Practical Strategies to Promote Adult Immunization
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Financial Disclosure

• Has no relationships with any entity producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients.
Overview

• Vaccine Overview

• Vaccine Guidelines

• Purchasing: Supply, Manufacturers, Storage, Returns

• Reimbursement
  • Codes
  • Billing Assistance
  • Commercial
  • Medicare
Brief History of the Vaccine

• Edward Jenner credited as Father of Immunology

• Observed milkmaids who contracted cowpox (variolae vaccinae) did not develop smallpox (variola major and minor).

• Vacca is Latin for from cows, Varius is Latin for spotted

• Took pus from a milkmaid, Sarah Nelmes, and inoculated James Phipps

• Phipps develops cowpox

• Jenner then inoculates Phipps with pus from smallpox scabs

• Phipps does not develop disease

• Vaccination invented, possibly greatest advancement in medicine
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)

United States
2021

Vaccines in the Adult Immunization Schedule*

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>Abbreviations</th>
<th>Trade names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemophilus influenza type b vaccine</td>
<td>Hib</td>
<td>ActHIB®</td>
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<tr>
<td></td>
<td></td>
<td>Hiblot®</td>
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<td></td>
<td></td>
<td>Pedia Hib®</td>
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<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Havrix®</td>
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<tr>
<td></td>
<td></td>
<td>Vaqta®</td>
</tr>
<tr>
<td>Hepatitis A and hepatitis B vaccine</td>
<td>HepA-HepB</td>
<td>Twinrix®</td>
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<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix B®</td>
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<tr>
<td></td>
<td></td>
<td>Recombivax HB®</td>
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<tr>
<td></td>
<td></td>
<td>Heplisav-B®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil 9®</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>III</td>
<td>Many brands</td>
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<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV3</td>
<td>FluMist® Quadrivalent</td>
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<tr>
<td>Influenza vaccine (recombinant)</td>
<td>RVIV3</td>
<td>Flublok® Quadrivalent</td>
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<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R III®</td>
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<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>Menveo®</td>
</tr>
<tr>
<td></td>
<td>MenACWY-TT</td>
<td>MenQuadri®</td>
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<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td>Bexsero®</td>
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<tr>
<td></td>
<td>MenB-FP4</td>
<td>Trumensab®</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>PPSV23</td>
<td>Pneumovax 23®</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
<td>TdTwist®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TdVac®</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>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax®</td>
</tr>
<tr>
<td>Zoster vaccine, recombinant</td>
<td>RZV</td>
<td>Shingrix®</td>
</tr>
</tbody>
</table>

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

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.midwifery.org), and American Academy of Physician Assistants (www.aapa.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 (PPSV23) and zoster (RZV) vaccines are covered by the Vaccine Injury Compensation Program. Information on how to file a vaccine injury claim is available at www.hrsa.gov/vaccinecompensation.

Questions or comments
Contact www.cdc.gov/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 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, 2021: www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>19–26 years</th>
<th>27–49 years</th>
<th>50–64 years</th>
<th>≥65 years</th>
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<tbody>
<tr>
<td>Influenza inactivated (IV) or Influenza recombinant (RIIV)</td>
<td></td>
<td></td>
<td>1 dose annually</td>
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<tr>
<td>Influenza live, attenuated (LAIV)</td>
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<td></td>
<td>1 dose annually</td>
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<td>Tetanus, diphtheria, pertussis (Tdap or Td)</td>
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<tr>
<td>Measles, mumps, rubella (MMR)</td>
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<tr>
<td>Varicella (VAR)</td>
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<tr>
<td>Zoster recombinant (RZV)</td>
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<tr>
<td>Human papillomavirus (HPV)</td>
<td></td>
<td></td>
<td>2 or 3 doses depending on age at initial vaccination or condition</td>
<td>27 through 45 years</td>
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<tr>
<td>Pneumococcal conjugate (PCV13)</td>
<td></td>
<td></td>
<td></td>
<td>1 dose</td>
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<td>Pneumococcal polysaccharide (PPSV23)</td>
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<td>1 dose</td>
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<td>Hepatitis A (HepA)</td>
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<td>Hepatitis B (HepB)</td>
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<tr>
<td>Meningococcal A, C, W, Y (MenACWY)</td>
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<td>Meningococcal B (MenB)</td>
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<td>19 through 23 years</td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td></td>
<td></td>
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<td>1 or 3 doses depending on indication</td>
</tr>
</tbody>
</table>

For vaccines marked with a solid background, recommended vaccination for those who meet age requirements, lack documentation of vaccination, or lack evidence of past infection.

For vaccines marked with a light background, recommended vaccination for adults with an additional risk factor or another indication.

For vaccines marked with a striped background, recommended vaccination based on shared clinical decision-making.

For vaccines marked with a striped background, no recommendation/Not applicable.
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>Immuno-compromised (excluding HIV infection)</th>
<th>HIV infection CD4 count</th>
<th>Aspiration, complement deficiencies</th>
<th>End-stage renal disease or on hemodialysis</th>
<th>Heart or lung disease, alcoholism&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Health care personnel&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Men who have sex with men</th>
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<tr>
<td>Tdap or Td</td>
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<tr>
<td>MMR</td>
<td>Not Recommended&lt;sup&gt;*&lt;/sup&gt;</td>
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<td>VAR</td>
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<tr>
<td>RZV</td>
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<tr>
<td>HPV</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>
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<tr>
<td>PCV13</td>
<td>1 dose</td>
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<td>PPSV23</td>
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<tr>
<td>HepA</td>
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<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>Precaution</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.
For vaccine recommendations for persons 18 years of age or younger, see the Recommended Child/Adolescent Immunization Schedule.

Additional Information

COVID-19 Vaccination
ACIP recommends use of COVID-19 vaccines within the scope of the Emergency Use Authorization or Biologic License Application for the particular vaccine. Interim ACIP recommendations for the use of COVID-19 vaccines can be found at www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/covid-19.html

Haemophilus influenzae type b vaccine

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 vaccine

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, aluminonitro-transferase [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 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
- Not at risk but want protection from hepatitis B (identification of risk factor not required): 2- or 3-dose series 2-dose series Heplisav-B at least 4 weeks apart (2-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]) or 3-dose series Heplisav-B (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 B virus infection: 2-dose series Heplisav-B or 3-dose series Engerix-B, Recombivax HB series 3-dose series HepA-HepB (Twinrix) as above.
  - Chronic liver disease (e.g., persons with hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal).
  - HIV infection.
  - Sexual exposure risk (e.g., sex partners of hepatitis B surface antigen [HBsAg]-positive persons; sexually active persons not in mutually monogamous relationships; persons seeking evaluation or treatment for a sexually transmitted infection; men who have sex with men).

- Current or recent injection drug use.
- Percutaneous or mucosal risk for exposure to blood (e.g., household contacts of HBVAg-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 mellitus age younger than 60 years, shared clinical decision-making for persons age 60 years or older).
- Incarcerated persons.
  - Travel in countries with high or intermediate endemic hepatitis B.
  - Pregnancy if at risk for infection or severe outcome from infection during pregnancy (Heplisav-B not currently recommended due to lack of safety data in pregnant women).

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: 4–6 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 3 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 6 schedules: If vaccination schedule is interrupted, the series does not need to be restarted.
- No additional dose recommended after completing series with recommended dosing intervals using any HPV vaccine.

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.
Recommended Adult Immunization Schedule, United States, 2021

- Immunocompromising conditions, including HIV infection: 3-dose series as above, regardless of age at initial vaccination.
- Pregnancy: HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant; pregnancy testing not needed before vaccination.

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/fi

Special situations
- Egg allergy, hives only: 1 dose any influenza vaccine appropriate for age and health status annually.
- Egg allergy—any symptom other than hives (e.g., angioedema, respiratory distress): 1 dose any influenza vaccine appropriate for age and health status annually.
- If using an influenza vaccine other than RVIV or cIIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions.
- Severe allergic reactions to any vaccine can occur even in the absence of a history of previous allergic reaction. Therefore, all vaccine providers should be familiar with the office emergency plan and certified in cardiopulmonary resuscitation.
- A previous severe allergic reaction to any influenza vaccine is a contraindication to future receipt of the vaccine.
- LAIV4 should not be used in persons with the following conditions: 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.
- Close contacts or caregivers of severely immunosuppressed persons who require a protected environment.
- Pregnancy.
- Cranial CSF/oropharyngeal communications.
- Cochlear implant.
- 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.
- Adults 50 years or older.
- History of Guillain-Barré syndrome within 6 weeks after previous dose of influenza vaccine. Generally, should not be vaccinated unless vaccination benefits outweigh risks for those at higher risk for severe complications from influenza.

Measles, mumps, and rubella vaccination

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

Special situations
- Pregnancy with no evidence of immunity to rubella: MMR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose.
- Nonpregnant women of childbearing age with no evidence of immunity to rubella: 1 dose.
- HIV infection with CD4 count ≤200 cells/mm³ for at least 6 months and no evidence of immunity to measles, mumps, or rubella: 2-dose series at least 4 weeks apart; MMR contraindicated for HIV infection with CD4 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 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.
  - 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.

Meningococcal vaccination

Special situations for MenACWY
- Anatomical or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., echuizumab, ravulizumab): use 2-dose series MenACWY-D (Menactra, Menveo or MenQuadrix) at least 8 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 or MenQuadrix) 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 (Menactra, Menveo or MenQuadrix)
- 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/mmr/volumes/65/nr/n6909at.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-Fhrbp (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-Fhrbp 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., echuizumab, ravulizumab) use, microbiologists routinely exposed to Neisseria meningitidis: 2-dose primary series MenB-4C (Bexsero) at least one month apart or
**Notes**

Recommended Adult Immunization Schedule, United States, 2021

**Pneumococcal vaccination**

**Routine vaccination**

- Age 65 years or older (immunocompetent) — see www.cdc.gov/mmwr/volumes/65/rr/mm6504a5.html for more information
- PCV13

**Shared clinical decision-making**

- Age 65 years or older (immunocompetent): 1 dose PCV13
- PCV13 and PSV23 should be administered at the same visit
- Both PCV13 and PSV23 should be administered at least 4 years after previous

**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
- Previously did not receive primary vaccination series for tetanus, diphtheria, or pertussis: At least 1 dose Tdap followed by 1 dose Td or Tdap at least 4 weeks after Tdap and another dose Td or Tdap 6–12 months after last Td or Tdap (Tdap can be substituted for any Td dose, but preferred as first dose). Td or Tdap every 10 years thereafter

**Wound management:** Persons with 3 or more doses of tetanus-toxoid-containing vaccine: For clean and minor wounds, administer Td or Tdap 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
COVID-19 (SARSCOV-2)

- 3 vaccines available
  - Pfizer-BioNTech (mRNA)
  - Moderna (mRNA)
  - Janssen/J&J (recombinant viral vector)

- Approval/Indications
  - Moderna and Janssen under EUA
  - Moderna 2 doses, 4 weeks apart, age 18 and up
  - Janssen 1 dose age 18 and up
  - Pfizer has full FDA approval, full recommendation from ACIP for 16 and up, EUA still for 12 and up
  - Pfizer 2 dose, 3 weeks apart, age 12 and up
  - mRNA boost in moderate to severe immune compromised, at least 4 weeks after last shot
  - Pfizer booster 6 months after second shot for age 65 and up or 18 and up for anyone with underlying medical conditions, long term care facilities, or who work or live in high-risk settings

- Risk
  - Very rare risk of GBS and TTS with Janssen
  - Very rare risk of myocarditis with mRNA vaccine
  - Benefit of vaccine still greatly outweighs risk of adverse reaction
COVID-19 (SARS-CoV-2)

- mRNA
  - Genetic code of spike Protein in lipid particles
  - Cell takes up mRNA and processes it through normal cell function to make a protein
  - Spike Protein presented on cell surface
  - Immune and antibody response created
  - Spike protein and mRNA degrade
  - Does not affect DNA
  - mRNA technology around for decades
  - Extensive safety monitoring

- Recombinant viral vector
  - Spike protein genetic code transcribed to DNA
  - DNA inserted into non replicating adenovirus which is injected
  - Cell takes up the vector and the cells machinery transcribed DNA into mRNA and creates a spike protein as with the mRNA vaccine
  - Does NOT integrate into genetic code, vector and protein degrades
Pneumonia

- 2 vaccines available, Prevnar-13 (PCV13) and Penumovax-23 (PPSV-23)
- All patients 65 and up: PPSV23, 5 year interval, 2 doses
- Shared clinical decision making: 65 and up may receive PCV13, year later PPSV23, 5 years later PPSV23, (not on same visit)
- Special category:
  - Age 19+ cochlear implant or CSF leak should receive Prevnar-13 followed by Pneumovax-23 at 8 week interval, then PPSV23 at age 65 if at least 5 years later
  - Age 19+ with immunocompromise give PCV 13, 8 weeks later PPSV23, 5 years later PPSV23 and then at age 65 PPSV 23 if at least 5 years
  - 19-64 with chronic medical conditions such as DM, CAD, lung or liver disease, alcohol or active cigarette smoking give PPSV23
Pneumonia Vaccine Indications

• All adults age 65 and up

• All adults 19 and up with specific medical conditions
  • Diabetes (PPSV-23 only)
  • Congestive Heart Failure, Cardiomyopathy, Chronic Heart Disease (PPSV-23 only)
  • Chronic Lung Disease, Chronic Obstructive Pulmonary Disease, Asthma (PPSV-23 only)
  • Chronic Liver Disease, Cirrhosis, Alcoholism (PPSV-23 only)
  • Cigarette Smokers (PPSV-23 only)
  • Congenital or Functional Asplenia, sickle cell disease, hemoglobinopathies, splenectomy
  • Immunocompromised conditions, HIV, Combined B or T lymphocyte deficiency, acquired immunodeficiency, complement and phagocytic disease, radiation therapy, long term corticosteroids
  • Chronic Renal Failure, Nephrotic Syndrome
  • Leukemia, lymphoma, malignancy, multiple myeloma, organ transplant
  • Cochlear Implant and CSF leak
Pneumonia Vaccine Shared Clinical Decision Making

• Change in policy recommendation

• Disease burden of certain serotypes of pneumonia reduced by childhood pneumonia vaccinations

• Is PCV-13 still needed in adult population given reduction of disease burden?

• Still recommended for Immunocompromised patients

• Discussion between physician and patient regarding other indications and decision made between physician and patient
Influenza

- All persons 6 months and up should receive yearly Flu vaccine
- Live, Attenuated and Recombinant available
- Quadrivalent form
- High dose over age 65
- Live vaccine not advised in certain immunocompromised conditions
- Egg allergy is only a contraindication if angioedema, respiratory distress or severe illness
- Hives from eggs is not a contraindication
- Recombinant vaccine available for egg allergy
- If severe egg allergy should be administered with all proper precautions and ability to treat allergic reaction on site
- Hx of GBS within 6 weeks of vaccine is relative contraindication unless benefits outweigh risk
Tetanus, diphtheria, pertussis (Tdap)

• Td and Tdap interchangeable

• If received routine series before age 11 then give booster of Td or Tdap every 10 years

• If not received primary series then Tdap initial, then 4 weeks, then 6-12 months. Tdap preferred as initial but can interchange Td with Tdap

• Pregnant women should receive Tdap in third trimester of each pregnancy

• Vaccination helps to protect newborns before age 6 months who can not be vaccinated

• Create a circle of protection
Shingles Vaccine

- 1 in 3 people develop shingles
- Vaccine reduces incidence by 90%
- All adults age 50 should receive vaccine
- Do not need to check prior varicella status
- Live vaccine (Zostavax) discontinued
- Shingrix (RZV) is recombinant form and approved
  - 2 doses
  - 2-6 months apart
  - Delay while pregnant
  - Use in immunocompromised under review
Hepatitis A

- 2 doses at 0 and 6 months or Hep A/B combination at 0, 1, 6 months
  - Havrix can have second dose at 6-12 months
  - Vaqta can have second dose at 6-18 months

- Any adult who wishes Hep A protection
- Chronic liver disease
- Receiving clotting factor concentrates
- Men who have sex with men
- Drug Use
- Research lab setting
- Travel risk
- Homelessness
- Adoptee of international individual
- Pregnancy if at risk for severe outcome
Hepatitis B

- 3 doses at 0, 1, 6 months (Energix-B, Recombivax, Twinrix)
- New two dose Heplisav at 0 and 1 month
- Indicated for adults seeking protection from Hep B
- Men who have sex with men, any adult with multiple sex partners
- Living in house with Hep B infected individuals
- Healthcare workers or anyone exposed to blood
- IV drug uses
- Liver disease including Hep C, cirrhosis, alcoholic liver disease, fatty liver disease, autoimmune hepatitis, AST and ALT twice normal
- End state renal disease, hemodialysis
- HIV
- Diabetes
- Pregnant women with risk of severe outcome
- At risk travelers
Meningitis

- 2 types of vaccines
  - Meningitis A, C, W, Y
  - Bexsero or Trumenba for Type B

- Men A, C, W, Y
  - 1 dose every 5 years while at risk if for travel, college, military living together
  - Immunocompromised 2 dose, 8 weeks apart and repeat every 5 if at risk

- Men B
  - Bexsero 2 doses, 4 weeks apart every 5 years while at risk
  - Trumenba 2 doses at 0, 6 months every 5 years while at risk
  - Ages 16-23, 2 dose

- At risk includes
  - College students
  - Military Recruits
  - Travel exposure

- Special categories
  - Asplenia and complement deficiencies, complement inhibitors, occupational exposure
    - should receive Menactra 2 doses at 8 week interval
    - Bexsero 2 doses at 4 week interval or Trumemba 3 dose at 0, 1-2, 6
    - Repeat Boost 1 year then every 2-3 years while at risk
  - HIV infected should received Men A, C, W, Y 2 dose series at 8 week interval and then every 5 years

- Bexsero and Trumenba are not interchangeable
Human Papillomavirus

• Gardasil
• Prevention of cervical, anal, penile and throat cancer
• 2 dose series at 0, 5 months ages 9-14
• 3 dose series at 0, 1-2, 6 months for ages 15-26
• Ages 27-45 shared clinical decision making
• Delay in pregnancy
• Measles, Mumps, Rubella

• 1 or 2 dose series

• Booster if no evidence of immunity
  • Considered immune if born before 1957, lab evidence of immunity or documented MMR receipt

• Contraindicated in pregnancy and severe immunocompromised

• 1 dose unless special situations, then give 2 dose:
  • International travelers, post secondary education, or close contact with immunocompromised if never received MMR
  • Healthcare workers born in or after 1957
  • HIV with at least 6 months of CD4 count equal or greater than 200
Varicella

- 2 dose series

- Vaccinate if no evidence of immunity
  - Considered immune if US born before 1980, lab evidence of immunity or documented 2 dose varicella vaccine

- Contraindicated in pregnancy and severe immunocompromised

- 1 dose if not immune and received dose previously

- 2 dose if not immune and never received dose previously
Haemophilus Influenzae Type B

- Asplenia give 1 dose if never received
- Elective splenectomy give 1 dose 14 days before
- Stem cell transplant give 3 dose series at 4 week intervals but given at least 6-12 months after transplant
Overview

• Purchasing
  • Supply
  • Manufacturers
  • Storage
  • Returns

• Reimbursement
  • Codes
  • Billing Assistance
  • Commercial
  • Medicare
Supply side

- Buy direct from manufacturer
  - Merck, Aventis, Pfizer, Glaxo, etc.
- Group purchasing organization e.g. Atlantic Health Partners, et. al.
- Buy multiple vaccines for discount
- Defer paying invoice for several months
- Pay promptly on due date for further discounts
- Order what is needed to avoid vaccine loss from expiration
- Many manufactures will take back unused vaccines and credit account
Common Manufacturers and Vaccines

• Merck:
  • Gardasil-9
  • Pneumovax-23
  • Hepatitis A (Vaqta)
  • Hepatitis B (Recombivax)

• Aventis (Sanofi-Pasteur):
  • Adacel (Tdap)
  • Menactra (Meningitis A, C, Y, W-135)
  • Fluzone, Quadrivalent, Flublok and High Dose
  • Yellow Fever
  • Typhim

• Pfizer:
  • Prevnar-13
  • Trumemba (Meningitis B 3 dose)

• Glaxo Smith Kline
  • Bexsero (Meningitis B 2 dose)
  • Energix-B (Hepatitis B)
  • Havrix (Hepatitis A)
  • Fluarix and Flulaval (Influenza quadrivalent)
  • Tdap (Boostrix)
  • Shingrix
Ordering, Storage and Process

- Designate a vaccine coordinator in your office
- Keep a list of vaccines provided and inventory on hand
- Estimate how many will be given and how many needed
- Most manufactures can deliver within days to a week of order
- For example, don’t let supply on hand go below 50 doses for most common administered vaccines
- Once ordered, keep record of order and shipment tracking
- When shipment arrives, unpack immediately and compare to order
- Store per manufacturers guidelines, freezer and refrigerator need to be maintained, keep a temperature log and use standardized thermometer in glycol
- Follow CDC best practices for vaccine storage
- Update inventory count
- Remove expired vaccines, may be able to get manufacturers credit
Storage Best Practices for Refrigerated Vaccines—Fahrenheit (°F)

1. Unpack vaccines immediately
   1. Place the vaccines in trays or uncovered containers for proper air flow.
   2. Put vaccines that are first to expire in front.
   3. Keep vaccines in original boxes with lids closed to prevent exposure to light.
   4. Separate and label by vaccine type and VFC/public or private vaccine.

2. Store vaccine at ideal temperature: 40°F
   - Refrigerated Vaccine
     - Never freeze refrigerated vaccine!
     - Exception: MMR can be stored in fridge or freezer
     - Too Cold: Take Action!
     - Within Range: Too Warm: Take Action
     - Report out-of-range temperatures immediately!

3. Use vaccine storage best practices
   - **DO**
     - Make sure the refrigerator door is shut!
     - Replace empty ice packs with water bottles to help maintain consistent temperature.
     - Label water bottles “Do Not Drink.”
     - Leave 2-3 inches between all vaccine containers and refrigerator walls.
     - Post “Do Not Unplug” signs on refrigerator and near electrical outlet.
   - **DON’T**
     - Don’t use dormitory-style refrigerator.
     - Don’t use top shelf for vaccine storage.
     - Don’t put food or beverages in refrigerator.
     - Don’t put vaccines or diluents in doors or on floor of refrigerator.
     - Don’t drink from or remove water bottles.
1. **Unpack vaccines immediately**
   1. Place the vaccines in trays or uncovered containers for proper air flow.
   2. Put vaccines that are first to expire in front.
   3. Keep vaccines in original boxes with lid closed to prevent light exposure.
   4. Separate and label by vaccine type and VFC/Public or private vaccine.

2. **Store vaccine at ideal temperature range: -58°F to 5°F**

3. **Use vaccine storage best practices**

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**U.S. Department of Health and Human Services**

**Centers for Disease Control and Prevention**

Visit [www.cdc.gov/vaccines/SanDv](http://www.cdc.gov/vaccines/SanDv) for more information, or your state health department.
Standing Orders

- Great Resource is Immunization Action Coalition
- WWW.IMMUNIZE.ORG
- Identify population to vaccinate
- Instruct staff on requirements and guidelines
- Follow Manufacturers' administration instructions
- Have staff review chart, call and schedule patients
- Make sure patients read and sign consent
- Make sure patients receive Vaccine Information Sheet (VIS)
- Examples to follow:
# Standing Orders for Administering Pneumococcal Vaccines (PCV13 and PPSV23) to Adults

## Purpose
To reduce morbidity and mortality from pneumococcal disease by vaccinating all adults who meet the criteria established by the Centers for Disease Control and Prevention’s Advisory Committee on Immunization Practices.

## Policy
Where allowed by state law, standing orders enable eligible nurses and other health care professionals (e.g., pharmacists) to assess the need for vaccination and to vaccinate adults who meet any of the criteria below.

## Procedure
1. **Assess Adults for Need of Vaccination against Streptococcus pneumoniae (pneumococcus) Infection**
   - **Routine pneumococcal vaccination**: Assess adults age 65 years or older for need of pneumococcal vaccination. Pneumococcal conjugate vaccine (PCV13) should be administered routinely to all previously unvaccinated adults age 65 years and older. Pneumococcal polysaccharide vaccine (PPSV23) is recommended for all adults ages 65 years or older. For complete details, see section 5 (page 3).
   - **Risk-based pneumococcal vaccination**: Age 19 through 64 years with an underlying medical condition or other risk factor as described in the following table:

<table>
<thead>
<tr>
<th>Category of underlying medical condition</th>
<th>Other risk factor</th>
<th>PCV13</th>
<th>PPSV23</th>
<th>PPSV23 booster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic heart disease, chronic lung disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic liver disease, cirrhosis</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Chronic kidney disease</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease, rheumatoid arthritis</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic renal failure, nephrotic syndrome</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease, chronic liver disease, chronic kidney disease</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Chronic lung disease, chronic kidney disease, chronic liver disease</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Severe combined immunodeficiency</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe combined immunodeficiency, HIV disease</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Severe combined immunodeficiency, acquired immunodeficiency syndrome</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

1. Excluding hypertension
2. Including asthma
3. Including B-cell or T-cell lymphopenia, complement deficiencies (particularly C1, C2, C4, and C4 deficiencies), and phagocytic disorders (including chronic granulomatous disease)
4. Other causes requiring treatment with immune-suppressive drugs, including long-term systemic corticosteroids and radiation therapy

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[continued on the next page]
2 Screen for Contraindications and Precautions

Contraindications
Do not give pneumococcal vaccine (PCV13 or PPSV23) to a person who has experienced a serious systemic or anaphylactic reaction to a prior dose of the vaccine or to any of its components. For a list of vaccine components, refer to the manufacturer’s package insert (www.immunize.org/packagers.pdf) or go to www.cdc.gov/vaccines/public/pinkbook/downloads/appendices/B/excipient-table-2.pdf.

Precautions
Moderate or severe acute illness with or without fever

3 Provide Vaccine Information Statements

Provide all patients with a copy of the most current federal Vaccine Information Statement (VIS). Provide non-English speaking patients with a copy of the VIS in their native language, if one is available and desired; these can be found at www.immunize.org/vis. (For information about how to document that the VIS was given, see section titled "Document Vaccination."

4 Prepare to Administer Vaccine

PCV13 must be given intramuscularly (IM). PPSV23 may be administered either IM or subcutaneously (Subcut). For vaccine that is to be administered IM, choose the needle gauge, needle length, and injection site according to the following chart:

<table>
<thead>
<tr>
<th>Gender and weight of patient</th>
<th>Needle gauge</th>
<th>Needle length</th>
<th>Injection site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female 10-19 yrs, less than 130 lbs</td>
<td>22–25</td>
<td>½&quot;–1&quot;</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Female 10-19 yrs, 130–152 lbs</td>
<td>22–25</td>
<td>1&quot;</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Male 10-19 yrs, 130–152 lbs</td>
<td>22–25</td>
<td>1⅝&quot;</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Female 20 yrs and older, 153–200 lbs</td>
<td>22–25</td>
<td>1&quot;–1½&quot;</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Male 20 yrs and older, 153–200 lbs</td>
<td>22–25</td>
<td>1½&quot;</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Female 200+ lbs</td>
<td>22–25</td>
<td>1½&quot;</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Male 200+ lbs</td>
<td>22–25</td>
<td>1½&quot;</td>
<td>Deltoid muscle of arm</td>
</tr>
</tbody>
</table>

* A ⅝" needle may be used in patients weighing less than 60 kg, if the subcutaneous tissue is not bunched, and the injection is made at a 90° angle to the skin.

If you prefer Subcut injection of PPSV23, choose a 23-25 gauge, ½" needle for injection into the fatty tissue overlying the triceps muscle.

continued on the next page ▶
5 Administer PCV13 or PPSV23, 0.5 mL, according to the following dosing information and schedule:

- PCV13 must be administered by the IM route.
- PPSV23 may be administered either IM or Subcut.

### Routine vaccination for all adults 65 years and older

<table>
<thead>
<tr>
<th>age of patient</th>
<th>vaccine(s) indicated</th>
<th>history of prior vaccination</th>
<th>schedule for administration of PCV13 and PPSV23</th>
</tr>
</thead>
<tbody>
<tr>
<td>65+ yr old</td>
<td>PCV13</td>
<td>None or unknown</td>
<td>Administer PCV13 followed by 1 year* PPSV23.</td>
</tr>
<tr>
<td></td>
<td>PPSV23</td>
<td>PPSV23 when younger than age 65 years; 0 or unknown PCV13</td>
<td>Administer PCV13 at least 1 year after previous PPSV23. Administer another PPSV23 at least 5 years after previous dose of PPSV23 and at least 1 year* after PCV13.</td>
</tr>
<tr>
<td></td>
<td>PCV13</td>
<td>PPSV23 when younger than age 65 years; PCV13</td>
<td>Administer another PPSV23 at least 5 years after previous dose of PPSV23 and at least 1 year* after previous dose of PCV13.</td>
</tr>
<tr>
<td></td>
<td>PCV13</td>
<td>PPSV23 when age 65 years or older; 0 or unknown PCV13</td>
<td>Administer PCV13 at least 1 year after PPSV23.</td>
</tr>
<tr>
<td></td>
<td>PPSV23</td>
<td>PPSV23 when PCV13 unknown</td>
<td>Administer PPSV23 at least 1 year after PCV13.</td>
</tr>
</tbody>
</table>

* For adults age 65 years and older with immunocompromising conditions, tympanostomy tube, cochlear implants, the interval between PCV13 and PPSV23 should be shortened to 8 weeks.

### Risk-based vaccination for adults 19–64 years

<table>
<thead>
<tr>
<th>age of patient</th>
<th>vaccine(s) indicated</th>
<th>history of prior vaccination</th>
<th>schedule for administration of PCV13 and PPSV23</th>
</tr>
</thead>
<tbody>
<tr>
<td>19–64 years</td>
<td>For medical conditions in which only PPSV23 is indicated</td>
<td>None or unknown</td>
<td>Administer PPSV23.</td>
</tr>
<tr>
<td></td>
<td>For medical conditions in which both PCV13 and PPSV23 are indicated</td>
<td>None or unknown</td>
<td>Administer PCV13 followed by 1 year* PPSV23.</td>
</tr>
<tr>
<td></td>
<td>1 dose PPSV23 and 1 dose PCV13</td>
<td>None or unknown</td>
<td>Administer PCV13 followed by 1 dose PPSV23.</td>
</tr>
<tr>
<td></td>
<td>1 dose PPSV23 alone</td>
<td>None or unknown</td>
<td>Administer PPSV23 at least 1 year after PCV13.</td>
</tr>
<tr>
<td></td>
<td>1 dose PCV13 alone</td>
<td>None or unknown</td>
<td>Administer PCV13 at least 1 year after PPSV23.</td>
</tr>
<tr>
<td></td>
<td>1 dose PCV13 and 2doses PPSV23 (i.e., cochlear implant, CSF leak)</td>
<td>None or unknown</td>
<td>Administer PCV13 followed by 1 dose PPSV23 #1 and 1 dose PPSV23 #2 at least 8 weeks after PCV13.</td>
</tr>
<tr>
<td></td>
<td>1 dose PPSV23; 0 or unknown PCV13</td>
<td>None or unknown</td>
<td>Administer PCV13 #1 at least 1 year after PPSV23 #1 and 1 dose PPSV23 #2 at least 8 weeks after PCV13.</td>
</tr>
<tr>
<td></td>
<td>1 dose PCV13; 0 or unknown PCV13</td>
<td>None or unknown</td>
<td>Administer PCV13 #1 at least 1 year after PCV13 and 1 dose PCV13 #2 at least 5 years after PCV13.</td>
</tr>
<tr>
<td></td>
<td>1 dose PPSV23; 1 dose PCV13</td>
<td>None or unknown</td>
<td>Administer PCV13 #1 at least 1 year after PCV13 and 1 dose PCV13 #2 at least 5 years after PCV13.</td>
</tr>
<tr>
<td></td>
<td>2 doses PPSV23, 0 or unknown PCV13</td>
<td>None or unknown</td>
<td>Administer PCV13 #1 at least 1 year after PCV13 #1 and 1 dose PCV13 #2 at least 5 years after PCV13.</td>
</tr>
</tbody>
</table>

* For adults age 19–64 years with tympanostomy tubes, cochlear implants, functional or anatomic asplenia, or immunocompromise, the interval between PCV13 and PPSV23 should be shortened to 8 weeks.

For more information, please visit [www.immunize.org](http://www.immunize.org) or [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines).
6 Document Vaccination

Document each patient’s vaccine administration information and follow up in the following places:

- **Medical record**: Document the date the vaccine was administered, the manufacturer and lot number, the vaccination site and route, and the name and title of the person administering the vaccine. You must also document, in the patient’s medical record or office log, the publication date of the VIS and the date it was given to the patient. If vaccine was not administered, record the reason(s) for non-receipt of the vaccine (e.g., medical contraindication, patient refusal).

- **Personal Immunization record card**: Record the date of vaccination and the name/location of the administering clinic.

- **Immunization Information System (IIS) or “registry”**: Report the vaccination to the appropriate state/local IIS, if available.

7 Be Prepared to Manage Medical Emergencies

Be prepared for management of a medical emergency related to the administration of vaccine by having a written emergency medical protocol available, as well as equipment and medications. For IAC’s “Medical Management of Vaccine Reactions in Adults,” go to [www.immunize.org/catg.d/p3082.pdf](http://www.immunize.org/catg.d/p3082.pdf). To prevent syncope, vaccinate patients while they are seated or lying down and consider observing them for 15 minutes after receipt of the vaccine.

8 Report All Adverse Events to VAERS

Report all adverse events following the administration of pneumococcal vaccine to the federal Vaccine Adverse Event Reporting System (VAERS) at [www.vaers.hhs.gov](http://www.vaers.hhs.gov). Forms are available on the website or by calling (800) 822-7967.

Standing Orders Authorization

<table>
<thead>
<tr>
<th>This policy and procedure shall remain in effect for all patients of the</th>
<th>Medical Director’s signature</th>
<th>Signature date</th>
<th>Effective date</th>
</tr>
</thead>
<tbody>
<tr>
<td>name of practice until rescinded or until</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Using Standing Orders for Administering Vaccines: What You Should Know

The use of standing orders for vaccination facilitates the delivery of immunization services to patients in clinics, hospitals, and community settings. Standing orders have been shown to increase vaccination coverage rates.

What are standing orders?

Standing orders authorize nurses, pharmacists, and other appropriately trained healthcare personnel, where allowed by state law, to assess a patient’s immunization status and administer vaccinations according to a protocol approved by an institution, physician, or other authorized practitioner. Standing orders work by allowing assessment and vaccination of the patient without the need for clinic examination or direct order from the attending provider at the time of the interaction. Standing orders can be established for the administration of one or more specific vaccines to a broad or narrow set of patients in healthcare settings such as clinics, hospitals, pharmacies, and long-term care facilities.

Who recommends standing orders for vaccination?

The Community Preventive Services Task Force (Task Force) recommends standing orders for vaccinations based on strong evidence of effectiveness in improving vaccination rates:
1. in adults and children,
2. when used alone or when combined with additional interventions, and
3. across a range of settings and populations.

Read the full Task Force Finding and Rationale statement at www.thecommunityguide.org/vaccines/standingorders.html.

The Centers for Disease Control and Prevention (CDC): CDC’s Advisory Committee on Immunization Practices (ACIP) specifically recommends standing orders for influenza and pneumococcal vaccines and several other vaccines (e.g., hepatitis B, varicella). See Use of Standing Orders to Increase Adult Vaccination Rates: Recommendations of the ACIP. MMWR 2000;49 (No. RR-7) at www.cdc.gov/mmwr/preview/mmwrhtml/rr4907a1.htm.

What are the elements of a standing order?

A comprehensive standing order should include the following elements:
1. Who is targeted to receive the vaccine,
2. How to determine if a patient needs or should receive a particular vaccination (e.g., indications, contraindications, and precautions),
3. Procedure(s) for administering the vaccine (e.g., vaccine name, schedule for vaccination, appropriate needle size, vaccine dosage, route of administration),
4. Provision of any federally required information (e.g., Vaccine Information Statement),
5. How to document vaccination in the patient record,
6. A protocol for the management of any medical emergency related to the administration of the vaccine, and
7. How to report possible adverse events occurring after vaccination.

Who is authorized to administer vaccines under standing orders?

Each of the 50 states separately regulates physicians, nurses, pharmacists, and other health-related practitioners. For further information about who can carry out standing orders in your state, contact your state Immunization Program or the appropriate state body (e.g., board of medical/nursing/pharmacy practice).

Who is authorized to sign the standing order?

In general, standing orders are approved by an institution, physician, or other authorized practitioner. State law or regulatory agency might authorize other healthcare professionals to sign standing orders.

What should be done with the standing orders after they have been signed?

Signed standing orders should be kept with all other signed medical procedures and protocols that are operational in one’s clinic setting. A copy should also be readily available for clinic staff who operate under these standing orders.

Do standing orders need to be reviewed (e.g., yearly)?

Generally, standing orders will include an implementation date as well as an expiration date. Periodic review of standing orders is important, because vaccine recommendations may change over time.

Where can I find sample standing orders?

The Immunization Action Coalition has developed templates of standing orders for vaccines that are routinely recommended to children and adults. They are updated as needed and reviewed for technical accuracy by immunization experts at CDC. The most current worksheets can be accessed by going to www.immunize.org/standing-orders.

Technical content reviewed by the Centers for Disease Control and Prevention Immunization Action Coalition.
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>CPT code</th>
<th>Average Reimbursement</th>
<th>Administration</th>
<th>CPT code</th>
<th>Average Reimbursement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumovax-23</td>
<td>90732</td>
<td>$89.95</td>
<td>Administration 1st dose</td>
<td>90471</td>
<td>$21.86</td>
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<td>Prevnar-13</td>
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<td>$181.06</td>
<td>Administration 2nd dose</td>
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<td>$11.29</td>
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<tr>
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<td>$19.03</td>
<td>Flu Medicare</td>
<td>G0008</td>
<td>$25.72</td>
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<td>$42.72</td>
<td>Pneumonia Medicare</td>
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<td>Flublok Recombinant</td>
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<td>$47.00</td>
<td>Hep B Medicare</td>
<td>G0010</td>
<td>$25.72</td>
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<td>Shingrix</td>
<td>90750</td>
<td>$145.00</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Hepatitis A</td>
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<td></td>
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<td>Hepatitis B</td>
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<td></td>
<td></td>
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<tr>
<td>Menactra</td>
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<td>$126.83</td>
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<tr>
<td>Tdap</td>
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<tr>
<td>Typhim</td>
<td>90691</td>
<td>$99.21</td>
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</table>
# Common Influenza Vaccine Codes

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Manufacturer</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>90653</td>
<td>Seqirus</td>
<td>Fluad</td>
</tr>
<tr>
<td>90656</td>
<td>Seqirus</td>
<td>Afluria</td>
</tr>
<tr>
<td>90662</td>
<td>Sanofi</td>
<td>Fluzone High Dose</td>
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<tr>
<td>90674</td>
<td>Seqirus</td>
<td>Flucelvax Quadrivalent</td>
</tr>
<tr>
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<td>Sanofi</td>
<td>Flublok Recombinant Quadrivalent</td>
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<tr>
<td>90685</td>
<td>Sanofi</td>
<td>Flublok Recombinant Quadrivalent Pediatric</td>
</tr>
<tr>
<td>90686</td>
<td>Seqirus, GlaxoSmithKline, Sanofi</td>
<td>Afluria Quad, Fluarix Quad, Flulaval Quad, Fluzone Quad</td>
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<tr>
<td>90687</td>
<td>Sanofi</td>
<td>Fluzone Quad Pediatric</td>
</tr>
<tr>
<td>90688</td>
<td>Seqirus, GlaxoSmithKline, Sanofi</td>
<td>Afluria Quad, Flulaval Quad, Fluzone Quad</td>
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<td>90756</td>
<td>Seqirus</td>
<td>Flucelvax Quad</td>
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<td>Q2035</td>
<td>Seqirus</td>
<td>Afluria</td>
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## Coding-Vaccines

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Average Cost</th>
<th>Average Reimbursement</th>
<th>Average Admin Reimbursement</th>
<th>Profit</th>
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<tbody>
<tr>
<td>Pneumovax-23</td>
<td>$84.11</td>
<td>$89.95</td>
<td>$20</td>
<td>$25.84</td>
</tr>
<tr>
<td>Prevnar-13</td>
<td>$158.83</td>
<td>$181.06</td>
<td>$20</td>
<td>$42.23</td>
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<tr>
<td>Influenza Quadrivalent</td>
<td>$16.37</td>
<td>$19.03</td>
<td>$20</td>
<td>$22.66</td>
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<tr>
<td>Influenza High Dose</td>
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<td>$42.72</td>
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<tr>
<td>Influenza Recombinant</td>
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<td>$20</td>
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<tr>
<td>Shingrix</td>
<td>$137.20</td>
<td>$145.00</td>
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<td>Hepatitis A</td>
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<td>Menactra</td>
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<td>Bexsero</td>
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<td>Gardasil-9</td>
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<td>Tdap</td>
<td>$30.65</td>
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<td>Yellow Fever</td>
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<td>Typhim</td>
<td>$92.76</td>
<td>$99.21</td>
<td>$20</td>
<td>$26.45</td>
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</tbody>
</table>
Reimbursement tips for Commercial and Medicare

• Dx code for all vaccines Z23
• Know the CPT for each vaccines, check with manufacturer
• All vaccines need a specific CPT code for the vaccine and an administration code
• First administration code is 90471 for commercial, subsequent injection on same visit is 90472 x number of units
• Medicare vaccines for flu (G0008), pneumonia-23 and prevnar-13 (G0009), and Hepatitis B (G0010), use G code as first dose administration
• If given on the same day as visit then use modifier 25 on EM code with modifier 59 for vaccines and administration code
• All vaccines for commercial submitted through normal claims process
• Medicare part B vaccines (Flu, Pneumonia, Hepatitis B) submitted through normal claims process
• Shingrix, Tdap, Hep A for Medicare submitted through 3rd party vendor
Medicare part D

- Certain vaccines are considered Drugs and covered under part D
- To bill Medicare part D use www.mytransactRX.com
- Allows to check coverage of patients, print out proof, and submit claim through portal and then direct deposit to account
- Check for Tdap, Hep A, Shingrix and others
- Limited if patient not covered under drug plan or information not up to date
- Advisable to use Advanced Beneficiary Notice for vaccines such as Prevnar, Tdap, Hep A, Shingrix
- Medicare strict on coverage guidelines and if patient has received vaccine but does not remember then claim will not be paid, ABN protects provider and can allow reimbursement from patient
Advance Beneficiary Notice of Noncoverage (ABN)

NOTE: If Medicare doesn’t pay for the Prevnar-13 Vaccine below, you may have to pay. Medicare does not pay for everything, even some care that you or your health care provider have good reason to think you need. We expect Medicare may not pay for the Prevnar-13 Vaccine below.

<table>
<thead>
<tr>
<th>D.</th>
<th>E.</th>
<th>F. Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevnar-13 Vaccine</td>
<td>Not all vaccines are covered</td>
<td>$220.00</td>
</tr>
</tbody>
</table>

WHAT YOU NEED TO DO NOW:
- Read this notice, so you can make an informed decision about your care.
- Ask us any questions that you may have after you finish reading.

Choose an option below about whether to receive the Prevnar-13 Vaccine listed above.

A. I want the Prevnar-13 Vaccine listed above. You may ask to be paid now, but I also want Medicare billed for an official decision on payment, which is sent to me on a Medicare Summary Notice (MSN). I understand that if Medicare doesn’t pay, I am responsible for payment, but I can appeal to Medicare by following the directions on the MSN. If Medicare does pay, you will refund any payments made to you, less co-pays or deductibles.
B. I want the Prevnar-13 Vaccine listed above, but do not bill Medicare. You may ask to be paid now as I am responsible for payment. I cannot appeal if Medicare is not billed.
C. I don’t want the Prevnar-13 Vaccine listed above. I understand with this choice I am not responsible for payment, and I cannot appeal to see if Medicare would pay.

H. Additional Information:

This notice gives our opinion, not an official Medicare decision. If you have other questions on this notice or Medicare billing, call 1-800 MEDICARE (1-800-633-4227/TTY: 1-877-486-2048).

Signature: __________________________  Date: __________

Form Approved OMB No. 0938-0966
Billing examples

• Patient comes in only for high dose flu shot, Medicare or Medicare advantage
  • No physician visit
  • Bill 90662 and G0008

• If see physician for visit then bill:
  • E/M code appropriate level such as 99213-25 G0008-59 and 90662-59
  • Do not use 99211 and vaccines unless patient is specifically having a separate service such as blood pressure adjustment etc
More examples

• Patient comes in for Flu, Hep B and Pneumonia with Medicare
  • G0008,90662,G0009,90732,G0010,90746

• If commercial then bill:
  • 90471,90686(quadrivalent),90472 for 2 units, 90732,90746

• Again if with E/M then modifier 25 on E/M and modifier 59 on each administration and each vaccine
More examples

• Flu, pneumonia and hep B with other vaccines
  • Patient with pneumonia and Shingrix
  • Medicare G0009,90732,90472,90750
  • Commercial 90471,90472,90732,90750

• Flu, pneumonia and Shingrix
  • Medicare G0008,90662,G0009,90732,90472,90750
  • Commercial 90471,90472 x 2 units,90732,90750,90686
Summary

• Vaccines Save Lives
• Vaccine programs can be easily implemented
• Vaccines are reimbursable and will not have a negative financial impact
• Vaccine programs will have a positive financial impact
• Several resources available to ensure success
• Keep Calm and Vaccinate
Questions?