Updates in Adult Immunization Schedule 2020

Current Issues in Immunization Net Conference
March 18, 2020
Mark Freedman, DVM, MPH
Disclosure and Disclaimer

- The presenter has no conflict of interest
- The use of trade names is for identification purposes only and does not imply endorsement by CDC or ACIP
- Discussions on unlicensed products and off-label uses are in the context of ACIP recommendations
- The opinions expressed in this presentation are those of the presenter and do not necessarily represent official positions of CDC or ACIP
Overview

- Background
- ACIP policy updates
- Harmonization with child and adolescent immunization schedule
- Changes in the 2020 adult immunization schedule
Adult Immunization Schedule – Background

- Updated each year
  - Represents current, approved ACIP policy
  - Designed for implementation of ACIP policy

- Approved by
  - CDC Director
  - American College of Physicians
  - American Academy of Family Physicians
  - American College of Obstetricians and Gynecologists
  - American College of Nurse-Midwives

- Published in February, 2020
  - MMWR Notice to Readers – announcement of availability on ACIP website
  - Annals of Internal Medicine – published in entirety
Updates in Adult Immunization Recommendations
Updates in ACIP Recommendations for Adults
Policy Statements Published after 2019 Adult Schedule Approval

- Human Papillomavirus (HPV) – June 2019 ACIP Meeting
  - Meites et al. MMWR Aug 2019; 68(32); 698-702
  - Catch-up vaccination for all persons through age 26
  - Shared clinical decision-making for persons 27-45 years

- Pneumococcal Vaccines – June 2019 ACIP Meeting
  - Matanock et al. MMWR Nov 2019; 68(46); 1069-1075
  - PPSV23 recommended for all persons 65 and older
  - Shared clinical decision-making for PCV13 in persons 65 and older

- Influenza Vaccines – June 2019 ACIP Meeting
  - Grohskopf et al. MMWR Aug 2019; 68(3); 1-21
  - Annual influenza vaccination recommended for all persons 6 months and older who do not have contraindications
Updates in ACIP Recommendations for Adults
Policy Statements Published after 2019 Adult Schedule Approval

- **Hepatitis A Vaccines**
  - All persons with HIV aged ≥1 year be routinely vaccinated
  - Vaccination recommended in settings for exposure

- **Serogroup Meningococcal B Vaccines – June 2019 ACIP Meeting**
  - For persons aged ≥10 years with complement deficiency, complement inhibitor use, asplenia, or who are microbiologists, MenB booster dose 1 year after primary series; booster every 2-3 years if risk remains
  - For persons aged ≥10 years determined by public health officials to be at increased risk during an outbreak, MenB booster dose if it has been ≥1 year since completion of primary series

- **Tdap Vaccines – October 2019 ACIP Meeting**
  - Havers et al. MMWR Jan 2020; 69(3); 77-83
  - Either Td vaccine or Tdap to be used for the decennial Td booster, tetanus prophylaxis for wound management, and for additional required doses in the catch-up immunization schedule if a person has received at least 1 Tdap dose
HPV Updates

- Routine recommendations for HPV vaccination of adolescents have not changed
- Catch-up HPV vaccination is now recommended for all persons through age 26 years
- For adults aged 27 through 45 years, public health benefit of HPV vaccination in this age range is minimal; shared clinical decision-making is recommended because some persons who are not adequately vaccinated might benefit
ACIP recommends a routine single dose of PPSV23 for adults aged ≥65 years.

Shared clinical decision-making is recommended regarding administration of PCV13 to persons aged ≥65 years who do not have an immunocompromising condition, cerebrospinal fluid leak, or cochlear implant and who have not previously received PCV13.

If a decision to administer PCV13 is made, PCV13 should be administered first, followed by PPSV23 at least 1 year later.
Pneumococcal Update

- ACIP asked CDC to examine the data on the PCV13 recommendation
- Pediatric use of PCV13 has indirectly reduced the incidence of PCV13-type disease among adults age 65 years and older
- Implementation of a PCV13 recommendation for all adults age 65 years and older in 2014 has had minimal impact on PCV13-type disease at the population level in this age group

Matanock et al. Use of 13-Valent Pneumococcal Conjugate Vaccine and 23-Valent Pneumococcal Polysaccharide Vaccine Among Adults Aged ≥65 Years: Updated Recommendations of the Advisory Committee on Immunization Practices. MMWR 2019; 68(46); 1069-1075
Influenza Updates

- Routine annual influenza vaccination is recommended for all persons aged ≥6 months who do not have contraindications. A licensed, recommended, and age-appropriate vaccine should be used.

- Inactivated influenza vaccines (IIVs), recombinant influenza vaccine (RIV), and live attenuated influenza vaccine (LAIV) are to be available for the 2019–20 season.

- No preferential recommendation is made for one influenza vaccine product over another for persons for whom more than one licensed, recommended, and appropriate product is available.

Grohskopf et al. Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2019–20 Influenza Season. MMWR 2019; 68(3); 1-21
Hepatitis A Updates

- ACIP recommends all persons with HIV aged ≥1 year be routinely vaccinated with Hepatitis A vaccine
- Hepatitis A vaccination is recommended for persons working in settings of exposure (e.g., those working in health care settings for injection or noninjection drug users or group homes and nonresidential day care facilities for developmentally disabled persons)
- Clotting factor disorders have been removed as an indication for Hepatitis A vaccine
Meningococcal B Updates

- Persons ≥10 years with complement deficiency, complement inhibitor use, or asplenia or who are microbiologists should receive a MenB booster dose 1 year following completion of a MenB primary series
  - MenB booster doses every 2–3 years thereafter, for as long as the increased risk remains
- For persons ≥10 years determined by public health officials to be at increased risk during an outbreak, ACIP recommends a one-time booster dose if it has been 1 year or more since completion of a MenB primary series
- Adolescents and young adults 16-23 years (16-18 years preferred) not at increased risk for meningococcal disease may be vaccinated based on shared clinical decision-making
Either Td or Tdap to be used for:
- The decennial Td booster
- Tetanus prophylaxis for wound management
- For additional required doses in the catch-up immunization schedule if a person has received at least 1 Tdap dose

Havers et al. Use of Tetanus Toxoid, Reduced Diphtheria Toxoid, and Acellular Pertussis Vaccines: Updated Recommendations of the Advisory Committee on Immunization Practices — United States, 2019. MMWR 2020; 69(3); 77-83
Shared Clinical Decision-Making Recommendation

- Shared clinical decision-making (SCDM) vaccinations are not recommended for everyone in a particular age group or everyone in an identifiable risk group.
- SCDM recommendations are individually based and informed by a decision process between the health care provider and the patient or parent/guardian.
- The key distinction between routine, catch-up, and risk-based recommendations and SCDM recommendations is the default decision to vaccinate.
- ACIP makes SCDM recommendations when individuals may benefit from vaccination, but broad vaccination of people in that group is unlikely to have population-level impacts.

https://www.cdc.gov/vaccines/acip/acip-scdm-faqs.html
Harmonization with Child and Adolescent Schedule
Harmonization with Child and Adolescent Schedule

- Overlapping vaccinations
  - Hib, hepatitis A, hepatitis B, HPV, influenza, MMR, meningococcal, pneumococcal, Tdap/Td, varicella

- Harmonize language, text structure, graphics (to extent possible)

- Collaborators
  - Adult Immunization WG, Child/Adolescent Immunization WG, disease and vaccination SMEs, communication and training staff
Harmonization with Child and Adolescent Schedule

- Included trade names on list (trade names used in HepA, HepB, MenACWY, MenB notes)
- Organized notes by heading ("routine vaccination," "shared clinical decision-making," and "special situations")
- Revised notes for brevity, clarity, consistency
- Used bold text to highlight population or indication for which vaccination recommended, minimized use of specialized text
- Removed articles, conjunctions, other words if meaning not compromised
- Used consistent text structure and language (e.g., 3-dose series HPV vaccine at 0, 1-2, 6 months)
Recommended Adult Immunization Schedule, United States, 2020
Cover Page

Recommended Adult Immunization Schedule
Recommended Adult Immunization Schedule for ages 19 years or older

**How to use the adult immunization schedule**

1. **Determine recommended vaccinations by age** (Table 1)
2. **Assess need for additional recommended vaccinations by medical condition and other indications** (Table 2)
3. **Review vaccine types, frequencies, and intervals and considerations for special situations** (Notes)

**Vaccines in the Adult Immunization Schedule**

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>Abbreviations</th>
<th>Trade names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemophilus influenza type b vaccine</td>
<td>Hib</td>
<td>ActHIB®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menactra®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pentavax®</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>MaxVac®</td>
</tr>
<tr>
<td>Hepatitis A and hepatitis B vaccine</td>
<td>HepA-HepB</td>
<td>Twinrix®</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix-B®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recombivax HB®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarkable® B®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV vaccine</td>
<td>Gardasil® 9</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>IV</td>
<td>Many brands</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV</td>
<td>Fluvirin® Quadrivalent</td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td>RV</td>
<td>Fluvirin® Quadrivalent</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MCWY</td>
<td>Menactra®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menveo®</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td>Bexsero®</td>
</tr>
<tr>
<td></td>
<td>MenB-PrPcP</td>
<td>Trumeta®</td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate vaccine</td>
<td>PCV13</td>
<td>Prevnar 13®</td>
</tr>
<tr>
<td>Pneumococcal 23-valent polysaccharide vaccine</td>
<td>PCP23</td>
<td>Pneumovax® 23</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
<td>Tetrix®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tetarix®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids, diphtheria pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel® Boostrix®</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax®</td>
</tr>
<tr>
<td>Zoster vaccine, recombinant</td>
<td>RZV</td>
<td>Shingrix®</td>
</tr>
<tr>
<td>Zoster vaccine live</td>
<td>ZVL</td>
<td>Zostavax®</td>
</tr>
</tbody>
</table>

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

**Report**

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to the local or state health department.
- Clinically significant post-vaccination reactions to the Vaccine Adverse Event Reporting System at www.vaers.hhs.gov or 888-232-7667.

**Injury claims**

All vaccines included in the adult immunization schedule except pneumococcal 23-valent polysaccharide (PPS23) and zoster (ZVL) 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 888-CDC-INFO (888-232-4636), 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 ACP recommendations: www.acponline.org/topic/immunization.html
- General Best Practice Guidelines for Immunization (including contraindications and precautions): www.cdc.gov/vaccines/hcp/guidelines/index.html
- Vaccine Information statements: www.cdc.gov/vaccines/hcp/vis/visindex.html
- Travel vaccine recommendation: www.cdc.gov/travel
- Recommended Adult Immunization Schedule, United States, 2020: www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html
## Recommended Adult Immunization Schedule for ages 19 years or older

**How to use the adult immunization schedule**

1. **Determine recommended vaccinations by age** (Table 1)
2. **Assess need for additional recommended vaccinations by medical condition and other indications** (Table 2)
3. **Review vaccine types, frequencies, and intervals and considerations for special situations** (Notes)

### Vaccines in the Adult Immunization Schedule

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviations</th>
<th>Trade names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemophilus influenza type b vaccine</td>
<td>Hib</td>
<td>ACIP® Hib*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pentacel® Hib*</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HeplA</td>
<td>Hanix® A*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vaxiguard® A*</td>
</tr>
<tr>
<td>Hepatitis A and Hepatitis B vaccine</td>
<td>HeplA-HeplB</td>
<td>Twinrix® A*</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HeplB</td>
<td>Engerix-B®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recombivax HB®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reactiv-HB®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Respavax B®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV vaccine</td>
<td>Gardasil 9®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gardasil®</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>IV</td>
<td>Many brands</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAI</td>
<td>Fluvirin® Quadrivalent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fluvivant® Quadrivalent</td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td>RV</td>
<td>Fluvirin® Quadrivalent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fluvivant® Quadrivalent</td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R® II</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY</td>
<td>Menactra®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Merenac®</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td>Bexsero®</td>
</tr>
<tr>
<td></td>
<td>MenB-HPb</td>
<td>Trumenba®</td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate vaccine</td>
<td>PCV13</td>
<td>Prevnar 13®</td>
</tr>
<tr>
<td>Pneumococcal 23-valent polysaccharide vaccine</td>
<td>PPV23</td>
<td>Prevnar® 23®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
<td>Tetrix®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tdshot®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids and tetradecaval pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel® Boostrix</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax®</td>
</tr>
<tr>
<td>Zoster vaccine, recombinant</td>
<td>RZV</td>
<td>Shingrix®</td>
</tr>
<tr>
<td>Zoster vaccine live</td>
<td>ZVL</td>
<td>Zostavax®</td>
</tr>
</tbody>
</table>

### Additional Information

- **Report**
  - Suspected cases of reportable vaccine-preventable diseases or outbreaks to the local or state health department.
  - Clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System at [www.vaers.hhs.gov](http://www.vaers.hhs.gov) or 800-822-7967
- **Injury claims**
  - All vaccines included in the adult immunization schedule except pneumococcal 23-valent polysaccharide (PPV23) and zoster (RZV, ZVL) vaccines are covered by the Vaccine Injury Compensation Program. Information on how to file a vaccine injury claim is available at [www.hrsa.gov/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation).
- **Questions or comments**
  - Contact your local health department or [CDC](https://www.cdc.gov/), 800-442-6353, in English or Spanish.

### List of vaccines, abbreviations, trade names

**Helpful Information**

- Complete ACP recommendations: [www.acp.org/acp/online/index.html](http://www.acp.org/acp/online/index.html)
- General Best Practice Guidelines for Immunization (including contraindications and precautions): [www.cdc.gov/vaccine/acp/res/generale/index.html](http://www.cdc.gov/vaccine/acp/res/generale/index.html)
- Vaccine information statements: [www.cdc.gov/vaccine/hic/vib/index.html](http://www.cdc.gov/vaccine/hic/vib/index.html)
- Travel vaccine recommendation: [www.cdc.gov/travel](http://www.cdc.gov/travel)
### Vaccines in the Adult Immunization Schedule*

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>Abbreviations</th>
<th>Trade names</th>
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</thead>
<tbody>
<tr>
<td>Haemophilus influenza type b vaccine</td>
<td>HIB</td>
<td>A/C/H/B* pneum* Pedvax HI*</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A and hepatitis B vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td></td>
<td>Recombivax HB* HepaVax*</td>
</tr>
<tr>
<td>Human papillomavirus vaccine (HPV vaccine)</td>
<td>HPV</td>
<td>Gardasil 9*</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>IIV</td>
<td>Many brands</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV</td>
<td>Fluvix* (Caudal)</td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td>RV</td>
<td>Fluvax* Caudal*</td>
</tr>
<tr>
<td>Meningococcal serogroup A vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate vaccine</td>
<td>PPSV-13</td>
<td>Pneumovax* 7L</td>
</tr>
<tr>
<td>Pneumococcal 23-valent polysaccharide vaccine</td>
<td>PPV/23</td>
<td></td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
<td>Tdamplex*</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids and tetanus pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel* Boostrix*</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax*</td>
</tr>
<tr>
<td>Zoster vaccine, recombinant</td>
<td>RZV</td>
<td>Shingrix*</td>
</tr>
<tr>
<td>Zoster vaccine live</td>
<td>ZVL</td>
<td>Zostavax*</td>
</tr>
</tbody>
</table>

*Advisory recommended vaccines if vaccination history is incomplete or unknown. Do not start or add doses to vaccine series if there are extended intervals between doses. The use of trade names is for identification purposes only and does not imply endorsement by the ACP or CDC.
Table 1
Recommended Adult Immunization Schedule by Age Group
Age groups 19–21 years and 22–26 years have been combined.
Table 1  Recommended Adult Immunization Schedule by Age Group, United States, 2020

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>10–26 years</th>
<th>27–49 years</th>
<th>50–64 years</th>
<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza inactivated (RI) or influenza recombinant (RIV)</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 (LAIV)</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (TdP or Td)</td>
<td>1 dose TdP, then Td or TdP booster every 10 years</td>
<td>1 dose TdP, then Td or TdP booster every 10 years</td>
<td>1 dose TdP, then Td or TdP booster every 10 years</td>
<td>1 dose TdP, then Td or TdP booster every 10 years</td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
</tr>
<tr>
<td>Zoster recombiant (RZV) preferred</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
</tr>
<tr>
<td>Zoster live</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td>2 or 3 doses depending on age at initial vaccination or condition</td>
<td>2 or 3 doses depending on age at initial vaccination or condition</td>
<td>2 or 3 doses depending on age at initial vaccination or condition</td>
<td>2 or 3 doses depending on age at initial vaccination or condition</td>
</tr>
<tr>
<td>Pneumococcal conjugate (PCV13)</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
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<tr>
<td>Meningococcal A, C, W, Y (MenACWY)</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
</tr>
<tr>
<td>Haemophilus influenza type b (Hib)</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</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
Not applicable

HPV row combined for males and females
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>10–26 years</th>
<th>27–49 years</th>
<th>50–64 years</th>
<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza inactivated (RV) or influenza recombinant (RIV)</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 (LAIV)</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Td or Tdap)</td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</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>1 or 2 doses depending on indication (if born in 1957 or later)</td>
<td>1 or 2 doses depending on indication (if born in 1957 or later)</td>
<td>1 or 2 doses depending on indication (if born in 1957 or later)</td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
<td>2 doses (if born in 1980 or later)</td>
</tr>
<tr>
<td>Zoster recombinant (RZV) (preferred)</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
</tr>
<tr>
<td>Zoster live (ZVL)</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td>2 or 3 doses depending on age or initial vaccination or condition</td>
<td>27 through 45 years</td>
<td>27 through 45 years</td>
<td>27 through 45 years</td>
</tr>
<tr>
<td>Pneumococcal conjugate (PCV13)</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
<td>1 or 2 doses depending on indication</td>
<td>1 or 2 doses depending on indication</td>
<td>1 or 2 doses depending on indication</td>
<td>1 or 2 doses depending on indication</td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</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>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td>1 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td>1 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td>1 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td>1 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)</td>
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<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
</tr>
</tbody>
</table>

Blue shading indicates shared clinical decision-making.
Table 2
Recommended Adult Immunization Schedule by Medical Condition and Other Indications
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>HIV or Rh virus infection</th>
<th>HIV Infection CD4 count</th>
<th>Anemia, 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>HIV or RIV (MQ)</td>
<td>3 doses annually</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
<td>2 doses at age ≥50 years</td>
<td>1 dose at age ≥60 years</td>
<td>3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years</td>
<td>1 dose</td>
<td>2 doses depending on age and indication</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
</tr>
<tr>
<td>Tdap or Td</td>
<td>1 dose</td>
<td>1 dose Td</td>
<td>1 dose</td>
<td>2 doses</td>
<td>1 dose</td>
<td>3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years</td>
<td>1 dose</td>
<td>2 doses depending on age and indication</td>
<td>No recommendations</td>
</tr>
<tr>
<td>MMR</td>
<td>NOT RECOMMENDED</td>
<td>NOT RECOMMENDED</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 or 3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years</td>
<td>2 doses</td>
<td>2 doses depending on age and indication</td>
<td>No recommendations</td>
</tr>
<tr>
<td>VAR</td>
<td>NOT RECOMMENDED</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 or 3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years</td>
<td>2 doses</td>
<td>2 doses depending on age and indication</td>
<td>No recommendations</td>
</tr>
<tr>
<td>REZV (preferred)</td>
<td>DELAY</td>
<td>DELAY</td>
<td>DELAY</td>
<td>DELAY</td>
<td>DELAY</td>
<td>2 or 3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years</td>
<td>2 doses</td>
<td>2 doses depending on age and indication</td>
<td>No recommendations</td>
</tr>
<tr>
<td>ZVL</td>
<td>NOT RECOMMENDED</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 doses</td>
<td>2 or 3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years</td>
<td>2 doses</td>
<td>2 doses depending on age and indication</td>
<td>No recommendations</td>
</tr>
<tr>
<td>HPV</td>
<td>DELAY</td>
<td>DELAY</td>
<td>DELAY</td>
<td>DELAY</td>
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<td>2 or 3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years</td>
<td>2 doses</td>
<td>2 doses depending on age and indication</td>
<td>No recommendations</td>
</tr>
<tr>
<td>PCV13</td>
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<td></td>
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</tr>
<tr>
<td>PPSV23</td>
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<td></td>
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<td></td>
<td></td>
<td>1, 2, or 3 doses depending on age and indication</td>
<td>1, 2, or 3 doses depending on age and indication</td>
<td>1, 2, or 3 doses depending on age and indication</td>
<td>1, 2, or 3 doses depending on age and indication</td>
<td>1, 2, or 3 doses depending on age and indication</td>
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<td>HepA</td>
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<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
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<tr>
<td>HepB</td>
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<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
<td>2 or 3 doses depending on vaccine</td>
</tr>
<tr>
<td>MenACWY</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
</tr>
<tr>
<td>MenB</td>
<td>PRECAUTION</td>
<td>PRECAUTION</td>
<td>PRECAUTION</td>
<td>PRECAUTION</td>
<td>PRECAUTION</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
</tr>
<tr>
<td>Hib</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 doses H SCT recipients only</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
</tr>
</tbody>
</table>

1. Precaution for HIV does not apply to alcoholism. 2. See notes for influenza hepatitis B, measles, mumps, and rubella, and varicella vaccinations. 3. Hematopoietic stem cell transplant.
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>Immuno-compromised (excluding HIV infection)</th>
<th>HIV Infection</th>
<th>CD4 count</th>
<th>Bacterial Meningitis</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>HIV or RIV (not HIV)</td>
<td>NOT RECOMMENDED</td>
<td>1 dose annually</td>
<td>PRECAUTION</td>
<td>1 dose annually</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>LAIV</td>
<td>NOT RECOMMENDED</td>
<td>1 dose annually</td>
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</tr>
<tr>
<td>Tdap or 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>
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<td></td>
</tr>
<tr>
<td>VAR</td>
<td>NOT RECOMMENDED</td>
<td>2 doses</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>RZV (preferred)</td>
<td>DELAY</td>
<td>2 doses at age ≥50 years</td>
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<td></td>
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<td>ZVr</td>
<td>NOT RECOMMENDED</td>
<td>1 dose at age &gt;60 years</td>
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</tr>
<tr>
<td>HPV</td>
<td>DELAY</td>
<td>3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>PCV13</td>
<td>1 dose</td>
<td></td>
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<tr>
<td>PPSV23</td>
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<tr>
<td>HepA</td>
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<tr>
<td>HepB</td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>MenACWY</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>MenB</td>
<td>PRECAUTION</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Hib</td>
<td>3 doses HSCT recipients only</td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Recommended for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection.
Recommended for adults with an additional risk factor or another indication.
Precaution—vaccination might be indicated if benefit of protection outweighs risk of adverse reaction.
Delay vaccination until after pregnancy if vaccine is indicated.
Not recommended/contraindicated—vaccine should not be administered.
No recommendations—Net applicable.

1. Precaution for LAIV does not apply to alcoholism. 2. See notes for influenza, hepatitis B, measles, mumps, and rubella and varicella vaccinations. 3. Hematopoietic stem cell transplant.
Table 2: Recommended Adult Immunization Schedule by Medical Condition and Other Indications, United States, 2020

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>Immuno-compromised (excluding HIV infection)</th>
<th>HIV Infection CDM 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>HIV or RIV (on)</td>
<td>1 dose annually</td>
<td>NOT RECOMMENDED</td>
<td>1 dose annually</td>
<td>PRECAUTION</td>
<td>1 dose annually</td>
<td>TDap or Td</td>
<td>1 dose Tdap every 10 years</td>
<td>2 doses at age ≥50 years</td>
<td>1 dose at age ≥60 years</td>
<td>3 doses through age 26 years</td>
</tr>
<tr>
<td>MMR</td>
<td>NOT RECOMMENDED</td>
<td>1 or 2 doses depending on indication</td>
<td>2 doses</td>
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<tr>
<td>VAR</td>
<td>NOT RECOMMENDED</td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSV (preferred) on</td>
<td>DELAY</td>
<td>2 doses at age ≥50 years</td>
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<td></td>
<td></td>
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<tr>
<td>ZVL</td>
<td>NOT RECOMMENDED</td>
<td>1 dose at age ≥60 years</td>
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<td>HPV</td>
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<td>3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years</td>
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<td>PPSV23</td>
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</tr>
<tr>
<td>HepA</td>
<td>1 dose</td>
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</tr>
<tr>
<td>HepB</td>
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<tr>
<td>MenACWY</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

HepA vaccine recommended for all persons ≥1 year living with HIV

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1. Precaution for LAIV does not apply to alcoholism. 2. See notes for influenza, hepatitis B, measles, mumps, and rubella, and varicella vaccinations. 3. Hematopoietic stem cell transplant.
Notes
Recommended Adult Immunization Schedule
**Hepatitis A vaccination**

**Routine vaccination**
- Not at risk but want protection from hepatitis A (Identification of risk factor not required): 2- or 3-dose series HepA/HepB (Twinrix at 0, 1, 6 months) or 3-dose series HepB (Twinrix at 0, 1, 6 months; minimum intervals: 4 weeks between doses 1 and 2/8 weeks between doses 2 and 3/16 weeks between doses 1 and 3)

**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, alamine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal)
- Men who have sex with men
- Injection or needlestick injury
- 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
  - 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)

**Hepatitis B vaccination**

**Routine vaccination**
- Not at risk but want protection from hepatitis B (Identification of risk factor not required): 2- or 3-dose series HepB (Twinrix at 0, 1, 6 months; minimum intervals: 4 weeks between doses 1 and 2/8 weeks between doses 2 and 3/16 weeks between doses 1 and 3)

**Special situations**
- At risk for hepatitis B virus infection: 2-dose series HepB (Twinrix) or 3-dose series HepB (Twinrix) as above
- Chronic liver disease (e.g., persons with hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alamine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal)

**Human papillomavirus vaccination**

**Routine vaccination**
- HPV vaccination recommended for all adults 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, 6 months (minimum intervals: 4 weeks between doses 1 and 2/12 weeks between doses 2 and 3/5 months between doses 1 and 3; repeat dose if administered too soon)
  - Age 9 through 14 years at initial vaccination and received 1 dose or 2 doses less than 5 months apart: 1 dose
  - Age 9 through 14 years at initial vaccination and received 2 doses at least 5 months apart: HPV vaccination complete, no additional dose needed
- If completed valid vaccination series with any HPV vaccine, no additional doses needed

**Shared clinical decision-making**
- Age 27 through 45 years based on shared clinical decision-making:
  - 2- or 3-dose series as above

**Special situations**
- Pregnancy through age 26 years: HPV vaccination is not recommended until after pregnancy; no intervention needed if vaccinated while pregnant; pregnancy testing not needed before vaccination

**Notes**
Recommended Adult Immunization Schedule, United States, 2020

- Recommended in settings for exposure
- Recommended for all persons ≥1 year living with HIV
Catch up recommended for all persons through age 26 years

Shared clinical decision-making recommended for persons 27-45 years
### Influenza vaccination

**Routine vaccination**
- Persons 6 months or older: 1 dose any influenza vaccine appropriate for age and health status annually.
- For additional guidance, see [www.cdc.gov/flu/professionals/influenza.htm](http://www.cdc.gov/flu/professionals/influenza.htm)

**Situations where LAIV should not be used**
- Egg allergy: In any influenza vaccine approved for age and health status annually.
- Egg allergy: more severe than hives (e.g., anaphylaxis, respiratory distress): 1 dose any influenza vaccine approved for age and health status annually in medical setting under supervision of medical care provider who can recognize and manage severe allergic reactions.
- LAIV should not be used in persons with the following conditions or situations:
  - History of severe allergic reaction to any vaccine component (excluding egg) or to a previous dose of any influenza vaccine.
  - Immunocompromised due to any cause (including medications and HIV infection).
  - Anatomic or functional asplenia.
  - Cochlear implant.
  - Cerebrospinal fluid-eyropharyngeal communication.
  - Close contacts or caregivers of severely immunosuppressed persons who require a protected environment.
  - Pregnancy.
  - Received influenza antiviral medications within the previous 48 hours.
  - History of Guillain-Barré syndrome within 6 weeks of 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 to disease (diagnosis of disease without laboratory confirmation is not evidence of immunity).

**Special situations**
- Pregnancy with no evidence of immunity to rubella: MMR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose.
- Nonpregnant women of childbearing age with no evidence of immunity to rubella: 1 dose.
- HIV infection with CD4 count ≥200 cells/µL, for at least 6 months and no evidence of immunity to rubella: 1 dose.

### MenACWY vaccination

**Special situations for MenACWY**
- Anatomical or functional asplenia (including sickle cell disease), HIV infection, persistant complement component deficiency, complement inhibitor (e.g., C5a, C5b-9, C6, C7, C8, C9). 2-dose series MenACWY (Menactra, Merieux) at least 4 weeks apart and revaccinate every 5 years if risk remains.
- Travel in countries with hyperendemic or epidemic meningococcal disease, microbiologists routinely exposed to Neisseria meningitidis: 1 dose MenACWY (Menactra, Merieux) and revaccinate every 5 years if risk remains.
- First-year college students who live in residential housing (not previously vaccinated at age 16 years or older) and military recruits: 1 dose MenACWY (Menactra, Merieux).

**Shared clinical decision-making for MenB**
- Adolescents and young adults age 16 through 23 years (age 16 through 18 years preferred) not at increased risk for meningococcal disease: Based on shared clinical decision-making, 2-dose series MenB-4C at least 1 month apart or 2-dose series MenB-FHbp 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), persistant complement component deficiency, complement inhibitor (e.g., C5a, C5b-9, C6, C7, C8, C9). 2-dose primary series MenB-4C (Boxer) at least 1 month apart or 3-dose primary series MenB-FHbp (Trumuna) at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series). 1 dose MenB booster 1 year after primary series and revaccinate every 2–3 years if risk remains.
- Pregnancy. Delay MenB until after pregnancy unless at increased risk and vaccination benefits outweigh potential risks.
**Influenza vaccination**

**Routine vaccination**
- Persons age 6 months or older: 1 dose any influenza vaccine appropriate for age and health status annually
- For additional guidance, see [www.cdc.gov/flu/professionals/indech.htm](http://www.cdc.gov/flu/professionals/indech.htm)

**Special situations**
- **Egg allergy, hives only:** 1 dose any influenza vaccine appropriate for age and health status annually
- **Egg allergy more severe than hives** (e.g., angioedema or respiratory distress): 1 dose any influenza vaccine appropriate for age and health status annually in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions
- **LAIV should not be used** in persons with the following conditions or situations:
  - History of severe allergic reaction to any vaccine component (excluding egg) or to a previous dose of any influenza vaccine
  - Immunocompromised due to any cause (including medications and HIV infection)
  - Anatomic or functional asplenia
  - Cochlear implant
  - Cerebrospinal fluid-oropharyngeal communication
  - Close contacts or caregivers of severely immunosuppressed persons who require a protected environment
  - Pregnancy
  - Received influenza antiral medications within the previous 48 hours
  - History of Guillain–Barre syndrome within 6 weeks of previous dose of influenza vaccine

**Recommendation for booster doses every 2-3 years if risk remains**

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**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 MMRVaccine, 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 measles, mumps, or rubella:** 2-dose series at least 4 weeks apart; MMR contraindicated in HIV infection

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**Meningococcal vaccination**

**Special situations for MenACWY**
- Anatomical or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., echinocandins, rapamycin) use: 2-dose series MenACWY (Menactra, Menveo) at least 6 weeks apart and revaccinate every 5 years if risk remains
- **Travel in countries with hyperendemic or epidemic meningococcal disease, microbiologists routinely exposed to Neisseria meningitidis:** 1 dose MenACWY (Menactra, Menveo) 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) and military recruits:** 1 dose MenACWY

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**Shared clinical decision-making for MenB**

**Recommended for adolescents and young adults aged 16–23 years who are not at increased risk**

- **Health care personnel:** 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

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**Recommendation for booster doses every 2-3 years if risk remains**

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**Recommended Adult Immunization Schedule, United States, 2020**

**Pneumococcal Vaccination**
- **Routine vaccination**
  - Age 65 years or older (immunocompetent—see www.cdc.gov/mmwr/volumes/68/wr/mm6846a5.htm) 1 dose
  - If PPSV23 was administered prior to age 65 years, administer 1 dose PCV13 at least 5 years after previous dose.

**Shared clinical decision-making**
- Age 65 years and older (immunocompetent) 1 dose
  - PCV13 based on shared clinical decision-making
  - If both PCV13 and PPSV23 are to be administered, PCV13 should be administered first.
  - PCV13 and PPSV23 should be administered at least 1 year apart.
  - PCV13 and PPSV23 should not be administered during the same visit.

**Special situations**
(see www.cdc.gov/mmwr/volumes/68/wr/mm6846a5.htm#id-mm6846a5-v)
- Age 19 through 64 years with chronic medical conditions (chronic heart [including hypertension], lung, or liver disease, diabetes, alcoholism, or cigarette smoking); 1 dose PPSV23
- Age 19 years or older with immunocompromising conditions (congenital or acquired immunodeficiency including B- and T-lymphocyte deficiency, complement deficiencies, phagocytic disorders, HIV infection); chronic renal failure, nephrotic syndrome, leukemia, lymphoma, Hodgkin disease, generalized malignancy, iatrogenic immunosuppression (e.g., drug or radiation therapy), solid organ transplant, multiple myeloma or anatomic or functional asplenia (including sickle cell disease and other hemoglobinopathies); 1 dose PCV13 followed by 1 dose PPSV23 at least 6 weeks later, then another dose PCV13 at least 5 years after previous PPSV23; at age 65 years or older, administer 1 dose PPSV23 at least 5 years after most recent PPSV23 (note: only 1 dose PPSV23 recommended at age 65 years or older).

**Tetanus, diphtheria, and pertussis vaccination**
- Routine vaccination
  - Previously did not receive Tdap at or after age 11
  - but preferred as first dose) Td or Tdap every 10 years thereafter.

**Vaccinia 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 ZVL (Zoster vaccine)* (administer RZV at least 2 months after ZVL)

**Zoster 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 ZVL (Zoster vaccine)* (administer RZV at least 2 months after ZVL)

**Special situations**
- Pregnancy and/or 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 (doses 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.
- Age 19 through 25 years
  - 1 dose varicella-containing vaccine 1-2 weeks apart if previously did not receive any varicella-containing vaccine, regardless of whether U.S. born before 1980
- HIV infection with CD4 count ≤200 cells/µL with no evidence of immunity: Vaccination may be considered (2 doses, administered 3 months apart; VAR contraindicated in HIV infection with CD4 count ≤200 cells/µL)
- HIV infection with CD4 count ≤200 cells/µL with no evidence of immunity: Vaccination may be considered (2 doses, administered 3 months apart; VAR contraindicated in HIV infection with CD4 count ≤200 cells/µL)
- Severe immunocompromising conditions: VAR contraindicated

**Varicella vaccination**
- Routine vaccination
  - No evidence of immunity to varicella: 2-dose series RZV 4-18 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.
Recommended Adult Immunization Schedule, United States, 2020

**Pneumococcal vaccination**

- **Td or Tdap may be used for decennial booster**

  - **Td** or **Tdap** may be used for decennial booster when any of the following occur:
    - A dose of **tetanus, diphtheria, and pertussis vaccine** has not been received or is needed before 65 years of age.
    - A dose of **pertussis vaccine** has not been received or is needed after 11 years of age.
    - A dose of **tuberculosis** vaccine has not been received or is needed after 11 years of age.

  - Pregnant women should receive a dose of MMR vaccine during pregnancy.

  - Adults 65 years of age or older who have not been vaccinated against influenza should receive a dose of influenza vaccine each year.

  - Adults 65 years of age or older who have not been vaccinated against pneumococcal disease should receive a dose of pneumococcal vaccine each year.

  - Adults 65 years of age or older who have not been vaccinated against tetanus, diphtheria, and pertussis should receive a dose of tetanus, diphtheria, and pertussis vaccine each year.

  - Adults 65 years of age or older who have not been vaccinated against measles, mumps, and rubella should receive a dose of measles, mumps, and rubella vaccine each year.

  - Adults 65 years of age or older who have not been vaccinated against varicella should receive a dose of varicella vaccine each year.

**Routine vaccination**

- **Age 50 years or older**:
  - **Td** or **Tdap** may be used for decennial booster when any of the following occur:
    - A dose of **tetanus, diphtheria, and pertussis vaccine** has not been received or is needed before 65 years of age.
    - A dose of **pertussis vaccine** has not been received or is needed after 11 years of age.
    - A dose of **tuberculosis** vaccine has not been received or is needed after 11 years of age.

- **Age 60 years or older**:
  - **Td** or **Tdap** may be used for decennial booster when any of the following occur:
    - A dose of **tetanus, diphtheria, and pertussis vaccine** has not been received or is needed before 65 years of age.
    - A dose of **pertussis vaccine** has not been received or is needed after 11 years of age.
    - A dose of **tuberculosis** vaccine has not been received or is needed after 11 years of age.

  - Pregnant women should receive a dose of MMR vaccine during pregnancy.

  - Adults 65 years of age or older who have not been vaccinated against influenza should receive a dose of influenza vaccine each year.

  - Adults 65 years of age or older who have not been vaccinated against pneumococcal disease should receive a dose of pneumococcal vaccine each year.

  - Adults 65 years of age or older who have not been vaccinated against tetanus, diphtheria, and pertussis should receive a dose of tetanus, diphtheria, and pertussis vaccine each year.

  - Adults 65 years of age or older who have not been vaccinated against measles, mumps, and rubella should receive a dose of measles, mumps, and rubella vaccine each year.

  - Adults 65 years of age or older who have not been vaccinated against varicella should receive a dose of varicella vaccine each year.

**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 (doses 2-4-8 weeks later) if previously did not receive varicella-containing vaccine

- **HIV infection** with CD4 count <200 cells/mm³:
  - VAR contraindicated: received MMR vaccine before 1980

- **Severe immune compromising conditions** (including HIV infection with CD4 count <200 cells/mm³)
  - VAR contraindicated: recommended use of REZV under review

**Tetanus, diphtheria, and pertussis vaccination**

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

**Varicella vaccination**

- **Age 50 years or older**, 2-dose series REZV (Shingrix)
  - 2-6 months apart (minimum interval: 4 weeks; repeat if administered too soon), regardless of previous herpes zoster or history of ZVL (Zoster/Vaccine) vaccination (administer REZV at least 2 months after ZVL)

- **Age 60 years or older**, 2-dose series REZV 2-6 months apart (minimum interval: 4 weeks; repeat if administered too soon) or 1 dose ZVL if not previously vaccinated.
  - REZV preferred over ZVL (if previously received ZVL, administer REZV at least 2 months after ZVL)

**Zoster vaccination**

- **Age 50 years or older**, 2-dose series REZV (Shingrix)
  - 2-6 months apart (minimum interval: 4 weeks; repeat if administered too soon), regardless of previous herpes zoster or history of ZVL (Zoster/Vaccine) vaccination (administer REZV at least 2 months after ZVL)

- **Age 60 years or older**, 2-dose series REZV 2-6 months apart (minimum interval: 4 weeks; repeat if administered too soon) or 1 dose ZVL if not previously vaccinated.
  - REZV preferred over ZVL (if previously received ZVL, administer REZV at least 2 months after ZVL)

**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 (doses 2-4-8 weeks later) if previously did not receive varicella-containing vaccine

- **Severe immune compromising conditions** (including HIV infection with CD4 count <200 cells/mm³)
  - VAR contraindicated: recommended use of REZV under review
Adult Immunization Work Group

ACIP Members
Paul Hunter (Chair)
Kevin Ault

Ex Officio Members

Consultants
Kathy Harriman (CA DOH)
Diane Peterson (IAC)
LJ Tan (IAC)
Carolyn Bridges (IAC)
Maria Lanzi (VA)

CDC Staff
Mark Freedman (CDC Lead)

Liaison Representatives
John Epling (AAFP)
Sandra Fryhofer (AMA, ACP)
Robert Hopkins (ACP)
Molly Howell (AIM)
Laura Pinkston Koenigs (SAHM)
Maria Lanzi (AANP)
Marie-Michèle Léger (AAPA)
Susan Lett (CSTE)
Chad Rittle (ANA)
William Schaffner (NFID)
Ken Schmader (AGS)
Rhoda Sperling (ACOG)
David Weber (SHEA)