks later and after age 12 months
  - Dose 1 at age 7–12 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - Dose 1 at age 24 months or older: 2-dose series at 8 weeks apart

- Menactra
  - Persistent complement component deficiency or complement inhibitor use:
    - Age: 9–23 months: 2-dose series at least 12 weeks apart
    - Age 24 months or older: 2-dose series at least 8 weeks apart

- Anatomic or functional asplenia, sickle cell disease, or HIV infection
  - Age: 9–23 months: Not recommended

- Age 24 months or older: 2-dose series at least 6 months apart

- Menactra must be administered at least 4 weeks after completion of PCV13 series.

- MenQuadrifi:
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart

Travel in countries with hyperendemic or epidemic meningococcal disease, including countries in the African meningitis belt or during the Hajj (www.cdc.gov/travel/itinerary):
* Children less than age 24 months:
  - Menveo (age 2–23 months)
    - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4.6, and 12 months)
    - Dose 1 at age 3–6 months: 3, or 4-dose series (dose 2 and dose 3 if applicable) at least 8 weeks after previous dose until a dose is received at age 7 months or older, followed by an additional dose at least 12 weeks later and after age 12 months
    - Dose 1 at age 7–12 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)

- Menactra (age 9–23 months)
  - 2-dose series (dose 2 at least 12 weeks after dose 1; 2 dose may be administered as early as 6 weeks after dose 1 in travelers)

- MenQuadrifi

First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits:
* 1 dose Menveo, Menactra, or MenQuadrifi

Adolescent vaccination of children who received MenACWY prior to age 10 years:
* Children for whom boosters are recommended because of ongoing increased risk of meningococcal disease (e.g., those with complement component deficiency, HIV, or asplenia) follow the booster schedule for persons at increased risk.
* Children for whom boosters are not recommended (e.g., a healthy child who received a single dose for travel to a country where meningococcal disease is endemic). Administer MenACWY according to the recommended adolescent schedule with dose 1 at age 11–12 years and dose 2 at age 16 years.

Note: Menactra should be administered either before or at the same time as MenACWY. If MenACWY vaccines may be administered simultaneously with MenB vaccines if indicated, but at a different anatomic site. If feasible, for MenACWY booster dose recommendations for groups listed under "Special situations" and in an outbreak setting and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/mm6903.htm.

Meningococcal serogroup B vaccination
(minimum age: 10 years [MenB-4C, Bexsero], MenB-Hib, Trumena))

Shared clinical decision-making
* Adolescents not at increased risk age 16–23 years (preferred age 16–18 years) based on shared clinical decision-making:
  - Bexsero™: 2-dose series at least 1 month apart
  - Trumena™: 2-dose series at least 6 months apart if dose 2 is administered earlier than 6 months, administer a 3rd dose at least 4 months after dose 2

Special situations
Anatomic or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eczulizumab, ravulizumab) use:
* Bexsero™: 2-dose series at least 1 month apart

* Trumena™: 2-dose series at 0.1–2.6 months

Note: Bexsero™ and Trumena™ are not interchangeable; the same product should be used for all doses in a series.

For MenB booster dose recommendations for groups listed under "Special situations" and in an outbreak setting and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/mm6901.htm.

Pneumococcal vaccination
(minimum age: 6 weeks [PCV13], 2 years [PPSV23])

Routine vaccination
* 4-dose series at age 2, 4, 6, 12–15 months

Catch-up vaccination with PCV13
* 1 dose for healthy children age 24–59 months with any incomplete* PCV13 series
* For other catch-up guidelines, see Table 2.

Special situations
Underlying conditions below: When both PCV13 and PPSV23 are indicated, administer PCV13 first. PCV13 and PPSV23 should not be administered during same visit.

* Chronic heart disease (particularly congenital heart disease and cardiac failure); chronic lung disease (including asthma treated with high-dose, oral corticosteroid); diabetes mellitus:
  * Age 2–5 years:
    * Any incomplete* series with:
      * PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
      * Less than 3 PCV13 doses: 2 doses PCV13 (at least 8 weeks after the most recent dose and administered 8 weeks apart)
      * No history of PCV13; 1 dose PPSV23 (at least 8 weeks after completing all recommended PCV13 doses)

  * Age 6–18 years:
    * No history of PCV13; 1 dose PPSV23 (at least 8 weeks after completing all recommended PCV13 doses)

* Cerebrospinal fluid leak, cochlear implant:
  * Age 2–5 years:
    * Any incomplete* series with:
      * PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
      * Less than 3 PCV13 doses: 2 doses PCV13 (at least 8 weeks after the most recent dose and administered 8 weeks apart)
      * No history of PCV13; 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

  * Age 6–18 years:
    * No history of either PCV13 or PPSV23; 1 dose PCV13, 1 dose PPSV23 at least 8 weeks later

* Any PCV13 but not PPSV23: 1 dose PCV13 at least 8 weeks after the most recent dose of PCV13

* PPSV23 but not PCV13: 1 dose PCV13 at least 8 weeks after the most recent dose of PPSV23

* Sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; congenital or acquired immunodeficiency; HIV infection; chronic renal failure; nephrotic syndrome; malarial neoplasms, leukemia, lymphomas, Hodgkin disease, and other diseases associated with treatment with immunosuppressive drugs or radiation therapy; solid organ transplantation; multiple myeloma:
  * Age 2–5 years:
    * Any incomplete* series with:
      * PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
      * Less than 3 PCV13 doses: 2 doses PCV13 (at least 8 weeks after the most recent dose and administered 8 weeks apart)
      * No history of PCV13; 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

  * Age 6–18 years:
    * No history of either PCV13 or PPSV23; 1 dose PCV13, 1 dose PPSV23 at least 8 weeks later

* Any PCV13 but not PPSV23: 1 dose PCV13 at least 8 weeks after the most recent dose of PCV13

* PPSV23 but not PCV13: 1 dose PCV13 at least 8 weeks after the most recent dose of PPSV23

* PPSV23 but not PCV13: 1 dose PCV13 at least 6 weeks after the most recent PPSV23 dose and a dose of 2 of PPSV23 administered 5 years later
Chronic liver diseases, alcoholism:
Age 6–18 years
• No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

*Incomplete series – Not having received all doses in either the recommended series or an age-appropriate catch-up series See Tables 8, 9, and 11 in the ACIP pneumococcal vaccine recommendations (www.cdc.gov/mmwr/pdf/mm5911.pdf) for complete schedule details.

Poliovirus vaccination
(minimum age: 6 weeks)

Routine vaccination
• 4-dose series at ages 2, 4, 6–18 months, 4–6 years; administer the final dose on or after age 4 years and at least 6 months after the previous dose.
• 4 or more doses of IPV can be administered before age 4 years when a combination vaccine containing IPV is used. However, a dose is still recommended on or after age 4 years and at least 6 months after the previous dose.

Catch-up vaccination
• In the first 6 months of life, use minimum ages and intervals only for travel to a polio-endemic region or during an outbreak.
• IPV is not routinely recommended for U.S. residents age 18 years or older.

Series containing oral polio vaccine (OPV), either mixed OPV/IPV or OPV-only series
• Total number of doses needed to complete the series is the same as that recommended for the U.S. IPV schedule. See www.cdc.gov/mmwr/volumes/62/wr/mm6216b1.htm%26DIVURL%3Dmm6216a1_xc.
• Only trivalent OPV (OPV3) counts toward the U.S. vaccination requirements.
• Doses of OPV administered before April 1, 2016, should be counted (unless specifically noted as administered during a campaign).
• Doses of OPV administered on or after April 1, 2016, should not be counted.
• For guidance to assess doses documented as "OPV" see www.cdc.gov/mmwr/volumes/64/wr/mm6406a7.htm%26DIVURL%3Dmm6406a7_xc.
• For other catch-up guidance, see Table 2.

Rotavirus vaccination
(minimum age: 6 weeks)

Routine vaccination
• Rotarix®: 2-dose series at age 2 and 4 months
• RotaTeq®: 3-dose series at age 2, 4, and 6 months
• If any dose in the series is either RotaTeq® or unknown, default to 3-dose series.

Catch-up vaccination
• Do not start the series on or after age 15 weeks, 0 days.
• The maximum age for the final dose is 8 months, 0 days.
• For other catch-up guidance, see Table 2.

Tetanus, diphtheria, and pertussis (Tdap) vaccination
(minimum age: 11 years for routine vaccination, 7 years for catch-up vaccination)

Routine vaccination
• Adolescents age 11–12 years: 1 dose Tdap
  • Pregnancy: 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–16.
  • Tdap may be administered, regardless of the interval since the last tetanus- and diphtheria-toxoid-containing vaccine.

Catch-up vaccination
• Adolescents age 13–18 years who have not received Tdap: 1 dose Tdap, then Td or Tdap booster every 10 years.
• Persons age 2–18 years not fully vaccinated with DTaP: 1 dose Tdap as part of the catch-up series (preferably the first dose), if additional doses are needed, use Td or Tdap.
• Tdap administered at age 7–9 years:
  • Children age 7–9 years who receive Tdap should receive the routine Tdap dose at age 11–12 years.
  • Children age 10 years who receive Tdap do not need the routine Tdap dose at age 11–12 years.
• DTaP inadvertently administered on or after age 7 years:
  • Children age 7–9 years: DTaP may count as part of catch-up series. Administer routine Tdap dose at age 11–12 years.
  • Children age 10–18 years: Count dose of DTaP as the adolescent Tdap booster.
• For other catch-up guidance, see Table 2.

Special situations
• Wound management in persons age 7 years or older with history of 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. Tetdap is preferred for persons age 11 years or older who have not previously received Tdap or whose Tdap history is unknown. If a tetanus toxoid-containing vaccine is indicated for a pregnant adolescent, use Tdap.
• For detailed information, see www.cdc.gov/mmwr/volumes/69/wr/mm690303.htm.

Varicella vaccination
(minimum age: 12 months)

Routine vaccination
• 2-dose series at age 12–15 months, 4–6 years
• VariMist or MMRV may be administered*
• Dose 2 may be administered as early as 3 months after dose 1 (a dose inadvertently administered after at least 4 weeks may be counted as valid).

*Note: For dose 1 in children age 12–47 months, it is recommended to administer MMR and varicella vaccines separately. MMRV may be used if parents or caregivers express a preference.

Catch-up vaccination
• Ensure persons age 7–18 years without evidence of immunity (see MMRV at www.cdc.gov/mmwr/pdf/mm5606pdf) have a 2-dose series:
  • Age 7–12 years: routine interval; 3 months (a dose inadvertently administered after at least 4 weeks may be counted as valid)
  • Age 13 years and older: routine interval; 4–8 weeks (minimum interval: 4 weeks)
• The maximum age for use of MMRV is 12 years.
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<th>Vaccine</th>
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<tr>
<td>Influenza, egg-based, inactivated injectable (IV4)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cIV, RV, or LAN of any valence) • 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 • 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 IV, 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</td>
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<tr>
<td>Influenza, cell culture-based inactivated injectable (cIV4): Flu deactivated Quadivalent</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) to any cIV of any valency, or to any component of cIV4</td>
<td>• 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 IV, RV, or LAN of any valence. If using cIV4, administer in medical setting under supervision of a health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever</td>
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<tr>
<td>Influenza, recombinant injectable (RIV4, Flublok® Quadivalent)</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 • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IV, cIV, or LAN of any valence. If using RIV4, administer in medical setting under supervision of a health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Influenza, live attenuated (LAIV4, Flumist® Quadivalent)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IV, cIV, RV, or LAN of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg) • Children age 2 – 4 years with a history of asthma or wheezing • Anatomical 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 • Children and adolescents receiving aspirin or salicylate-containing medications • 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 • 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 a 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, insoprted isolated hypertension), renal, hepatic, neurological, hematologic, or metabolic disorders (including diabetes mellitus) • 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, Baitha 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, Baitha 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
# Appendix

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<th>Vaccine</th>
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<td>Dengue (DEN-HV)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component - 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)</td>
<td>- Pregnant - HIV infection without evidence of severe immunosuppression - Moderate or severe acute illness with or without fever</td>
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<tr>
<td>Diphtheria, tetanus, pertussis (DTaP)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component - For DTaP only: history of severe allergic reaction to any tetanus toxoid-containing vaccine</td>
<td>- Guillain-Barré syndrome (GBS) within 6 weeks after previous dose of tetanus toxoid-containing vaccine - History of Guillain-Barré syndrome or other neurological reactions after previous dose of diphtheria toxoid-containing vaccine or tetanus toxoid-containing vaccine - Containing vaccine (other than DTaP or DT) within 6 months before the next dose of tetanus toxoid-containing vaccine - For DTaP only: Protracted neurological disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy, defined until neurologic status stabilized and stabilized without treatment - Moderate or severe acute illness with or without fever</td>
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<tr>
<td>Haemophilus influenzae type b (HiB)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component - For Hib, ActHib, and Pedicillin H: only history of severe allergic reaction to dry powder, liquid, or gel</td>
<td>- Moderate or severe acute illness with or without fever</td>
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<tr>
<td>Hepatitis A (HepA)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component - For HepA only: Pregnancy</td>
<td>- Moderate or severe acute illness with or without fever</td>
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<tr>
<td>Hepatitis B (HepB)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component - For HepB only: Pregnancy</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component - Hepatitis B vaccine (HepaBivalent, Humavac, Titerbank)</td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component - 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</td>
<td>- Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component - 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</td>
<td>- Recent (&lt;11 months) receipt of antibody-containing blood product (specific interval depends on product) - History of thromboembolism or thromboembolic purpura - Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing</td>
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