Immunization Policy and Procedure Manual Revisions, January 2020

1. The DT vaccine section has been updated to recommend the booster dose be DT rather than DTaP as DT is being administered because DTaP is contraindicated.

2. The allergy table within the Tdap section was updated to indicate that some presentations of Adacel still contain latex.

3. The statement on cocooning has been removed from the Tdap vaccine section as cocooning alone is not an effective strategy and can be difficult to implement.

4. The postexposure prophylaxis and preexposure prophylaxis tables in the hepatitis A vaccine section have been consolidated into one table.

5. The hepatitis A vaccine section has been updated to include the following statement. “For travel that will begin in ≤2 weeks to countries with high or intermediate hepatitis A endemicity, older adults, immunocompromised persons, and persons with chronic liver disease or other chronic medical conditions may receive IG simultaneously with hepatitis A vaccine at a separate anatomic injection site. Travelers who elect not to receive hepatitis A vaccine, who are aged <12 months, or who are allergic to a component of hepatitis A vaccine should receive a single dose of IG before travel.”

6. The following precautions have been added to the MMRV section.
   - Use of aspirin or aspirin-containing products
   - Receipt of specific antiviral drugs (for example, acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination)
   - Family or personal history of seizures

7. The herpes zoster vaccine section has been updated to indicate that contraindication #3 only applies to ZVL.

8. The herpes zoster vaccine section has been updated to indicate that precaution #3, which relates to receipt of specific antivirals, only applies to ZVL.
Print for an Off-Site Immunization Clinic

Below is a list of documents linked to within the Policy and Procedure Manual. Please review the list and print documents, as needed, prior to an immunization clinic.

1. Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule
2. Screening Checklist for Contraindications to Vaccines for Children and Teens
3. Screening Checklist for Contraindications to Vaccines for Adults
4. Vaccine Information Statements (VIS)
5. Guide to Contraindications and Precautions to Commonly Used Vaccines
6. Quick Guide to Conditions Commonly Misperceived as Contraindications to Vaccination
7. Vaccine Excipient and Media Summary
8. Vaccine Administration Record (F-44702)
9. Recommended intervals between administration of immune globulin preparations and measles- or varicella-containing vaccine
10. Recommended and Minimum Ages and Intervals Between Doses of Routinely Recommended Vaccines
11. How to Administer Intramuscular and Subcutaneous Vaccine Injections
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ACIP Advisory Committee on Immunization Practices
CDC Centers for Disease Control and Prevention
DT pediatric diphtheria-tetanus toxoid
DTaP pediatric diphtheria and tetanus toxoids and acellular pertussis
GBS Guillain-Barré syndrome
HAV hepatitis A virus
HBV hepatitis B virus
HBIG hepatitis B immunoglobulin
HCV hepatitis C virus
HepA hepatitis A
HepB hepatitis B
HBsAg hepatitis B surface antigen
Hib Haemophilus influenzae type b
HIV human immunodeficiency virus
HPV human papillomavirus
HZV herpes zoster virus
IG immune globulin
IgG immunoglobulin G
IGIV immune globulin intravenous
IIV inactivated influenza vaccine
IPV inactivated poliovirus vaccine
LAIV live, attenuated influenza vaccine
LHD local health department
MCV4 meningococcal conjugate vaccine
MMR measles, mumps, and rubella
MMRV measles, mumps, rubella, and varicella
PCV13 pneumococcal conjugate vaccine
PPSV23 pneumococcal polysaccharide vaccine
RV1 live, attenuated monovalent rotavirus vaccine
RV5 live, reassortant pentavalent rotavirus vaccine
RZV recombinant zoster vaccine
Td adult tetanus and diphtheria toxoids
Tdap tetanus and reduced diphtheria toxoids and acellular pertussis (for adolescents and adults)
VAR varicella vaccine
VFC Vaccines for Children
VZIG varicella zoster immune globulin
WIR Wisconsin Immunization Registry
ZVL zoster vaccine live
POLICY AND PROCEDURE MANUAL (PROTOCOLS) (Rev. 11/2018)

1. Medical Authorization
An immunization program established by the local health department (LHD) shall be supervised by a physician who shall sign the immunization program orders (medical authorization) for the administration of vaccines. The authorization, per Wis. Stat. § 252.04 (16) (fm), shall be in accordance with the written Immunization Policy and Procedure Manual (Protocols) issued by the Department of Health Services (DHS), Division of Public Health, Bureau of Communicable Diseases, Immunization Program. A copy of the Policy and Procedure Manual and medical authorization shall be available at each vaccine clinic site.

The Immunization Policy and Procedure Manual is based on the recommendations of the United States Public Health Service (USPHS) Advisory Committee on Immunization Practices (ACIP) and the American Academy of Pediatrics (Red Book). Clinic practice should be based on the most current ACIP statement(s). Implementation of new target populations or vaccine types will be at the written direction of the chief medical officer and state epidemiologist for Communicable Diseases. LHDs should implement these changes within six months from the date of the memo. Please note that while vaccine manufacturers’ package inserts are acceptable sources of information about vaccine storage, ingredients, reconstitution, and administration, they should not be used for determining contraindications, recommendations, or immunization schedules.

3. Remove Barriers to Immunization
Clinics shall be conducted at times and places selected to assure convenient access and ample opportunity for clients to stay on schedule. Efforts should be made to accommodate immunization needs of clients unable to attend regularly scheduled clinics. Home or off-site administration of vaccines consistent with LHD policy may be done in selected instances.

4. Vaccine Eligibility
All vaccines provided to local public health agencies by the Immunization Program shall be administered without charge for the cost of the vaccine. No individual medically eligible for a vaccine may be denied vaccine at any vaccination site assisted by state or federal grant funds based on their willingness or ability to pay an administration fee or donation. If a child were denied publicly purchased vaccine for other than a valid medical reason, DHS would be in violation of the federal guidelines. Persons with health insurance that covers the cost of vaccines should be directed to their primary health care provider to receive vaccinations (see Appendices B and B1 for guidance on eligibility). Adults with Medicaid coverage are considered insured as they are covered for all ACIP recommended vaccines. Adults with Medicare coverage should be directed to their Medicare plan carrier in order to determine eligibility for vaccines. Specific eligibility for the Vaccines for Children program may be found at: http://www.cdc.gov/vaccines/programs/vfc/providers/eligibility.html

5. Termination of Requirements
LHDs will terminate any requirements that have been imposed upon children before they can receive vaccines (for example, physician referral, physical examination before receiving vaccines, residency, and income guidelines).
6. **Clinic staffing**
Clinic staffing, in the absence of an on-site physician or an advanced practice registered nurse, shall consist of at least one registered professional nurse in charge of the clinic and at least one other adult to assist the registered nurse. All persons working in the clinic shall receive an orientation that includes specific instruction regarding vaccines and their administration, immunization protocols, clinic procedures, and emergency care.
   a. The registered nurse in charge of the clinic is to provide all measures to assure patient safety and quality of care. This includes making certain staff possess the requisite educational preparation and demonstrated ability to work in the clinic.
   b. The registered nurse is responsible for providing direction and assistance to those supervised, to include observation and monitoring of those supervised and to evaluate the effectiveness, safety, and quality of the services provided in the clinic.
   c. Based on the decision of the local health officer, the public health nursing supervisor or director, and the local medical advisor, nursing students may administer vaccines provided there is a signed letter of agreement between the LHD and the institution of higher education. All nursing students working in clinics shall receive an orientation to immunization protocols, clinic procedures, and emergency care.

7. **Who can routinely administer vaccines**
Administration of vaccines in the absence of an on-site physician shall be done in accordance with Wis. Stat. chs. 441 and 448, and shall be done only by the following persons who have demonstrated competence and been specifically instructed in vaccines and their administration, immunization protocols, clinic procedures, and emergency procedures. Immunization clinics shall not be held if a registered nurse is not available to supervise the clinic on site.
   a. A registered nurse
      1. A licensed practical nurse
      2. A student nurse under the direct supervision of a registered nurse and who also meets the requirements included in Section 6.3.
   b. A physician’s assistant

**Who can administer vaccines during a staffing shortage**
In the event of a staffing shortage in the LHD, the medical advisor may identify additional persons to administer vaccines. This decision shall be made collaboratively and in consultation with the local health officer and the supervisor or director of public health nursing. These designated additional persons shall have demonstrated competence and have been specifically instructed in vaccines and their administration, immunization protocols, clinic procedures, and emergency procedures.

8. **Emergency Preparation**
The statewide 911 system and emergency medical service (EMS) located in the clinic’s geographical area shall be used as needed. The name and telephone number of the service must be in the possession of personnel staffing each clinic and clearly posted. A telephone shall be readily available to the staff (either a land line or cell phone with adequate reception).
9. **Handwashing and Gloves**  
Clinic staff should wash their hands thoroughly with soap and water or cleanse them with an alcohol-based waterless antiseptic before vaccine preparation, between patients, and any time hands become soiled. The person administering vaccines is not required to wear gloves when administering vaccine; however, gloves may be worn per LHD policy or at the discretion of the person administering vaccines. If gloves are worn, they should be changed between patients. Gloves should be readily available for emergency situations when there is potential for contact with blood or potentially infectious body fluids.

10. **Health History**  
Clinic staff shall review the health history of each individual to be vaccinated to ensure that no contraindications exist.  
[Screening Checklist for Contraindications to Vaccines for Children and Teens](#)
[Screening Checklist for Contraindications to Vaccines for Adults](#)

11. **Vaccine Information Statements (VIS) and Informed Consent**  
The most current Vaccine Information Statement shall be provided to each individual to be immunized. The use of the VIS along with a signature of the person to receive vaccine or the person authorized to make the request on the Vaccine Administration Record (F-44702) constitutes informed consent.

12. **Vaccine-Related Reactions**  
A local telephone number for reporting significant reactions will be provided to the client. All adverse events that occur after a vaccination shall be reported by the LHD through the Vaccine Adverse Events Reporting System (VAERS) [http://vaers.hhs.gov/esub/index](http://vaers.hhs.gov/esub/index).

13. **Contraindications to Vaccination**  
Care should be taken to ensure that persons are not denied vaccines when no contraindications or precautions exist. Refer to [Guide to Contraindications and Precautions to Commonly Used Vaccines](#), [Quick Guide to Conditions Commonly Misperceived as Contraindications to Vaccination](#), and [Vaccine Excipient and Media Summary](#).

   a. Individuals for whom a particular vaccine is contraindicated shall not receive that vaccine at a public clinic and shall be referred to their private physician for further assessment.

   b. A vaccination requested by a private physician on referral, which is contraindicated per these policies and procedures, shall not be administered, and the physician shall be informed accordingly.

14. **Vaccine Consent for Immunization of Minors**  
LHDs should establish a policy regarding the immunization of minors. Refer to the Vaccine Consent for Immunization of Minors (Appendix C).

15. **Record Keeping: Provider**  
A permanent record will be maintained either electronically (in the Wisconsin Immunization Registry [WIR] or Registry for Effectively Communicating Immunization Needs [RECIIN]), or hard copy. It will include the name of the vaccine recipient along with the date the vaccine was administered, the type of vaccine, manufacturer, lot number, and the name and professional suffix of the person administering the vaccine. This record may be the [Vaccine](#).
**Administration Record (F-44702)** signed by the individual to be immunized or by the person authorized to make the request, or by using the signature pad in WIR. If all required information (listed above) is maintained permanently in another record, the form bearing the signature (Vaccine Administration Record) need only be retained for 10 years from the date of creation or receipt of the record (for an adult) or five years from the date that a minor reaches 18 years of age (for a minor).

**Note:** A permanent record is only required for vaccines covered by the National Vaccine Injury Compensation Program. This currently does not include pneumococcal polysaccharide vaccine (PPSV23) or herpes zoster vaccine.

16. **Record Keeping: Patient**
   The individual shall be provided with a report of their immunizations from WIR or RECIN or a copy of their personal immunization record or have their existing record updated. The date (m/d/y) of each specific type of vaccine administered should be entered on the record and the importance of keeping immunization records and bringing them to each immunization visit should be emphasized. A return date should be provided, if any, on the immunization record card. The sharing of immunization information between providers is permissible without consent of the patient. (Wis. Admin. Code § DHS 144.03). Refer to Wis. Admin. Code ch. DHS 144 for information on immunization of students: [http://docs.legis.wisconsin.gov/code/admin_code/dhs/110/144.pdf](http://docs.legis.wisconsin.gov/code/admin_code/dhs/110/144.pdf)

17. **Tracking and Recall**
   The agency shall have a record system designed to track and recall children overdue for immunization (for example, reminder/recall available through WIR or RECIN). Reminder/recall should occur on a regular basis (every other month at a minimum) until completion of the primary immunization series.

18. **Vaccine Forecasting**
   WIR may be used to determine which vaccines an individual is medically eligible for, according to the most current ACIP schedule, at the time of their clinic visit. Refer to the most current ACIP recommendations when vaccinating persons with a high-risk condition. Clinic staff should have good working knowledge of ACIP recommendations for vaccines, especially vaccination schedules for high-risk individuals.
CLINIC PROCEDURES (Rev. 11/2018)

1. Interviewing for Purposes of Administering a Vaccine
   a. Obtain history of allergies and if that history indicates that the individual may be allergic to any of the specific vaccine components listed on the “Vaccine Information Statement,” refer the individual to his/her private physician for appropriate evaluation and disposition regarding the vaccine’s administration and notify the physician.
   b. Individuals who have experienced a reaction that may contraindicate additional doses should be referred to their private physician for assessment and for continuation. Note such a referral on the child’s permanent immunization record. Notify the physician of the referral.
   c. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F is a precaution to vaccination. Benefits of and risks for administering a specific vaccine to a person under these circumstances should be considered. Minor, non-febrile illnesses (for example, upper respiratory infections or recovering from varicella or other viral illnesses) do not necessitate deferring immunization. If fever is suspected, temperature should be measured as appropriate.
   d. Antibiotic therapy is not a contraindication, per se, for receiving vaccines or toxoids (live, inactivated, recombinant, etc.), though antiviral therapy may interfere with live virus vaccines. LAIV should not be administered until 48 hours after cessation of influenza antiviral therapy, and varicella and zoster vaccines should not be administered until 24 hours after cessation of antiviral therapy active against herpes viruses (for example, acyclovir).
   e. For women of childbearing age who need MMR, MMRV or varicella vaccine, reasonable precautions include asking if they are pregnant or likely to become pregnant in the next four weeks. Those who are pregnant or intend to become pregnant should not be vaccinated with these vaccines. All other women should be vaccinated after being advised about the theoretical risk of vaccination during pregnancy and the importance of not becoming pregnant during the four weeks following vaccination.
   f. Do not restart the series when administering vaccines normally given if a series is interrupted. Instead, continue the series to complete the schedule. If there is no specific written vaccination history available, restart the series from the beginning. In contrast, do not count doses given at less than the recommended minimum interval or minimum age as part of the primary series. The total doses of DTP/DTaP/DT should not exceed six before a child’s seventh birthday.

2. Administration of Immunizing Agents
   a. Generally, for intramuscular (IM) and subcutaneous (SC) injection, the preferred site for infants is the anterolateral aspect of the upper thigh (vastus lateralis); for older children and adults, the deltoid area is acceptable.
   b. One or more inactivated vaccines, and one or more live, attenuated viral vaccines, can be administered at the same visit in separate syringes and at separate anatomical sites (separated by 1 inch or more) with the precautions that apply to each individual vaccine product.
c. Administer all recommended vaccines at the same visit, particularly for those children who are overdue or whose return is doubtful.

d. In a situation when multiple injections are administered to an infant during the same visit, give multiple injections in each site separated vertically on the muscle by 1-2 inches.

e. Separate the administration of live virus vaccines that are not administered on the same day by at least four weeks. Exception: oral vaccines (Ty21a typhoid vaccine and rotavirus) can be administered simultaneously or at any interval before or after other live vaccines (injectable or intranasal) if indicated.

f. The suggested interval between administration of IG preparations and vaccines containing live measles or varicella virus is available from the CDC: Recommended intervals between administration of immune globulin preparations and measles- or varicella-containing vaccine.

g. The minimum age for initial vaccination and minimum interval between vaccine doses by type of vaccine is available from the CDC: Recommended and Minimum Ages and Intervals Between Doses of Routinely Recommended Vaccines.

h. Immune globulin, including HBIG, does not interfere with inactivated vaccines. They may be administered during the same visit.

i. Recent receipt of live virus vaccines (particularly measles vaccine) can suppress a person’s response to tuberculin skin testing (TST) using the Mantoux skin testing method or the interferon-gamma release assay (IGRA). The TST or IGRA should be delayed for four weeks after vaccination.

• One-step TB skin testing: Administer live virus vaccine on the same day as the TST or IGRA or administer the live virus vaccine on the day the TST is read.

• Two-step TB skin testing: Administer live virus vaccine on the same day as the second TST or IGRA or administer the vaccine on the day the second TST is read.

j. Breastfeeding is not a contraindication to the receipt of live or inactivated vaccines in an infant.

k. Syncope can occur after vaccination and is most common among adolescents and young adults. Of particular concern has been the risk for serious secondary injuries, including skull fracture and cerebral hemorrhage. Adolescents and adults should be seated or lying down during vaccination. Vaccine providers, particularly when vaccinating adolescents, should consider observing patients (with patients seated or lying down) for 15 minutes after vaccination to decrease the risk for injury should they faint. If syncope develops, patients should be observed until the symptoms resolve.

l. Skin cleansing agent: throughout the manual, “cleansing agent: alcohol” is defined as 70% isopropyl alcohol, which may be applied to the skin using a pre-packaged sterile alcohol prep pad.

3. Vaccine Management

a. Local liability insurance to cover vaccine loss resulting from power outages or refrigerator failure should be in place. Users of state-supplied vaccine shall notify the Wisconsin Immunization Program of any vaccine loss or spoilage. Segregate the affected vaccine and store at the proper temperature, then, contact the vaccine manufacturer to determine whether the vaccine is still usable. The Immunization Program may request reimbursement for loss or spoilage of vaccine, in the form of vaccine replacement. Any approved claim of vaccine loss covered by local liability
insurance shall be used for the LHD to purchase vaccine to replace the vaccine that was lost as a result of the power outage or refrigerator failure.

b. Plug all refrigerators and freezers into live, “unswitched” outlets. No surge protectors. Warning signs must be placed over all freezer and refrigerator outlets. Maintenance personnel shall be instructed to notify the LHD in the event of an interruption of power. A “do not unplug/do not disconnect” sign must be placed on the circuit breaker that includes the circuit number(s) that corresponds with the units that hold vaccine.

c. Store all vaccines according to the manufacturer’s instructions. Those that are to be stored at refrigerator or freezer temperatures should not be stored in the refrigerator or freezer door. Vaccines shall be rotated with short-dated product in front for use first. Refrigerator and freezer minimum/maximum temperatures shall be checked and recorded once per day, at the start of each work day. It is required that the units that contain state-supplied vaccine have a current certified, calibrated digital data logger that meets the requirements of the VFC Program. Note that slight differences in recommended storage temperatures exist between the product package insert and those listed in the General Best Practice Guidelines on Immunization. In these situations we recommend adhering to the storage temperatures listed in the General Best Practice Guidelines on Immunization.

d. Pack all vaccines being transported to and from clinic sites in insulated containers with cold packs on top of vaccines. Keep vaccines cold if removed from a refrigerator for the duration of the clinic and return to refrigeration upon completion of the clinic. Vaccines must be transported with a working certified, calibrated data logger. Complete information on transporting vaccine can be found in the Immunization Toolkit at: http://www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf

e. For multidose vials that do not require reconstitution, doses that remain after withdrawal of a dose can be administered until the expiration date printed on the vial or vaccine packaging if the vial has been stored correctly and the vaccine is not visibly contaminated, unless otherwise specified by the manufacturer.

f. ACIP discourages the routine practice of prefilling syringes because of the potential for administration errors and vaccine wastage. In certain circumstances in which a single vaccine type is being used (for example, in preparation for a community influenza vaccination campaign), filling a small number of syringes may be considered. Unused syringes filled by the end user (that is, not the manufacturer) should be discarded at the end of the vaccination session.

g. No vaccine shall be administered beyond the expiration date. Vaccine is good until the last day of the month listed on the expiration label (when expiration date only includes month/year). Any expired or spoiled state-supplied vaccine must be returned to McKesson. Please complete a Vaccine Return-Request for Authorization to Return form and fax it to the Immunization Program at 608-267-9493. Once the return has been entered into the VTrckS system, a return ID number and return shipping label will be provided, via email or by mail. The vaccines can be returned without ice.

h. Current vaccine inventory must be reported through the WIR and updated before placing each vaccine order.

4. Proper Use of Syringes and Needles
   a. For subcutaneous injections, a ⅝” long, 25-gauge needle is generally appropriate for infants, children, and adults. However, the needles used for intramuscular injections should be of sufficient length to reach the substance of the muscle. Needle lengths and
gauges for intramuscular and subcutaneous injections can be found in How to Administer Intramuscular and Subcutaneous Vaccine Injections from Immunization Action Coalition. For intramuscular injections, a 1½” long needle would be sufficient for anyone weighing more than 200 pounds.

b. Individual disposable safety syringes and needles (for example, needle-shielding syringes) shall be used to avoid transmitting infectious agents (for example, hepatitis B and HIV) from one person to another.

c. Used disposable syringes and needles shall be placed into puncture-resistant containers located as close as practical to the area in which vaccines are administered. To prevent needlestick injuries, needles shall not be recapped, purposefully bent, broken, removed from disposable syringes, or otherwise manipulated by hand. Filled containers should be incinerated or autoclaved and discarded in a sanitary landfill. In addition to appropriate sharps management, care should be taken to appropriately dispose of other clinic materials (for example, gauze, empty vaccine vials, used cotton balls, etc.) and to limit access to disposed materials. See the document titled "Managing Excess Vaccines" at http://dnr.wi.gov/files/PDF/Pubs/wa/WA841.pdf for additional guidance.

5. Methods that May be Used for Alleviating Discomfort and Pain Associated with Vaccination

a. Use of a topical refrigerant (vapocoolant) spray immediately before vaccination can reduce the short-term pain associated with injections.

b. Evidence does not support use of antipyretics before or at the time of vaccination; however, they can be used for the treatment of fever and local discomfort that might occur following vaccination. Studies of children with previous febrile seizures have not demonstrated antipyretics to be effective in the prevention of febrile seizures.
The following information is provided only for general guidance to LHDs to develop emergency procedure protocols for their immunization clinics. Such protocols should be developed by the LHD and the agency’s medical advisor using more comprehensive medical information.

Anaphylaxis is the sudden or gradual onset of generalized itching, erythema (redness), urticaria (hives), angioedema (swelling of the lips, face, or throat), severe bronchospasm (wheezing), shortness of breath, shock, abdominal cramping, or cardiovascular collapse. Anaphylaxis due to an administered vaccine, although exceedingly rare, can occur within seconds to minutes of receipt of a vaccine and constitutes a medical emergency. Emergency treatment of systemic anaphylaxis is based on the type of reaction. Mild symptoms, such as skin reactions alone (for example, pruritus, erythema, urticarial, or angioedema) may be the first sign of an anaphylactic reaction, but by nature are not dangerous and can be treated with an antihistamine. However, epinephrine may be needed depending on the clinical situation. Epinephrine should be administered promptly if the patient has: skin symptoms (generalized hives, itch-flush, swollen lips/tongue/uvula) and respiratory compromise (dyspnea, wheeze, bronchospasm, stridor, or hypoxemia); or two or more organ systems involved, including skin symptoms or respiratory compromise, plus gastrointestinal tract symptoms (for example, crampy abdominal pain or vomiting) or cardiovascular symptoms (for example reduced blood pressure, syncope, collapse, hypotonia, or incontinence). All personnel administering vaccines or other biologics must be prepared to treat anaphylaxis, including administration of epinephrine, and in some situations, a rapid-acting antihistamine (for example, diphenhydramine or hydroxyzine), and should have demonstrated competence in basic life support techniques (CPR). An emergency supply of non-expired epinephrine and a rapid acting antihistamine (for example, diphenhydramine or hydroxyzine) must be readily available. It is strongly recommended that LHDs consult with their medical advisor to secure epinephrine in the form that is most easily administered (for example, EpiPen® or Auvi-Q™). Because time is of the essence, this method saves time calculating and drawing up the needed doses. If an ampule of epinephrine and needle/syringe is to be used, it is important that the nurse be proficient in drawing up and administering the proper dosage.

Emergency Medical Protocol for Management of Anaphylactic Reactions

1. If itching and swelling are confined to the injection site where the vaccination was given, observe patient closely for the development of generalized symptoms.

2. If symptoms are generalized, activate the emergency medical system (for example, call 911) and notify the on-call physician. This should be done by a second person, while the primary nurse assesses the airway, breathing, circulation, and level of consciousness of the patient.

3. Drug Dosing Information:
   a. First-line treatment: Administer aqueous epinephrine 1:1000 dilution (that is, 1 mg/mL) intramuscularly; the standard dose is 0.01 mg/kg body weight, up to 0.3 mg maximum single dose in children and 0.5 mg maximum in adolescents and adults (see table).
   b. Secondary treatment option: For hives or itching, you may also administer diphenhydramine either orally or by intramuscular injection; the standard dose is 1–2 mg/kg body weight, up to 50 mg maximum dose in children and 50 mg maximum dose
in adolescents and adults, or hydroxyzine administered orally; the standard dose is 0.5-1 mg/kg, up to 15 mg maximum dose for children and 25 mg maximum dose for adolescents and adults (see table).

4. Monitor the patient closely until emergency medical services (EMS) arrives. Perform cardiopulmonary resuscitation (CPR), if necessary, and maintain airway. Keep patient in supine position (flat on back) unless he or she is having breathing difficulty. If breathing is difficult, patient’s head may be elevated, provided blood pressure is adequate to prevent loss of consciousness. If blood pressure is low, elevate legs. Monitor blood pressure and pulse every five (5) minutes.

5. If EMS has not arrived and symptoms are still present, repeat dose of epinephrine every 5 to 15 minutes for up to three doses, depending on patient’s response.

6. Record all vital signs, medications administered to the patient, including the time, dosage, response, and the name of the medical personnel who administered the medication, and other relevant clinical information.

7. Notify the patient’s primary care physician.

*First-Line Treatment: Epinephrine
(the recommended dose for epinephrine is 0.01 mg/kg body weight)

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<tr>
<th>Age group</th>
<th>Range of weight (pounds)</th>
<th>Range of weight (kilograms)</th>
<th>Epinephrine dose</th>
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<td>1mg/mL injectable (1:1000 dilution) IM Minimum dose:</td>
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<td></td>
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<td></td>
<td>EpiPen or Auvi-Q® Epinephrine auto-injector 0.15 mg or 0.3 mg</td>
</tr>
<tr>
<td>Infants and children</td>
<td>1-6 months</td>
<td>9-19 lb</td>
<td>4-8.5 kg</td>
</tr>
<tr>
<td></td>
<td>7-36 months</td>
<td>20-32 lb</td>
<td>9-14.5 kg</td>
</tr>
<tr>
<td></td>
<td>37-59 months</td>
<td>33-39 lb</td>
<td>15-17.5 kg</td>
</tr>
<tr>
<td></td>
<td>5-7 years</td>
<td>40-56 lb</td>
<td>18-25.5 kg</td>
</tr>
<tr>
<td></td>
<td>8-10 years</td>
<td>57-76 lb</td>
<td>26-34.5 kg</td>
</tr>
<tr>
<td>Teens and adults</td>
<td>11-12 years</td>
<td>77-99 lb</td>
<td>35-45 kg</td>
</tr>
<tr>
<td></td>
<td>≥13 years</td>
<td>≥100 lb</td>
<td>≥46 kg</td>
</tr>
</tbody>
</table>

IM=intramuscular
Note: If body weight is known, then dosing by weight is preferred. If weight is not known or not readily available, dosing by age is appropriate.
*Adapted from Immunization Action Coalition, Item #P3082 and #P3082a
aRounded weight at the 50th percentile for each age range
b0.15 mg for persons weighing 33 pounds to 66 pounds; 0.30 mg for persons weighing ≥66 pounds
cMaximum dose for children
dMaximum dose for teens and adults
*Secondary Treatment Option: Diphenhydramine
(the recommended dose for diphenhydramine [Benadryl] is 1-2 mg/kg body weight)

<table>
<thead>
<tr>
<th>Age group</th>
<th>Range of weight (pounds)</th>
<th>Range of weight (kilograms)</th>
<th>Diphenhydramine dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants and children</td>
<td>7-36 months</td>
<td>20-32 lb</td>
<td>9-14.5 kg</td>
</tr>
<tr>
<td></td>
<td>37-59 months</td>
<td>33-39 lb</td>
<td>15-17.5 kg</td>
</tr>
<tr>
<td></td>
<td>5-7 years</td>
<td>40-56 lb</td>
<td>18-25.5 kg</td>
</tr>
<tr>
<td></td>
<td>8-12 years</td>
<td>57-99 lb</td>
<td>26-45 kg</td>
</tr>
<tr>
<td>Teens and adults</td>
<td>≥13 years</td>
<td>≥100 lb</td>
<td>≥46 kg</td>
</tr>
</tbody>
</table>

IM=intramuscular, IV=intravenous
Note: If body weight is known, then dosing by weight is preferred. If weight is not known or not readily available, dosing by age is appropriate.
*Adapted from Immunization Action Coalition, Item #P3082 and #P3082a
aRounded weight at the 50th percentile for each age range
bMaximum dose for children
cMaximum dose for teens and adults

*Secondary Treatment Option: Hydroxyzine
(the recommended dose for hydroxyzine is 0.5-1 mg/kg body weight)

<table>
<thead>
<tr>
<th>Age group</th>
<th>Range of weight (pounds)</th>
<th>Range of weight (kilograms)</th>
<th>Hydroxyzine dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants and children</td>
<td>7-36 months</td>
<td>20-32 lb</td>
<td>9-14.5 kg</td>
</tr>
<tr>
<td></td>
<td>37-59 months</td>
<td>33-39 lb</td>
<td>15-17.5 kg</td>
</tr>
<tr>
<td></td>
<td>5-7 years</td>
<td>40-56 lb</td>
<td>18-25.5 kg</td>
</tr>
<tr>
<td></td>
<td>8-10 years</td>
<td>57-76 lb</td>
<td>26-34.5 kg</td>
</tr>
<tr>
<td>Teens and adults</td>
<td>11-12 years</td>
<td>77-99 lb</td>
<td>35-45 kg</td>
</tr>
<tr>
<td></td>
<td>≥13 years</td>
<td>≥100 lb</td>
<td>≥46 kg</td>
</tr>
</tbody>
</table>

IM=intramuscular, PO=orally
Note: If body weight is known, then dosing by weight is preferred. If weight is not known or not readily available, dosing by age is appropriate.
*Adapted from Immunization Action Coalition, Item #P3082 and #P3082a
aRounded weight at the 50th percentile for each age range
bMaximum dose for children
cMaximum dose for teens and adults

Complete a Vaccine Adverse Event Report form online (preferred) or complete and fax or mail the form according to the instructions at: https://vaers.hhs.gov/esub/index.
<table>
<thead>
<tr>
<th>CLINIC SITE</th>
<th>EMERGENCY MEDICAL SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Telephone</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Introduction
DTaP vaccines which are currently licensed are provided by the following manufacturers:
1. Infanrix® – GlaxoSmithKline
2. Daptacel® – Sanofi Pasteur

Combination vaccines containing DTaP:
1. Pediarix™ (DTaP-Hepatitis B-IPV) – GlaxoSmithKline (p. 20) licensed for persons aged 6 weeks through 6 years
2. Pentacel® (DTaP-Hib-IPV) – Sanofi Pasteur (p. 22) licensed for persons aged 6 weeks through 4 years
3. Kinrix™ (DTaP-IPV) – GlaxoSmithKline (p. 15) licensed for persons aged 4 through 6 years
4. Quadracel™ (DTaP-IPV) – Sanofi Pasteur (p. 17) licensed for persons aged 4 through 6 years

ACIP recommends that the series be completed with the same brand of DTaP vaccine if possible. However, limited data suggests that “mix and match” DTaP schedules do not adversely affect safety and immunogenicity. If the vaccine provider does not know or have available the type of DTaP vaccine previously administered to a child, any available DTaP vaccine should be used to continue or complete the vaccination series. Unavailability of the vaccine used for earlier doses is not a reason for missing the opportunity to administer a dose ofacellular pertussis vaccine for which the child is eligible.

Schedule
1. Infants and children aged 6 weeks through 6 years: The primary series of DTaP vaccine consists of four doses given at age 2 months, 4 months, 6 months, and 15-18 months. See the Childhood Immunization Schedule and Catch-Up Immunization Schedule.
2. Children who received all four primary doses before the fourth birthday should receive a fifth (booster) dose of DTaP before entering school. The fifth dose is not necessary if the fourth dose was administered at 4 years or older.
3. Prospectively: A 4th dose may be given as early as age 12 months if at least 6 months have elapsed since the 3rd dose.
   Retrospectively: A 4th dose that was inadvertently given as early as 12 months may be counted if at least 4 months have elapsed since the 3rd dose.

Age 7 years and above: Not recommended.

Contraindications
1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.
2. Encephalopathy (for example, coma, decreased level of consciousness, or prolonged seizures), not attributable to another identifiable cause, within seven days of administration of the previous dose of DTP or DTaP.
Precautions
1. Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status is clarified and stabilized.
2. A history of GBS <6 weeks after a previous dose of a tetanus toxoid-containing vaccine
3. History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccines; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine.
4. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F

Reactions
1. DTaP may cause local reactions such as pain, redness, or swelling. Local reactions are more likely to occur after the fourth or fifth doses of DTaP.
2. Mild systemic reactions such as drowsiness, fretfulness, and low-grade fever may also occur.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Gelatin</th>
<th>2-Phenoxyethanol</th>
<th>Alum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infanrix</td>
<td>Yes – syringe, No – vial</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Daptacel</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site: 0.5 mL intramuscularly in the anterolateral aspect of the upper thigh for infants and younger children, or into the deltoid for older children.

Cleansing agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
DTaP-IPV (Kinrix™) (Rev. 11/2018)

Introduction
Kinrix™ is a combined DTaP-IPV vaccine manufactured by GlaxoSmithKline. The DTaP and IPV components are the same as those in Infanrix® and Pediarix®. Kinrix is indicated for active immunization against diphtheria, tetanus, pertussis and poliomyelitis as the fifth dose in the DTaP vaccine series and the fourth dose in IPV series in children 4 through 6 years of age.

Schedule
A single dose is indicated for children 4 through 6 years of age. The minimum dosing interval between the fourth dose of DTaP and Kinrix is six months. See the Childhood Immunization Schedule and Catch-Up Immunization Schedule.
1. Kinrix may be used for the fifth dose in the DTaP immunization series and the fourth dose in the IPV immunization series in children 4 through 6 years of age (prior to the seventh birthday) whose previous DTaP vaccine doses have been with Infanrix and/or Pediarix for the first three doses and Infanrix for the fourth dose.
2. The ACIP recommends that, whenever feasible, the same brand of DTaP should be used for the primary series; however, the vaccination should not be deferred when the type of DTaP previously administered is unavailable or unknown.

Age 7 years and above: Not recommended.

Contraindications
1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.
2. Encephalopathy (for example, coma, decreased level of consciousness, or prolonged seizures), not attributable to another identifiable cause, within seven days of administration of the previous dose of DTP or DTaP.

Precautions
1. Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status is clarified and stabilized.
2. GBS <6 weeks after previous dose of tetanus toxoid-containing vaccine.
3. History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccines; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine.
4. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.

Reactions
Generally reactions occur within 72 hours after vaccination. Reactions are typically mild and may include:
1. Local reaction such as pain, tenderness, induration, or erythema at the injection site.
2. Mild systemic reactions such as fever, drowsiness, fretfulness, or anorexia.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Neomycin</th>
<th>Polymyxin B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinrix</td>
<td>Yes – syringe</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No – vial</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*
Administration
Dosage, route, and site: 0.5 mL intramuscularly into the deltoid.

Cleansing agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
**Introduction**

Quadracel™ is a combined DTaP-IPV vaccine manufactured by Sanofi Pasteur. The DTaP and IPV components are the same as those in Pentacel®. Quadracel is indicated for active immunization against diphtheria, tetanus, pertussis and poliomyelitis as the fifth dose in the DTaP vaccine series and the fourth or fifth dose in IPV series in children 4 through 6 years of age.

**Schedule**

A single dose is indicated for children 4 through 6 years of age. The minimum dosing interval between the fourth dose of DTaP and Quadracel is six months. See the [Childhood Immunization Schedule](#) and [Catch-Up Immunization Schedule](#).

1. Quadracel may be used for the fifth dose in the DTaP immunization series and the fourth or fifth dose in the IPV immunization series among children 4 through 6 years of age (prior to the seventh birthday) who have previously received four doses of Pentacel and/or Daptacel.

2. The ACIP recommends that, whenever feasible, the same brand of DTaP should be used for the primary series; however, the vaccination should not be deferred when the type of DTaP previously administered is unavailable or unknown.

**Age 7 years and above: Not recommended.**

**Contraindications**

1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.

2. Encephalopathy (for example, coma, decreased level of consciousness, or prolonged seizures), not attributable to another identifiable cause, within seven days of administration of the previous dose of DTP or DTaP.

**Precautions**

1. Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status is clarified and stabilized.

2. GBS <6 weeks after previous dose of tetanus toxoid-containing vaccine.

3. History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccines; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine.

4. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.

**Reactions**

Generally reactions occur within 72 hours after vaccination. Reactions are typically mild and may include:

1. Local reaction such as pain, tenderness, induration, or erythema at the injection site.

2. Mild systemic reactions such as fever, drowsiness, fretfulness, or anorexia.

**Potential Allergy**

*When in doubt about the contents of a particular vaccine, check the current package insert.*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Neomycin</th>
<th>Polymyxin B</th>
<th>Alum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadracel</td>
<td>No – syringe</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**Administration**
Dosage, route, and site: 0.5 mL intramuscularly into the deltoid.

Cleansing agent: alcohol

**Storage**
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Introduction
Note: DT vaccine is intended for infants and children who have a true contraindication to DTaP vaccine and who cannot obtain it from their private health care provider. DT vaccine is not to be offered as a substitute for DTaP vaccine.

DT (Generic) – Sanofi Pasteur

Schedule
DT is licensed for infants and children aged 6 weeks through 6 years: The primary series of DT vaccine consists of four doses given at age 2 months, 4 months, 6 months, and 15-18 months. Children who received all four primary doses before their fourth birthday should receive a fifth (booster) dose of DT before entering school. See the Childhood Immunization Schedule and Catch-Up Immunization Schedule.

Age 7 years and above: Not recommended.

Contraindications
Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.

Precautions
1. GBS <6 weeks after a previous dose of tetanus toxoid-containing vaccine
2. History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria or tetanus toxoid-containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid containing vaccine.
3. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F

Reactions
1. Mild fever, chills, local inflammatory reaction with induration and soreness
2. Nodule may be palpable at injection site for a few weeks

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Alum</th>
<th>Thimerosal</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT</td>
<td>Yes – vial</td>
<td>Yes</td>
<td>Yes (multidose)</td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site: 0.5 mL intramuscularly in the anterolateral aspect of the upper thigh for infants and younger children, or into the deltoid for older children.

Cleansing agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Introduction
Pediarix™ is a combined DTaP-Hepatitis B-IPV vaccine manufactured by GlaxoSmithKline. The DTaP antigens are the same as those in Infanrix®. The hepatitis B antigen is the same as Engerix-B®. The IPV component in Pediarix is an enhanced potency inactivated poliovirus vaccine. The IPV component contains the same three poliovirus types, strains and antigen content as the currently licensed IPV vaccine.

Schedule
Pediarix is licensed for infants and children aged 6 weeks through 6 years. The first three doses of the primary series of Pediarix typically includes three doses at 2, 4 and 6 months. See the Childhood Immunization Schedule and Catch-Up Immunization Schedule. The minimum age and interval for each dose are equivalent to the longest interval or oldest age recommended for any of the individual components for that dose.

1. Pediarix can be used for catch-up vaccination but is not approved for the fourth dose of IPV or the fourth and fifth dose of DTaP.
2. The immunologic responses following three doses of Pediarix were generally similar to those following three doses of separately administered Infanrix, Engerix-B, and oral poliovirus vaccine.
3. Pediarix and hepatitis B vaccine from a different manufacturer are interchangeable for hepatitis B vaccination.
4. Pediarix and IPV vaccine from a different manufacturer are interchangeable for poliovirus vaccination.
5. The ACIP recommends that, whenever feasible, the same brand of DTaP should be used for the primary series; however, the vaccination should not be deferred when the type of DTaP previously administered is unavailable or unknown.

Use of Pediarix after single antigen hepatitis B vaccine is administered at birth will result in a four-dose hepatitis B vaccine series; this is considered acceptable by the ACIP. The table below summarizes some schedule options:

<table>
<thead>
<tr>
<th>Options</th>
<th>Birth</th>
<th>1 month</th>
<th>6 weeks</th>
<th>2 months</th>
<th>4 months</th>
<th>6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HBV #1</td>
<td>Pediarix</td>
<td>Pediarix</td>
<td>Pediarix</td>
<td>Pediarix</td>
<td></td>
</tr>
<tr>
<td>2*</td>
<td>HBV #1</td>
<td>Pediarix*</td>
<td>Pediarix</td>
<td>Pediarix</td>
<td>Pediarix</td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td></td>
<td>Pediarix</td>
<td>Pediarix</td>
<td>Pediarix</td>
<td>Pediarix</td>
<td></td>
</tr>
</tbody>
</table>

*Option 2 can be used for infants born to HBsAg-positive women. Pediarix should be given beginning at 6-8 weeks after receiving a dose of single antigen hepatitis B vaccine at birth.

*Option 3 should only be used as a catch-up schedule, for example, if an infant misses the birth dose of hepatitis B vaccine.

The minimum interval between doses one and two is four weeks. The minimum interval between doses two and three is eight weeks. The minimum interval between doses one and three is 16 weeks. The last dose should not be administered before age 6 months.
Contraindications
1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.
2. Encephalopathy (for example, coma, decreased level of consciousness, or prolonged seizures), not attributable to another identifiable cause, within seven days of administration of the previous dose of DTP or DTaP.

Precautions
1. Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status is clarified and stabilized.
2. GBS <6 weeks after previous dose of tetanus toxoid-containing vaccine.
3. History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria or tetanus toxoid-containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine.
4. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.

Reactions
Reactions generally occur within 72 hours after vaccination and typically consist of:
1. Local reactions such as pain, tenderness, induration, or erythema at the injection site.
2. Mild systemic reactions such as fever, drowsiness, fretfulness, or anorexia.
3. Infants who received Pediarix had somewhat higher rates of fever (≥100.4°F) than infants who received the component vaccines injected at separate sites.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Neomycin</th>
<th>Polymyxin B</th>
<th>2-Phenoxyethanol</th>
<th>Yeast</th>
<th>Alum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediarix</td>
<td>Yes–syringe</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No–vial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site: 0.5 mL intramuscularly in the anterolateral aspect of the upper thigh for infants, or into the deltoid for older children.

Cleansing agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Introduction
Pentacel® is a combination DTaP-IPV-Hib vaccine manufactured by Sanofi Pasteur. The DTaP antigens are the same as those in Daptacel®, with an increase in the amount of pertussis toxin and filamentous hemagglutinin. The IPV component in Pentacel is an enhanced potency inactivated poliovirus vaccine (Poliovax®). The Hib conjugate component is identical to ActHib®. The DTaP-IPV component is the diluent supplied as a sterile liquid, used to reconstitute the lyophilized ActHib® vaccine component to form Pentacel vaccine.

Schedule
Pentacel is licensed for infants and children aged 6 weeks through 4 years. The recommended schedule for Pentacel is similar to that for DTaP and ActHib with doses at 2, 4, 6, and 15 through 18 months of age. See the Childhood Immunization Schedule and Catch-Up Immunization Schedule. The minimum age and interval for each dose are equivalent to the longest interval or oldest age recommended for any of the individual components for that dose.
1. Pentacel can be used for catch-up vaccination but is not licensed for use as the fifth dose of DTaP.
2. The immunologic responses following the third and fourth doses of Pentacel were generally similar to those following respective, separately administered component vaccines.
3. Antibody responses following the first and second doses of DTaP-IPV-Hib were not measured.
4. Pentacel and IPV vaccine from a different manufacturer are interchangeable for poliovirus vaccination.
5. Pentacel and Hib vaccine from a different manufacturer are interchangeable for Hib vaccination.
6. The ACIP recommends that, whenever feasible, the same brand of DTaP should be used for the primary series; however, the vaccination should not be deferred when the type of DTaP previously administered is unavailable or unknown.

The table below summarizes the recommended Pentacel schedule:

<table>
<thead>
<tr>
<th>6 weeks</th>
<th>2 months</th>
<th>4 months</th>
<th>6 months</th>
<th>15-18 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentacel</td>
<td>Pentacel</td>
<td>Pentacel</td>
<td>Pentacel</td>
<td>Pentacel</td>
</tr>
</tbody>
</table>

The minimum intervals for doses are four weeks between doses 1 and 2 and 2 and 3, and 6 months between doses 3 and 4.

Contraindications
1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.
2. Encephalopathy (for example, coma, decreased level of consciousness, or prolonged seizures), not attributable to another identifiable cause, within seven days of administration of the previous dose of DTP or DTaP.

Precautions
1. Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status is clarified and stabilized.
2. GBS <6 weeks after previous dose of tetanus toxoid-containing vaccine.
3. History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria or tetanus toxoid-containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine.
4. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.

Reactions
Reactions generally occur within 72 hours after vaccination. Reactions are typically mild and may include:
1. Local reaction such as pain, tenderness, induration, or erythema at the injection site.
2. Mild systemic reactions such as fever, drowsiness, fretfulness, or anorexia.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Neomycin</th>
<th>Polymyxin B</th>
<th>2-Phenoxyethanol</th>
<th>Alum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentacel</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site: 0.5 mL intramuscularly in the anterolateral aspect of the upper thigh for infants and younger children, or into the deltoid for older children.

Cleansing agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Tetanus and Diphtheria Toxoid Absorbed (Adult Td) (Rev. 11/2016)

Introduction
Tetanus toxoid is given in combination with diphtheria toxoid for the purpose of periodic boosting needed for both antigens. Note that Tdap is preferred if protection against pertussis is needed (that is, has not received Tdap previously or is pregnant and between 27 and 36 weeks gestational, though Tdap may be given at any time during pregnancy).
1. Tenivac™ – Sanofi Pasteur
2. Td vaccine – Grifols (manufactured by MassBiologics)

Schedule
Age 7 years and above: See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

Infants through age 6 years: Not recommended.

Contraindications
Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.

Precautions
1. GBS <6 weeks after previous dose of tetanus toxoid-containing vaccine.
2. History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria or tetanus toxoid-containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine.
3. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F

Reactions
1. Local adverse reactions (for example, erythema, induration, pain at the injection site) are common but are usually self-limited.
2. A nodule may be palpable at the injection site of adsorbed products for several weeks.
3. Fever and other systemic symptoms are not common.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Alum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenivac</td>
<td>Yes – syringe</td>
<td>Yes – syringe</td>
</tr>
<tr>
<td></td>
<td>No – vial</td>
<td></td>
</tr>
<tr>
<td>Td vaccine</td>
<td>Yes – syringe</td>
<td>Yes – syringe</td>
</tr>
<tr>
<td></td>
<td>No – vial</td>
<td></td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site: 0.5 mL intramuscularly in the deltoid.

Cleansing agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Introduction
The Wisconsin Immunization Program will provide Tdap vaccine as a routine vaccination to persons 11-12 years of age and other persons aged ≥7 years who are eligible. State-supplied vaccine can be used for individuals within the ACIP recommendations. There are two licensed diphtheria, tetanus, and acellular pertussis (Tdap) vaccines for adolescents and adults:
1. Adacel™ – Sanofi Pasteur
2. Boostrix® – GlaxoSmithKline

Schedule
1. Adacel is licensed for use in persons aged 10 through 64 years and Boostrix is licensed for use in persons aged ≥10 years.
2. The preferred age for routine vaccination of adolescents is one dose administered at 11-12 years of age.
3. All individuals aged 13 years or older who have not previously received Tdap should receive one dose of Tdap.
4. If an individual has previously received a dose of Td and now needs a dose of Tdap, Tdap should be administered regardless of interval since last tetanus or diphtheria toxoid-containing vaccine.
5. Adolescents and adults who have never received DTP/DTaP/Td/Tdap vaccine, or who have unknown vaccination status, should receive a series of three vaccinations that includes one dose of Tdap and two doses of Td vaccine. The preferred schedule is a single dose of Tdap, followed by a dose of Td ≥4 weeks after the Tdap dose and a second dose of Td ≥6 months after the first Td dose. However, the single dose of Tdap may be administered as the first, second, or third dose in the series.
6. Either Tdap vaccine can be used following the prior use of any brand of DTaP vaccine in the recipient.

Special Situations
1. To satisfy the sixth grade Tdap requirement of the Student Immunization Law, Tdap may be administered to students who are aged 10 years.
2. Children aged 7 through 10 years who are not fully vaccinated against pertussis: These individuals can receive a single dose of Tdap. Fully vaccinated is defined as five doses of DTaP or four doses of DTaP if the fourth dose was administered on or after the fourth birthday.
3. Children aged 7 through 10 years who receive a dose of Tdap as part of the catch up series should receive an adolescent Tdap vaccine dose at age 11 to 12 years.
4. Pregnant women: Pregnant women should receive a dose of Tdap during each pregnancy, irrespective of the patient’s prior history of receiving Tdap. Optimal timing for Tdap administration is between 27 and 36 weeks gestation, though Tdap may be given at any time during pregnancy. For women not previously vaccinated with Tdap, if Tdap is not administered during pregnancy, Tdap should be administered immediately postpartum.
5. Adults aged 65 years and older: Providers should not miss an opportunity to vaccinate persons aged 65 years and older with Tdap. Therefore, providers may administer the Tdap vaccine they have available. When feasible, Boostrix should be used for adults aged 65 years and older; however, either vaccine administered to a person 65 years or older is considered valid.
6. Wound management: As part of standard wound care management to prevent tetanus, a tetanus toxoid-containing vaccine might be recommended. If a tetanus booster is indicated, Tdap is preferred over Td for wound management in individuals aged 11 years and older who have not received Tdap previously.

See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

Contraindications
1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.
2. Encephalopathy (for example, coma, decreased level of consciousness, or prolonged seizures), not attributable to another identifiable cause, within seven days of administration of previous dose of DTP, DTaP, or Tdap. This contraindication is for the pertussis components and these persons should receive Td instead of Tdap.

Precautions
1. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.
2. Progressive or unstable neurologic disorder, uncontrolled seizures or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.
3. History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccines; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine.
4. GBS <6 weeks after a previous dose of tetanus toxoid-containing vaccine.

Reactions
Generally, within 15 days of vaccination and consisting of local reactions, such as pain, erythema, and swelling at the injection site; and mild systemic reactions, such as fever, headache, fatigue, and gastrointestinal symptoms.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Alum</th>
<th>2-Phenoxyethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adacel</td>
<td>Yes – syringe tip cap</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No – vial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boostrix</td>
<td>Yes – syringe</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>No – vial</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site: 0.5 mL intramuscularly into the deltoid.

Cleansing agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Hepatitis A Vaccine (HepA) (Rev. 11/2019)

Introduction
HepA vaccine supplied by the Wisconsin Immunization Program is intended for all children aged 12 months through 18 years. Please refer to the Vaccines Available from the Wisconsin Immunization Program to LHDs and Tribal Health Clinics: Use and Eligibility section for eligibility criteria for adults.
1. Havrix® – GlaxoSmithKline
2. Vaqta® – Merck

Combination vaccine containing hepatitis A: Twinrix® (HepA-HepB) – GlaxoSmithKline (p. 36) licensed for persons aged ≥18 years.

It is preferable to complete the immunization regimen with the same vaccine product; however, if the brand of the first dose is unknown or unavailable, it is acceptable to use either product for the second dose.

Schedule
Persons aged 12 months and older: Administer two doses with the second dose administered at least six months after the first dose. Protection is assumed by four weeks after receiving the first dose of vaccine. The second dose is needed for long-term protection. See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

<table>
<thead>
<tr>
<th>Age</th>
<th>Dose (EL.U.) (ELISA units)</th>
<th>Volume (mL)</th>
<th>No. Doses</th>
<th>Schedule (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 through 18 yrs</td>
<td>720</td>
<td>0.5</td>
<td>2</td>
<td>0, 6-12</td>
</tr>
<tr>
<td>≥19 yrs</td>
<td>1,440</td>
<td>1.0</td>
<td>2</td>
<td>0, 6-12</td>
</tr>
</tbody>
</table>

Recommended doses of Vaqta (Hepatitis A vaccine, Merck)

<table>
<thead>
<tr>
<th>Age</th>
<th>Dose (U) (Units)</th>
<th>Volume (mL)</th>
<th>No. Doses</th>
<th>Schedule (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 through 18 yrs</td>
<td>25</td>
<td>0.5</td>
<td>2</td>
<td>0, 6-18</td>
</tr>
<tr>
<td>≥19 yrs</td>
<td>50</td>
<td>1.0</td>
<td>2</td>
<td>0, 6</td>
</tr>
</tbody>
</table>

For travel that will begin in ≤2 weeks to countries with high or intermediate hepatitis A endemicity, older adults, immunocompromised persons, and persons with chronic liver disease or other chronic medical conditions may receive IG simultaneously with hepatitis A vaccine at a separate anatomic injection site. Travelers who elect not to receive hepatitis A vaccine, who are aged <12 months, or who are allergic to a component of hepatitis A vaccine should receive a single dose of IG before travel.
### Recommendations for postexposure prophylaxis and preexposure protection, by age group and risk category

<table>
<thead>
<tr>
<th>Indication/age group</th>
<th>Risk category /health status</th>
<th>Hepatitis A vaccine*</th>
<th>Immune globulin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Postexposure prophylaxis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;12 mos</td>
<td>Healthy</td>
<td>No</td>
<td>0.1 mL/kg</td>
</tr>
<tr>
<td>12 mos-40 yrs</td>
<td>Healthy</td>
<td>1 dose^a</td>
<td>None</td>
</tr>
<tr>
<td>&gt;40 yrs</td>
<td>Healthy</td>
<td>1 dose^a</td>
<td>0.1 mL/kg^b</td>
</tr>
<tr>
<td>≥12 mos</td>
<td>Immunocompromised or chronic liver disease</td>
<td>1 dose^a</td>
<td>0.1 mL/kg^c</td>
</tr>
<tr>
<td>≥12 mos</td>
<td>Vaccine contraindicated^d</td>
<td>No</td>
<td>0.1 mL/kg</td>
</tr>
<tr>
<td><strong>Preexposure protection</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;6 mos</td>
<td>Healthy</td>
<td>No</td>
<td>0.1-0.2 mL/kg^f</td>
</tr>
<tr>
<td>6-11 mos</td>
<td>Healthy</td>
<td>1 dose^g</td>
<td>None</td>
</tr>
<tr>
<td>12 mos-40 yrs</td>
<td>Healthy</td>
<td>1 dose^h</td>
<td>None</td>
</tr>
<tr>
<td>&gt;40 yrs</td>
<td>Healthy</td>
<td>1 dose^i</td>
<td>0.1-0.2 mL/kg^j</td>
</tr>
<tr>
<td>&gt;6 mos</td>
<td>Immunocompromised or chronic liver disease</td>
<td>1 dose^k</td>
<td>0.1-0.2 mL/kg^l</td>
</tr>
<tr>
<td>&gt;6 mos</td>
<td>Persons who elect not to receive vaccine for whom vaccine is contraindicated</td>
<td>No</td>
<td>0.1-0.2 mL/kg^m</td>
</tr>
</tbody>
</table>

*Measles, mumps, and rubella vaccine should not be administered for at least 3 months after receipt of immune globulin.

^aA second dose is not required for postexposure prophylaxis; however, for long-term immunity, the hepatitis A vaccination series should be completed with a second dose at least 6 months after the first dose.

^bThe provider’s risk assessment should determine the need for immune globulin administration. If the provider’s risk assessment determines that both vaccine and immune globulin are warranted, Hepatitis A vaccine and immune globulin should be administered simultaneously at different anatomic sites.

^cVaccine and immune globulin should be administered simultaneously at different anatomic sites.

^dLife-threatening allergic reaction to a previous dose of hepatitis A vaccine, or allergy to any vaccine component.

^eImmune globulin should be considered before travel for persons with special risk factors for either hepatitis A virus (HAV) infection or increased risk for complications in the event of exposure to HAV.

^f0.1 mL/kg for travel up to 1 month; 0.2 mL/kg for travel up to 2 months, 0.2 mL/kg every 2 months for travel of ≥2 months’ duration.

^gThis dose should not be counted toward the routine 2-dose series, which should be initiated at age 12 months.

^hFor persons not previously vaccinated with HepA vaccine, administer dose as soon as travel is considered, and complete series according to routine schedule.

^iMay be administered, based on providers’ risk assessment.

### Contraindications
Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component

### Precautions
1. Pregnancy
2. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F

### Reactions
1. Injection site pain, erythema, or swelling are most common.
2. Mild systemic complaints (for example, malaise, fatigue, low-grade fever) are less common.
Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Neomycin</th>
<th>Alum</th>
</tr>
</thead>
</table>
| Havrix  | Yes – syringe
No – vial | Yes      | No    |
| Vaqta   | Yes – syringe
Yes – vial | No       | Yes   |

Administration
Dosage, route, and site: 0.5 mL intramuscularly in the anterolateral aspect of the upper thigh for infants and children, or 1.0 mL in the deltoid for adults.

Cleansing agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Immune Globulin (IG) for Prevention of Hepatitis A (Rev. 11/2018)

Introduction
Hepatitis A IG is provided to contacts of confirmed cases of hepatitis A if it can be administered within 14 days of exposure. Contacts are persons who live in the same household, sleep in the same bed, eat food prepared by, or have sustained close contact with a case patient. Persons considered at reasonable risk of exposure include household contacts, sexual contacts, persons who have had other close personal contact (for example, babysitters), persons who consumed high-risk foods handled by the case patient, and persons who have shared illegal drugs with a person with hepatitis A virus (HAV) infection.

Hepatitis A IG, when given within two weeks after exposure to HAV, is 80%-90% effective in preventing symptomatic infection. Post-exposure prophylaxis with IG is recommended for persons aged 41 years and older and some individuals in certain circumstances for pre-exposure prophylaxis use of IG. To obtain IG, contact the Communicable Disease Epidemiology Section at 608-267-7321. LHDs that request IG will be asked to describe the circumstances pertinent to their intended use of the product.

GamaSTAN® – Grifols Therapeutics Inc.

Vaccine
Post-exposure prophylaxis with HepA vaccine is preferred for post-exposure prophylaxis in healthy persons aged 12 months through 40 years of age. (See Hepatitis A Immunizing Agent section on p. 28 for guidance.)

IG
Hepatitis A IG is typically used for post-exposure prophylaxis of hepatitis A in susceptible persons who are aged 41 years or older, children younger than age 12 months, immune-compromised persons, and persons with chronic illness.

Persons who recently have been exposed to HAV and who previously have not received HepA vaccine should receive a dose of single antigen vaccine (excludes Twinrix for use in post-exposure situations) or immune globulin (IG) (0.1mL/kg) as soon as possible. Information about the relative efficacy of vaccine compared to IG post-exposure is limited, and no data are available in persons with underlying medical conditions. Therefore, decisions to use vaccine or IG should consider patient characteristics associated with more severe manifestations of hepatitis A, including age and chronic liver disease. Persons who have received a dose of HepA vaccine ≥1 month before exposure to HAV do not need IG.
Schedule
One dose of IG or hepatitis A vaccine is recommended for post-exposure prophylaxis. Based on the following:

Recommendations for Postexposure Immunoprophylaxis of Hepatitis A Virus*

<table>
<thead>
<tr>
<th>Time Since Exposure</th>
<th>Age of Patient</th>
<th>Recommended Prophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤2 weeks</td>
<td>&lt;12 months</td>
<td>IG, 0.1 mL/kg</td>
</tr>
<tr>
<td></td>
<td>12 months-40 years</td>
<td>HepA vaccine</td>
</tr>
<tr>
<td></td>
<td>≥41 years</td>
<td>IG, 0.1 mL/kg, but HepA vaccine can be used if IG is unavailable</td>
</tr>
<tr>
<td></td>
<td>Persons of any age who are immunocompromised or have chronic liver disease</td>
<td>IG, 0.1 mL/kg</td>
</tr>
<tr>
<td>&gt;2 weeks</td>
<td>&lt;12 months</td>
<td>No prophylaxis</td>
</tr>
<tr>
<td></td>
<td>≥12 months</td>
<td>No prophylaxis, but HepA vaccine may be indicated for ongoing exposure</td>
</tr>
</tbody>
</table>

Contraindications
1. IG should not be given to persons who had an anaphylactic reaction to a previous dose of IG.
2. IG should not be given to persons who have isolated immunoglobulin A (IgA) deficiency, severe thrombocytopenia, or any coagulation disorder that contraindicates intramuscular injections.

Precautions
1. If needed, IG is not contraindicated for pregnant women.
2. Persons receiving IG should not receive any live virus vaccines such as measles, mumps and rubella (MMR) for three months after IG administration. If a person has received a live virus vaccine within the past 14 days and now requires IG, revaccination may be required.
3. IG should not be administered subcutaneously or intravenously because of the potential for serious reactions. Do not inject into a blood vessel.

IG does not interfere with the immune response to LAIV, rotavirus vaccine, oral poliovirus vaccine, yellow fever vaccine, or inactivated vaccines, in general. However, IG can interfere with the response to other live, attenuated vaccines (that is, MMR vaccine and varicella vaccine) when administered either as individual or combination vaccines. Administration of MMR and varicella vaccine should be delayed for greater than three months after administration of IG for hepatitis A prophylaxis. IG should not be administered less than two weeks after administration of MMR or less than three weeks after varicella vaccine unless the benefits of IG administration exceed the benefits of vaccination. If IG is administered less than two weeks after administration of MMR or varicella vaccine, the person should be revaccinated, but not sooner than three months after IG administration for MMR or varicella vaccine.

For further guidance regarding other measures to prevent Hepatitis A virus transmission please refer to: “Hepatitis A – A Handbook for Public Health Personnel.”
Reactions
1. Serious adverse effects from properly administered IG are rare.
2. The most common problem encountered is discomfort and pain at the injection site.
3. Less common reactions include flushing, headache, chills, and nausea.
4. Rarely, anaphylactic reactions have occurred following IG injection. This is more common if IG is given intravenously; therefore, IG for hepatitis A prevention must be given intramuscularly.

Potential Allergy
“When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
</tr>
</thead>
<tbody>
<tr>
<td>GamaSTAN</td>
<td>No</td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site: IG should be administered deep into a large muscle mass, usually the gluteal region. Use a 20-22 gauge 1-1 ½ inch needle.

Cleansing Agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE
Hepatitis B Vaccine (HepB) (Rev. 11/2018)

Introduction
HepB vaccine is routinely supplied by the Wisconsin Immunization Program to public clinics for eligible children aged 18 years or younger. In addition, HepB vaccine is available for any household or sexual contact of a HBsAg carrier and for susceptible persons with certain risk factors. Please refer to Vaccines Available from the Wisconsin Immunization Program to LHDs and Tribal Health Clinics: Use and Eligibility section for eligibility criteria.

HepB vaccines that are currently licensed are produced by three manufacturers. Recombivax HB and Engerix-B are licensed for use among all persons and may be used interchangeably. Heplisav-B is licensed for use among adults.
1. Recombivax HB® – Merck
2. Engerix-B® – GlaxoSmithKline
3. Heplisav-B® – Dynavax

Combination vaccines including hepatitis B:
1. Twinrix® (HepA-HepB) – GlaxoSmithKline (p. 36) licensed for persons aged ≥18 years
2. Pediarix® (DTaP-HepB-IPV) – GlaxoSmithKline (p. 20) licensed for persons aged 6 weeks through 6 years

Schedule
See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

Minimum age at birth:
1. Administer single antigen HepB vaccine within 24 hours of birth to all newborns weighing ≥2,000 grams.
2. For infants born to hepatitis B surface antigen (HBsAg)-positive mothers, administer HepB vaccine and 0.5 mL of hepatitis B immunoglobulin (HBIG) within 12 hours of birth.
3. If mother’s HBsAg status is unknown, administer HepB vaccine to the infant within 12 hours of birth, regardless of birth weight. For infants weighing <2000 grams, administer HBIG in addition to HepB vaccine within 12 hours of birth. Determine mother’s HBsAg status as soon as possible and, if she is HBsAg-positive, also administer HBIG to infants weighing ≥2000 grams (no later than age 1 week).

Doses following the birth dose:
1. The second dose should be administered at age 1 to 2 months. Single antigen HepB vaccine should be used for doses administered before age 6 weeks.
2. Infants who did not receive a birth dose should receive three doses of a hepatitis B-containing vaccine on a schedule of 0, 1 to 2 months, and 6 months starting as soon as feasible.
3. The minimum interval between doses one and two is four weeks and between doses two and three is eight weeks. The final (third or fourth) dose in the HepB vaccine series should be administered no earlier than age 24 weeks, and at least 16 weeks after the first dose.
4. Administration of a total of four doses of HepB vaccine is recommended when a combination vaccine containing HepB is administered after the birth dose.
Revaccination
1. Infants born to HBsAg-positive mothers should have post-vaccination serologic testing (PVST) including tests for hepatitis B surface antibody (anti-HBs) and HBsAg after completion of at least three doses of the hepatitis B vaccine series, at age 9-18 months (generally at the next well-child visit) or 1-2 months after the last dose for infants completing the series late.
2. If the infant is found to be susceptible to hepatitis B (that is, anti-HBs-negative, HBsAg-negative), a single dose of hepatitis B vaccine should be administered, followed by PVST to verify immunity to hepatitis B virus. If the infant is still found to be susceptible, complete the second vaccine series (two additional doses) and repeat PVST to verify immunity to hepatitis B virus.

Catch-up vaccination
1. Unvaccinated persons who are at risk for infection or who are seeking protection from hepatitis B virus infection should complete a three-dose series.
2. A two-dose series (doses separated by at least four months) of adult formulation Recombivax HB is licensed for use in children aged 11 through 15 years.

Heplisav-B
1. Unvaccinated persons aged ≥18 years who are at risk for infection or who are seeking protection from hepatitis B virus infection should complete a two-dose series.
2. The vaccine is administered as two doses, 1 month apart.

Contraindications
1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.
2. Hypersensitivity to yeast

Precautions
Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.

Reactions
1. Pain at the site of injection is most common.
2. Mild systemic complaints, such as fatigue, headache, and irritability, have also been reported.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Yeast</th>
<th>Alum</th>
</tr>
</thead>
</table>
| Engerix-B   | Yes – syringe
             No – vial | Yes | No |
| Recombivax  | Yes – vial | Yes | Yes |
| Heplisav-B  | No     | Yes   | No  |

Administration
Dosage, route, and site: Intramuscularly into the anterolateral aspect of the upper thigh for infants and older children, or into the deltoid for older children and adults.

Cleansing Agent: Alcohol
### Recommended Doses of Currently Licensed Formulations of Hepatitis B Vaccine, by Age Group and Vaccine Type

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Recombivax HB</th>
<th></th>
<th>Engerix-B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dose (µg)*</td>
<td>Volume (mL)</td>
<td>Dose (µg)*</td>
<td>Volume (mL)</td>
</tr>
<tr>
<td>Infants (&lt;1 year)</td>
<td>5</td>
<td>0.5</td>
<td>10</td>
<td>0.5</td>
</tr>
<tr>
<td>Children (1-10 years)</td>
<td>5</td>
<td>0.5</td>
<td>10</td>
<td>0.5</td>
</tr>
<tr>
<td>Adolescents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-15 years</td>
<td>10&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>11-19 years</td>
<td>5</td>
<td>0.5</td>
<td>10</td>
<td>0.5</td>
</tr>
<tr>
<td>Adults (≥20 years)</td>
<td>10</td>
<td>1.0</td>
<td>20</td>
<td>1.0</td>
</tr>
<tr>
<td>Hemodialysis patients and other immunocompromised persons</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20 years&lt;sup&gt;b&lt;/sup&gt;</td>
<td>5</td>
<td>0.5</td>
<td>10</td>
<td>0.5</td>
</tr>
<tr>
<td>≥20 years&lt;sup&gt;c&lt;/sup&gt;</td>
<td>40&lt;sup&gt;d&lt;/sup&gt;</td>
<td>1.0</td>
<td>40&lt;sup&gt;d&lt;/sup&gt;</td>
<td>2.0</td>
</tr>
</tbody>
</table>

* Recombinant hepatitis B surface antigen protein dose.
<sup>a</sup> Adult formulation administered on a two-dose schedule.
<sup>b</sup> Higher doses might be more immunogenic, but no specific recommendations have been made.
<sup>c</sup> Dialysis formulation administered on a three-dose schedule at 0, 1, and 6 months.
<sup>d</sup> Two 1.0 mL doses administered at one site on a four-dose schedule at 0, 1, 2, and 6 months.

If an accelerated adult schedule is needed, the minimum interval between the first two doses is four weeks, and the minimum interval between the second and third doses is eight weeks. The first and third doses should be separated by no less than 16 weeks.

### Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
HepA-HepB Vaccine for Persons Aged 18 Years and Older (Rev. 11/2018)

Introduction
Twinrix® is a combined HepA-HepB vaccine manufactured by GlaxoSmithKline. It contains Havrix® hepatitis A vaccine and Engerix-B® hepatitis B vaccine, both manufactured by GlaxoSmithKline. Each dose of Twinrix contains 720 EL.U. of hepatitis A vaccine (equivalent to a pediatric dose of Havrix), and 20 mcg of hepatitis B surface antigen protein (equivalent to an adult dose of Engerix-B). See the Vaccines Available from the Wisconsin Immunization Program to LHDs and Tribal Health Clinics: Use and Eligibility section for eligibility criteria.

Schedule
Age 18 years and older with indications for both HepA and HepB vaccines: See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Volume</th>
<th>No. Doses</th>
<th>Schedule (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 years and older</td>
<td>1.0 mL</td>
<td>3</td>
<td>0, 1, 6</td>
</tr>
</tbody>
</table>

Children and adolescents through age 17 years: not recommended.

Minimum intervals
The minimum interval between doses is the same as for the individual components of the vaccine (see Recommended intervals between administration of immune globulin preparations and measles- or varicella-containing vaccine).

Use of single-antigen Hepatitis A and Hepatitis B vaccine to start a series or complete a series begun with Twinrix
Because the hepatitis B component of Twinrix is equivalent to a standard adult dose of hepatitis B vaccine, the schedule is the same whether Twinrix or single-antigen hepatitis B vaccine is used.

The hepatitis A component in Twinrix is the pediatric formulation (half the adult ELISA units) so a total of three doses are recommended. Single-antigen hepatitis A adult formulation vaccine is a two-dose schedule separated by six months. Single-antigen hepatitis A vaccine may be used to complete a series begun with Twinrix and vice versa. A person who receives one dose of Twinrix may complete the hepatitis A series with two doses of adult formulation hepatitis A vaccine separated by at least five months. A person who receives two doses of Twinrix may complete the hepatitis A series with one dose of adult formulation hepatitis A vaccine or Twinrix five months after the second dose. A person who begins the hepatitis A series with a dose of single-antigen hepatitis A vaccine may complete the series with two doses of Twinrix.

Twinrix should not be used for post-exposure prophylaxis against hepatitis A.

Contraindications
Severe allergic reaction (for example, anaphylaxis) to a vaccine component (for example, yeast) or following a prior dose of a hepatitis A-containing or hepatitis B-containing vaccine.
Precautions
1. Moderate or severe acute illness with oral (or equivalent) temperature $\geq 100.4^\circ F$
2. Pregnancy

Reactions
1. Swelling and redness or pain at the site of injection are most common.
2. Headache, tiredness, and loss of appetite.

Potential Allergy
“When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Neomycin</th>
<th>Alum</th>
<th>2-Phenoxyethanol</th>
<th>Yeast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twinrix</td>
<td>Yes – syringe No – vial</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site: 1.0 mL intramuscularly into the deltoid.

Cleansing agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Introduction
Currently licensed Hib vaccines include:
1. ActHIB® – Sanofi Pasteur
2. PedvaxHIB® – Merck
3. Hiberix® – GlaxoSmithKline

Combination vaccines containing Hib include Pentacel® (Hib-DTaP-IPV) – Sanofi Pasteur (p. 22) licensed for persons aged 6 weeks though 4 years

Schedule
The number of doses in the primary series depends on the type of vaccine used. The two types are as follows:
1. PRP-T: conjugated to the tetanus toxoid (ActHIB and Hiberix)
2. PRP-OMP: conjugated to the meningococcal group B outer membrane protein (PedvaxHIB)
   - A primary series of PRP-OMP vaccine is two doses; the PRP-T vaccine requires a three-dose primary series. It is preferable to complete the primary series with the same brand of Hib vaccine initially used to start the series, that is, Merck or Sanofi Pasteur. However, if the brand given as the first or second dose is not known or available, the child should receive a three-dose primary series and it may be completed with either brand.
   - A booster is recommended at aged 12-15 months regardless of which vaccine is used for the primary series. Any of the three Hib vaccines can be administered as a booster regardless of the brand(s) used for the primary series. Hiberix is only licensed for the final booster dose.

See the Childhood Immunization Schedule and Catch-Up Immunization Schedule.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>2 Months</th>
<th>4 Months</th>
<th>6 Months</th>
<th>12-15 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRP-T*</td>
<td>Dose 1</td>
<td>Dose 2</td>
<td>Dose 3</td>
<td>Booster</td>
</tr>
<tr>
<td>PRP-OMP</td>
<td>Dose 1</td>
<td>Dose 2</td>
<td>--</td>
<td>Booster</td>
</tr>
</tbody>
</table>

For the primary series, the recommended interval between doses is eight weeks and the minimum interval is four weeks. Vaccination at an age younger than 6 weeks may induce immunologic tolerance to Hib antigen, therefore the minimum age is 6 weeks.

For children who are incompletely immunized see current CDC Catch-up Immunization Schedule. Children starting late may not need the entire three or four dose series.

Special Populations
Because Hib meningitis incidence peaks at a younger age (4 to 6 months) among American Indian/Alaska Native infants compared to other U.S. infant populations, vaccination with a two-dose primary series of a Hib vaccine that contains PRP-OMP (PedvaxHIB) is preferred to provide early protection.

Children aged <24 months who develop invasive Hib disease can remain at risk for developing a second episode, therefore they should be considered unvaccinated regardless of previous
Hib vaccination and should receive Hib vaccine doses according to the age-appropriate schedule for unimmunized children.

**High-Risk Individuals**
In general, Hib vaccination of persons older than age 59 months is not recommended; however, some older children (aged 5-18 years) are at an increased risk for invasive Hib disease (for example, those with asplenia, sickle cell disease or immunodeficiency) and may be vaccinated. See the latest ACIP statement for these risk groups and corresponding recommendations.

**Contraindications**
1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.
2. Age younger than 6 weeks.

**Precautions**
Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.

**Reactions**
1. Swelling, redness or pain at the site of injection is most common.
2. Fever and irritability (infrequent).

**Potential Allergy**
*When in doubt about the contents of a particular vaccine, check the current package insert.*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Alum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ActHIB</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>PedvaxHIB</td>
<td>Yes – vial</td>
<td>Yes</td>
</tr>
<tr>
<td>Hiberix</td>
<td>Yes – syringe tip cap</td>
<td>No</td>
</tr>
</tbody>
</table>

**Administration**
Dosage, route, and site: 0.5 mL intramuscularly into the anterolateral aspect of the upper thigh for infants and younger children or into the deltoid for older children.

Cleansing agent: alcohol

**Storage**
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Hiberix: use within 24 hours after reconstitution and protect from light. ActHIB: use within 24 hours after reconstitution.
Human Papillomavirus (HPV) Vaccine (Rev. 12/2017)

Introduction
The 9vHPV (HPV types 6, 11, 16, 18, 31, 33, 45, 52, and 58) and 4vHPV (HPV types 6, 11, 16, and 18) vaccines protect against the high-risk HPV types 16 and 18, which cause the majority of cervical cancers; types 6 and 11, which cause the majority of anogenital warts, and other anogenital and oropharyngeal cancers. The 9vHPV targets five additional types, which account for about 15% of cervical cancers. See the Vaccines Available from the Wisconsin Immunization Program to LHDs and Tribal Health Clinics: Use and Eligibility section for eligibility criteria.

HPV vaccines that are currently licensed are provided by the following manufacturers:
1. Gardasil®9 (9vHPV) – Merck
2. Gardasil® (4vHPV) – Merck

Both vaccines are licensed for use among persons aged 9-26 years. Vaccination is routinely recommended for adolescents beginning at age 9 years because the immune response is better when the series is initiated earlier.
Catch-up HPV vaccination is not recommended for all adults aged >26 years. Instead, shared clinical decision-making regarding HPV vaccination is recommended for some adults aged 27 through 45 years who are not adequately vaccinated.

Schedule
1. Females (use 9vHPV or 4vHPV vaccine): Routinely recommended at age 9 years, and through age 26 years for catch-up immunizations.
2. Males (use 9vHPV or 4vHPV vaccine): Routinely recommended at age 9 years, and through age 26 years for catch-up immunizations.
The routine schedule for persons initiating the vaccine series at age 9-14 years is 0 and 6-12 months. The minimum interval between dose 1 and dose 2 of the two-dose HPV series is five months. See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.
3. The routine schedule for persons initiating the vaccine series at age 15-26 years is 0, 1-2, and 6-12 months. The minimum intervals are four weeks between the first and second doses, 12 weeks between the second and third doses, and five months between the first and third doses.
4. Females or males aged ≥27 years who have initiated but not completed the HPV vaccine series may receive the second and/or third doses of vaccine to complete the vaccine series.
5. The 9vHPV may be used to continue or complete a vaccination series started with 4vHPV or 2vHPV.

Recommended number of doses and dosing schedule for HPV vaccine.

<table>
<thead>
<tr>
<th>Population</th>
<th>Recommended Number of Doses</th>
<th>Recommended Dosing Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons initiating vaccination at ages 9 through 14 years, except immunocompromised persons</td>
<td>2</td>
<td>0, 6-12 months</td>
</tr>
<tr>
<td>Persons initiating HPV vaccination at ages 15 through 45 years, and immunocompromised persons initiating</td>
<td>3</td>
<td>0, 1-2, 6 months</td>
</tr>
</tbody>
</table>

40
**Contraindications**
Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.

**Precautions**
1. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F
2. Pregnancy

**Special Situations**
History of sexual abuse or assault: Unvaccinated children with a history of sexual abuse or assault should begin the HPV series at age 9 years.

Primary or secondary immunocompromising conditions (that is, B lymphocyte antibody deficiencies, T lymphocyte complete or partial defects, HIV infection, malignant neoplasms, transplantation, autoimmune disease or immunosuppressive therapy) that might reduce cell-mediated or humoral immunity: Immunocompromised persons aged 9 through 26 years should receive three doses of HPV vaccine. The recommendation for a three-dose schedule of HPV vaccine does not apply to children aged <15 years with asplenia, asthma, chronic granulomatous disease, chronic liver disease, chronic lung diseases, chronic renal disease, central nervous system anatomic barrier defects (for example, cochlear implant), complement deficiency, diabetes, heart disease, or sickle cell disease.

Pregnancy: Data regarding HPV vaccination during pregnancy is limited, and the ACIP does not recommend administering HPV vaccines to pregnant females; if a woman is found to be pregnant after vaccination, she should wait until after delivery to complete the vaccine series. Patients and health care providers are encouraged to report administration of HPV vaccine around the time of conception or during pregnancy by calling the Merck Sharp & Dohme Corp. Pregnancy Registry at 800-986-8999.

Women who are breastfeeding may be vaccinated.

Previous HPV infection and HPV vaccination: Females aged 9 through 26 years who have already been infected with one or more HPV types should still be vaccinated to protect against wild viruses of the vaccine types they have not already acquired. Few females have been infected with all nine HPV vaccine types.

**Reactions**
1. Swelling, redness, or pain at the site of injection (most common)
2. Mild fever
3. Syncope
4. Headache or fatigue
5. Nausea, vomiting, diarrhea, or abdominal pain
6. Muscle or joint pain

**Potential Allergy**
*When in doubt about the contents of a particular vaccine, check the current package insert.*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Alum</th>
<th>Yeast</th>
</tr>
</thead>
</table>

41
Gardasil 9 | No | Yes | Yes
---|---|---|---
Gardasil | No | Yes | Yes

**Administration**
Dosage, route, and site: 0.5 mL intramuscularly into the deltoid.

Cleansing agent: alcohol

**Storage**
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Introduction
Five types of influenza vaccine are available including four types of inactivated vaccine and one live vaccine. The four types of inactivated vaccine include trivalent inactivated influenza vaccine (IIV3), quadrivalent IIV (IIV4), trivalent recombinant hemagglutinin influenza vaccine (RIV3), and cell culture-based quadrivalent IIV (ccIIV4). Trivalent IIV contains two influenza A strains and one influenza B strain, while quadrivalent IIV contains two influenza A strains and two influenza B strains. The live vaccine is quadrivalent live-attenuated influenza vaccine (LAIV4), which contains two influenza A strains and two influenza B strains. The following table pertains to the inactivated (not live) vaccines.

Inactivated and recombinant influenza vaccine information and recommended age groups.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Trade name</th>
<th>Manufacturer</th>
<th>Age group</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIV4</td>
<td>Fluzone®</td>
<td>Sanofi Pasteur</td>
<td>≥6 months*</td>
</tr>
<tr>
<td>IIV4</td>
<td>FluLaval®</td>
<td>ID Biomedical Corporation of Quebec</td>
<td>≥6 months</td>
</tr>
<tr>
<td>IIV4</td>
<td>Fluarix®</td>
<td>GlaxoSmithKline</td>
<td>≥6 months</td>
</tr>
<tr>
<td>IIV4</td>
<td>Afluria®</td>
<td>Seqirus</td>
<td>≥5 years (needle/syringe) 18-64 years (jet injector)</td>
</tr>
<tr>
<td>IIV3</td>
<td>Afluria®</td>
<td>Seqirus</td>
<td>≥5 years (needle/syringe) 18-64 years (jet injector)</td>
</tr>
<tr>
<td>IIV3</td>
<td>Fluzone High-Dose®</td>
<td>Sanofi Pasteur</td>
<td>≥65 years</td>
</tr>
<tr>
<td>RIV4</td>
<td>FluBlok®</td>
<td>Sanofi Pasteur</td>
<td>≥18 years</td>
</tr>
<tr>
<td>ccIIV4</td>
<td>Flucelvax®</td>
<td>Seqirus</td>
<td>≥4 years</td>
</tr>
<tr>
<td>IIV3</td>
<td>Flud™</td>
<td>Seqirus</td>
<td>≥65 years</td>
</tr>
</tbody>
</table>

*Age group varies by presentation.

Schedule
Influenza occurrence generally peaks in temperate areas during late December to early March. Influenza vaccine should be offered as soon as it becomes available and should continue to be offered as long as influenza viruses are circulating.

The following table includes the dosing for the inactivated vaccines. Note that the number of doses recommended may vary. See the current ACIP immunization schedule for the specific dosing algorithm.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Dosage</th>
<th>Number of Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-35 months no previous influenza vaccine</td>
<td>0.25 mL or 0.5 mL&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2 (separated by 4 weeks)</td>
</tr>
<tr>
<td>6-35 months previous influenza vaccine</td>
<td>0.25 mL or 0.5 mL&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1 or 2&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>3-8 years no previous influenza vaccine</td>
<td>0.5 mL</td>
<td>2 (separated by 4 weeks)</td>
</tr>
<tr>
<td>3-8 years 1 dose of influenza vaccine previously</td>
<td>0.5 mL</td>
<td>2&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>3-8 years 2 doses of influenza vaccine previously</td>
<td>0.5 mL</td>
<td>1&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
### Age Group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Dosage</th>
<th>Number of Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥9 years</td>
<td>0.5 mL</td>
<td>1</td>
</tr>
</tbody>
</table>

*aFluzone quadrivalent is available as a 0.25 mL or 0.5 mL dose whereas all others are a 0.5 mL dose for this age group.

*bOnly one dose is needed if the child received two total doses of influenza vaccine during a previous influenza season. The two doses need not have been received during the same season or consecutive seasons.

### Contraindications

Severe allergic reaction (for example, anaphylaxis) after previous dose or to a vaccine component, or to a previous dose of any influenza vaccine.

### Precautions

1. Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of influenza vaccine.
2. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.

### Reactions

1. Local reactions are the most common and include soreness, erythema, and induration at the site of injection.
2. Nonspecific systemic symptoms, including fever, chills, malaise, and myalgia, are less common.

### Potential Allergy

When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Antibiotic</th>
<th>Thimerosal</th>
<th>Gelatin</th>
<th>Egg&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluarix</td>
<td>No</td>
<td>Yes (gentamicin)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Afluria</td>
<td>No</td>
<td>Yes (neomycin and polymyxin B)</td>
<td>Yes (multidose vials)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Fluzone</td>
<td>No</td>
<td>No</td>
<td>Yes (multidose vials)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Fluad</td>
<td></td>
<td>Yes (syringe tip cap)</td>
<td>Yes (kanamycin and neomycin)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>FluLaval</td>
<td>No</td>
<td>No</td>
<td>Yes (multidose vials)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Fluzone High-Dose</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>FluBlok</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Flucelvax</td>
<td>Yes (syringe tip cap)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

<sup>a</sup>Refer persons with egg allergy to their provider for evaluation.

### Administration

Dosage, route, and site: 0.25 mL or 0.5 mL intramuscularly into the anterolateral aspect of the upper thigh for infants and younger children, or into the deltoid for older children and adults.

Cleansing Agent: alcohol

### Storage

Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.

Note that RIV has a shorter expiration date than IIV.
Live Attenuated Influenza Vaccine (LAIV) (Rev. 9/2018)

Introduction
LAIV4 is an intranasally administered, live, quadrivalent vaccine. It is licensed for use in healthy persons aged 2 through 49 years. If LAIV is contraindicated, IIV should be used.

FluMist™ – AstraZeneca

Schedule
The following table includes the dosing for LAIV. Note that the number of doses recommended may vary. See the most current ACIP immunization schedule for the specific dosing algorithm.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Dosage</th>
<th>Number of Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-8 years no previous influenza vaccine</td>
<td>0.2 mL</td>
<td>2 (separated by 4 weeks)</td>
</tr>
<tr>
<td>2-8 years 1 dose of influenza vaccine previously</td>
<td>0.2 mL</td>
<td>2a</td>
</tr>
<tr>
<td>2-8 years 2 doses of influenza vaccine previously</td>
<td>0.2 mL</td>
<td>1a</td>
</tr>
<tr>
<td>9-49 years</td>
<td>0.2 mL</td>
<td>1</td>
</tr>
</tbody>
</table>

*aOnly one dose is needed if the child received two total doses of influenza vaccine during a previous influenza season. The two doses need not have been received during the same season or consecutive seasons.

Contraindications
1. Severe allergic reaction (for example, anaphylaxis) after previous dose or to a vaccine component, or to a previous dose of any influenza vaccine.
2. Children aged 2 through 17 years who are receiving aspirin- or salicylate-containing products
3. Children aged 2 through 4 years who have received a diagnosis of asthma or whose parents or caregivers report that a health care provider has told them during the preceding 12 months that their child had wheezing or asthma or whose medical record indicates a wheezing episode has occurred during the preceding 12 months
4. Children and adults who are immunocompromised due to any cause (including immunosuppression caused by medications or by HIV infection)
5. Close contacts and caregivers of severely immunosuppressed persons who require a protected environment
6. Pregnancy
7. Receipt of influenza antiviral medication within the previous 48 hours

Breastfeeding is not a contraindication to receiving LAIV.

Precautions
1. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.
2. Guillain-Barré syndrome within 6 weeks after a previous dose of influenza vaccine.
3. Asthma in persons aged ≥5 years (see the ACIP recommendations for screening guidance).
4. Other underlying medical conditions that might predispose to complications after wild-type influenza infection (e.g., chronic pulmonary, cardiovascular [except isolated hypertension], renal, hepatic, neurologic, hematologic, or metabolic disorders [including diabetes mellitus])

Reactions
1. Signs and symptoms reported following LAIV use in children include runny nose and headache.
2. Among adults, cough, runny nose, nasal congestion, sore throat and chills have been reported following LAIV use.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Gelatin</th>
<th>Gentamicin</th>
<th>Egg</th>
</tr>
</thead>
<tbody>
<tr>
<td>FluMist</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*aRefer persons with egg allergy to their provider for evaluation.

Transmission of vaccine virus to contacts
Available data indicate that both children and adults vaccinated with LAIV can shed vaccine viruses for ≥2 days after vaccination. Shedding should not be equated with person-to-person transmission of vaccine viruses; although, in rare instances, shed vaccine viruses can be transmitted from vaccinees to nonvaccinated persons.

Severely immunosuppressed persons should not administer LAIV.

Administration
Dosage, route, and site: Half the dose (0.1 mL) is administered into each nostril while the recipient is in an upright position. Insert the tip of the sprayer just inside the nose and depress the plunger until the dose divider clip prevents you from going further. The dose-divider clip is removed from the sprayer to administer the second half of the dose (0.1 mL) into the other nostril. If the patient sneezes, the dose does not need to be readministered. However, if nasal congestion is present that might impede delivery of the vaccine to the nasopharyngeal mucosa, deferral of administration should be considered until resolution of the illness, or IIV should be administered instead.

How supplied
FluMist is supplied in a package of 10 pre-filled, single-dose (0.2 mL) intranasal sprayers. Note that the expiration date of FluMist is shorter than that of other vaccines.

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Introduction

MMR vaccine is a trivalent vaccine including measles, mumps, and rubella antigens and is recommended for use when immunization against any one of the three diseases is needed.

M-M-R II® (measles-mumps-rubella) – Merck

Combination vaccine containing MMR: ProQuad® (measles-mumps-rubella-varicella [MMRV]) – Merck (p. 50) licensed for persons aged 12 months through 12 years

For the first dose of the series (given at age 12-47 months), the CDC recommends that MMR and varicella vaccine be administered as separate vaccines, unless the parent or caregiver expresses a preference for the quadrivalent MMRV vaccine. Health departments considering administration of MMRV vaccine as a first dose should discuss the benefits and risks of both vaccination options with the parent or guardian.

For the second dose of MMRV vaccines at any age (15 months-12 years) and for the first dose of MMRV vaccine given at age ≥48 months, MMRV vaccine is generally preferred over separate injections of MMR vaccine and varicella vaccine. Consideration should include provider assessment, patient preference, and the potential for adverse events. A personal or family (that is, sibling or parent) history of seizures of any etiology is a precaution for MMRV vaccination. Children with a personal or family history of seizures of any etiology generally should be vaccinated with MMR vaccine and varicella vaccine as separate injections.

Persons previously vaccinated with two doses of a mumps virus-containing vaccine who are identified by the Wisconsin Immunization Program as being part of a group or population at increased risk for acquiring mumps because of an outbreak should receive a third dose of a mumps virus-containing vaccine to improve protection against mumps disease and related complications.

To prevent transmission, MMR may be given to infants aged 6-11 months who have been directly exposed to measles. Vaccine must be administered within 72 hours of their exposure. This dose should be repeated when the child is age 12 months.

Schedule

MMR vaccine is licensed for use in persons aged ≥12 months.

1. Children aged 12 months through age 18 years: See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

2. Adults born during or after 1957: one dose on or after the first birthday. A second dose ≥28 days after the first dose is indicated for all persons working in a health care facility, persons at post high school educational institutions, and persons who will be traveling outside the U.S.

3. Adults born before 1957: Considered immune given the likelihood of previous natural infection. The recommended doses of MMR by age group, special status, and acceptable evidence of immunity are as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>Special Status</th>
<th>Acceptable Evidence of Immunity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Special Status</td>
<td>Acceptable Evidence of Immunity</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Under 12 months</td>
<td>Any</td>
<td>Only laboratory evidence of immunity</td>
</tr>
<tr>
<td>1 to 4 years&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Any</td>
<td>1 valid MMR or laboratory evidence of immunity</td>
</tr>
<tr>
<td>5 to 18 years</td>
<td>Any</td>
<td>2 valid MMRs or laboratory evidence of immunity</td>
</tr>
<tr>
<td>&gt;18 years, born</td>
<td>Health care personnel, college students, and International travelers</td>
<td>2 valid MMRs&lt;sup&gt;b&lt;/sup&gt; or laboratory evidence of immunity</td>
</tr>
<tr>
<td>during or after 1957</td>
<td>Others</td>
<td>1 valid MMR or laboratory evidence of immunity</td>
</tr>
<tr>
<td>Born before 1957</td>
<td>Health care personnel and persons born outside the U.S.</td>
<td>2 valid MMRs&lt;sup&gt;b&lt;/sup&gt; or laboratory evidence of immunity</td>
</tr>
<tr>
<td>Others</td>
<td>Others</td>
<td>No evidence needed; all are considered immune</td>
</tr>
</tbody>
</table>

<sup>a</sup>In certain circumstances two doses may be recommended.

<sup>b</sup>Health care personnel should have two doses of MMR pre-exposure in order to avoid exclusion following an exposure. Receipt of a second dose of MMR within 72 hours of an exposure does not preclude exclusion.

**Contraindications**
1. Severe allergic reaction (for example, anaphylaxis after a previous dose or to a vaccine component)
2. Pregnancy
3. Known severe immunodeficiency (for example, from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised)
4. Family history of congenital or hereditary immunodeficiency in a first-degree relative (e.g., parents and siblings), unless the immune competence of the potential vaccine recipient has been substantiated clinically or verified by a laboratory.

**Precautions**
1. Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product).
2. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.
3. History of thrombocytopenia or thrombocytopenic purpura.
4. Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing (see 2.i. on p. 7).

**Reactions**
1. Fever and rash occasionally follow measles vaccination 1-2 weeks later.
2. Mild swelling of the salivary glands occasionally follows mumps vaccination.
3. Rash, some swelling of the lymph nodes of the neck, and/or some aching or swelling of the joints occasionally follow rubella vaccination 1-3 weeks later.
4. Mild local reactions such as erythema, induration, and tenderness may occur.

**Potential Allergy**
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Gelatin</th>
<th>Neomycin</th>
</tr>
</thead>
</table>

48
Administration
Dosage, route, and site: 0.5 mL subcutaneously into the anterolateral aspect of the upper thigh for infants and younger children, or into fatty tissue over triceps for older children and adults.

Cleansing agent: alcohol

Storage
Protect from light. Diluent may be stored at refrigerator temperature or at room temperature. Store vaccine at -58° to 46°F (-50° to 8°C). Once reconstituted, discard if not used within eight hours.

Storing MMR in the freezer with MMRV may help prevent inadvertent storage of MMRV in the refrigerator.
**Introduction**

MMRV is a combination quadrivalent live virus vaccine containing measles, mumps, rubella vaccine, and varicella vaccine. Use of the MMRV vaccine may be preferred over separate injections. This vaccine was licensed during 2005 for children aged 12 months through 12 years. MMRV should not be administered to persons 13 years and older.

**ProQuad® – Merck**

**Schedule**

The recommended age for MMRV vaccination is age 12-15 months for the first dose and 4-6 years for the second dose. The minimum interval between MMR vaccine doses is four weeks. The minimum interval between varicella doses is three months for children aged <13 years (and four weeks for persons aged ≥13 years). See the [Childhood Immunization Schedule](#) and [Catch-Up Immunization Schedule](#).

Because of a risk of febrile seizures, ACIP and CDC updated its recommendations for MMRV vaccination during 2010.

For the first dose of the series (given at aged 12-47 months), the CDC recommends that MMR and varicella vaccine be administered as separate vaccines, unless the parent or caregiver expresses a preference for the quadrivalent MMRV vaccine. Health departments considering administration of MMRV vaccine as a first dose should discuss the benefits and risks of both vaccination options with the parent or guardian.

For the second dose of MMRV vaccines at any age (15 months-12 years) and for the first dose of MMRV vaccine given at aged ≥48 months, MMRV vaccine is generally preferred over separate injections of MMR vaccine and varicella vaccine. Consideration should include provider assessment, patient preference, and the potential for adverse events. A personal or family (that is, sibling or parent) history of seizures of any etiology is a precaution for MMRV vaccination. Children with a personal or family history of seizures of any etiology generally should be vaccinated with MMR vaccine and varicella vaccine as separate injections.

**Contraindications**

1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component
2. Pregnancy
3. Known severe immunodeficiency (for example, from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised)
4. Family history of congenital or hereditary immunodeficiency in a first degree relative (e.g., parents and siblings), unless the immune competence of the potential vaccine recipient has been substantiated clinically or verified by a laboratory.

**Precautions**

1. Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product).
2. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.
3. History of thrombocytopenia or thrombocytopenic purpura.
4. Need for tuberculin skin testing or interferon-gamma release assay (IGRA) (see 2.i. on p. 7).
5. Receipt of specific antiviral drugs (for example, acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination)
6. Use of aspirin or aspirin-containing products
7. Family or personal history of seizures

Reactions
1. Fever
2. Rash
3. Joint symptoms
4. Thrombocytopenia
5. Parotitis

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Gelatin</th>
<th>Neomycin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProQuad</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Use of MMRV and Risk of Febrile Seizure
1. Two postlicensure studies indicated that among children 12-23 months of age, one additional febrile seizure occurred 5-12 days after vaccination per 2300-2600 children who received the first dose of MMRV vaccine compared with children who received the first dose of MMR vaccine and varicella vaccine administered as separate injections during the same visit.
2. Data from postlicensure studies do not suggest that children aged 4-6 years who received the second dose of MMRV vaccine had an increased risk for febrile seizures after vaccination compared with children the same age who received MMR vaccine and varicella vaccine administered as separate injections during the same visit.

Administration
Dosage, route, and site: 0.5 mL subcutaneously into fatty tissue over the anterolateral thigh for infants and younger children, or into fatty tissue over triceps for older children.

Cleansing agent: alcohol

Storage
Before reconstitution, MMRV must be stored frozen at -58° to +5°F (-50° to -15°C) for up to 18 months. MMRV may be stored at refrigerator temperature (36° to 46°F, 2° to 8°C) up to 72 hours prior to reconstitution. Discard any MMRV stored at refrigerator temperatures, that is not used within 72 hours of removal from freezer temperatures.

Do not store on dry ice. Diluent may be stored at refrigerator temperature or at room temperature.

MMRV must be administered within 30 minutes of reconstitution.
Storing MMR in the freezer with MMRV may help prevent inadvertent storage of MMRV in the refrigerator.
Meningococcal Conjugate Vaccine (MCV4) (Rev. 12/2017)

Introduction
MCV4 are quadrivalent vaccines that provide protection against *Neisseria meningitidis* serogroups A, C, Y, and W135. These vaccines do not protect against serogroup B strains. Currently licensed MCV4 vaccines include:
1. Menactra™ (MenACWY-D) – Sanofi Pasteur
2. Menveo™ (MenACWY-CRM) – Novartis

Schedule
Menactra is licensed for use in persons aged 9 months through 55 years. Menveo is licensed for use among persons aged 2 months through 55 years. See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

1. Routine vaccination of adolescents aged 11 through 18 years, with a single dose administered at age 11 or 12 years and a booster dose at age 16 years. Individuals who receive the first dose at age 13 through 15 years should receive a one-time booster dose at age 16 through 18 years.
2. Adolescents who receive a first dose after their 16th birthday do not need a booster dose unless they become at increased risk for meningococcal disease.
3. Persons aged 19-21 years are not recommended routinely to receive MCV4 unless they are students living in residential housing. MCV4 may be administered up to age 21 years as catch-up vaccination for those who did not receive a dose after their 16th birthday. Either Menactra or Menveo may be used.

Recommendations for meningococcal vaccination of children aged 2-23 months at increased risk for meningococcal disease.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Age of primary vaccination</th>
<th>Booster doses*</th>
<th>Indicated for infants who:</th>
<th>Not indicated for:</th>
</tr>
</thead>
</table>
| MenACWY-CRM (Menveo)     | 2, 4, 6 and 12 months     | • 1st booster 3 years after primary series  
                            | • Additional boosters every 5 years  | • Have complement component deficiencies  
                            | • Have functional or anatomic asplenia (including sickle cell disease) | • Are in the risk group for outbreak for which vaccination is recommended  
                            |                                      | • Are traveling to or residing in regions where meningitis is epidemic or hyperendemic | Infants with functional or anatomic asplenia (including sickle cell disease) |
| MenACWY-D (Menactra)     | 9 and 12 months           | • 1st booster 3 years after primary series  
                            | • Additional boosters every 5 years  | • Have complement component deficiencies  
                            | • Are in the risk group for outbreak for which vaccination is recommended | • Are traveling to or residing in regions where meningitis is epidemic or       |
Recommended meningococcal conjugate vaccination schedule and intervals for HIV-infected persons.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Recommended Schedule and Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Vaccination</td>
<td></td>
</tr>
<tr>
<td>&lt;2 years</td>
<td>4 doses of MenACWY-CRM (Menveo) at ages 2, 4, 6, and 12-15 months*</td>
</tr>
<tr>
<td></td>
<td>2 doses of MenACWY-D (Menactra) at age 9-23 months, 12 weeks apart(^{a,b,c})</td>
</tr>
<tr>
<td>≥2 years</td>
<td>2 doses of MenACWY-D or MENACWY-CRM, 8-12 weeks apart(^{a,b,c})</td>
</tr>
<tr>
<td>Booster Dose</td>
<td></td>
</tr>
<tr>
<td>&lt;7 years at previous dose</td>
<td>Additional dose of MenACWY-D or MenACWY-CRM 3 years after primary series; boosters should be repeated every 5 years thereafter(^d)</td>
</tr>
<tr>
<td>≥7 years at previous dose</td>
<td>Additional dose of MenACWY-D or MenACWY-CRM 5 years after primary series; boosters should be repeated every 5 years thereafter</td>
</tr>
</tbody>
</table>


*If MenACWY-D is used, it should be administered at least four weeks after completion of all pneumococcal conjugate vaccine doses.

*If MenACWY-D is to be administered to a child at increased risk for meningococcal disease, including children with HIV infection, it is recommended that MenACWY-D be given either before DTaP or concomitantly with DTaP.

*If the most recent dose was received before age 7 years, a booster dose should be administered three years later.

High-Risk Individuals Aged 2 Years Through 55 Years

Either vaccine can be used in individuals aged 2 years through 55 years with persistent complement component deficiency or functional or anatomical asplenia, including sickle cell disease. The two doses should be administered eight to 12 weeks apart, beginning at age 2 years and greater than or equal to four weeks after completion of the PCV13 vaccine series. These individuals may receive a booster dose(s). See ACIP recommendation for further information.

High-Risk Individuals Aged 56 Years or Older

1. Persons in this age group who were vaccinated previously with MenACWY and are recommended for revaccination or for whom multiple doses are anticipated (for example, persons with asplenia), MCV4 is preferred.
2. A single dose is recommended for other persons at an increased risk for meningococcal
disease (for example, microbiologists or travelers to an epidemic or hyperendemic country).

No data are available regarding the interchangeability of vaccine products. Whenever feasible,
the same brand of vaccine should be used for all doses of the vaccination series.

**Contraindications**
Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine
component.

**Precautions**
Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.

**Reactions**
1. The most common is pain and redness at the site of injection.
2. Systemic reactions, such as headache and malaise, within seven days of vaccination are
   reported for up to 60% of recipients; however, less than 3% report these symptoms as
   severe.

**Potential Allergy**
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menactra</td>
<td>No</td>
</tr>
<tr>
<td>Menveo</td>
<td>No</td>
</tr>
</tbody>
</table>

**Administration**
Dosage, route, and site: 0.5 mL intramuscularly into the anterolateral aspect of the upper thigh
for infants and younger children, or into the deltoid for older children and adults.

Cleansing agent: alcohol

**Storage**
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.

The MenA (lyophilized) component of Menveo can only be reconstituted using the liquid C-Y-
W135 component of Menveo.
Meningococcal Group B Vaccine (Rev. 02/2017)

Introduction
Serogroup B meningococcal (MenB) vaccines are indicated for active immunization to prevent invasive disease caused by Neisseria meningitidis serogroup B.
1. Trumenba® – Wyeth
2. Bexsero® – Novartis

Schedule
Trumenba and Bexsero are licensed for persons aged 10 through 25 years.
1. Trumenba is administered as either a two-dose series at 0 and 6 months or a three-dose series on a 0, 2, and 6-month schedule. The three-dose series should be used to vaccinate persons at an increased risk for meningococcal disease and those who are vaccinated during serogroup B meningococcal disease outbreaks.
2. Bexsero is administered as a two-dose series with doses given at least one month apart.

Persons aged ≥10 years who are at increased risk for meningococcal disease and should receive MenB vaccine include:
- Persons with persistent complement component deficiencies including inherited or chronic deficiencies in C3, C5-9, properdin, factor D, factor H, or who are taking eculizumab (Soliris).
- Persons with anatomic or functional asplenia, including sickle cell disease.
- Persons with sickle cell disease.
- Microbiologists routinely exposed to isolates of Neisseria meningitidis.
- Persons identified as at increased risk because of a serogroup B meningococcal disease outbreak.

See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

Persons aged 16 through 23 years without a high-risk condition may also be vaccinated to provide short-term protection against most strains of serogroup B meningococcal disease.

Sufficient data are not available for using MenB vaccines interchangeably to complete the vaccine series.

Contraindications
A severe allergic reaction (that is, anaphylaxis) after a previous dose or to a vaccine component.

Precautions
1. Moderate or severe acute illness with an oral (or equivalent) temperature ≥100.4°F.
2. Pregnancy
3. Breastfeeding

No randomized, controlled clinical trials have been conducted to evaluate use of MenB vaccines in pregnant or lactating women.
Reactions
Pain or redness at the injection site are the most common reactions. Mild systemic reactions such as fatigue, headache, myalgias, or arthralgias may also occur.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Alum</th>
<th>Kanamycin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trumenba</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Bexsero</td>
<td>Yes – tip caps</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site: 0.5 mL dose, intramuscularly into the deltoid muscle
Cleaning agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
1. Trumenba: may arrive at a temperature between 36° and 77°F (2° to 25°C). Upon receipt, the vaccine should be stored at 36° to 46°F (2° to 8°C). Store syringes horizontally to minimize redistribution time.
2. Bexsero: protect from light.
Pneumococcal Polysaccharide Vaccine (PPSV23) (Rev. 11/2016)

Introduction
PPSV23 contains polysaccharide antigen from 23 types of pneumococcal bacteria. PPSV23 should be administered routinely to all adults aged ≥65 years. The vaccine is also indicated for persons aged ≥2 years with a normal immune system who have a chronic illness and for persons aged ≥19 years with asthma or who smoke cigarettes. PCV13 is given routinely during childhood.

Pneumovax 23® – Merck

Schedule
1. Not recommended for children less than 24 months of age (2 years old). Administer PPSV23 at least eight weeks after the last dose of PCV to children aged ≥2 years with certain underlying medical conditions (see Table below). Children who have received PPSV23 previously, should also receive recommended PCV13 doses. See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

2. Children aged 24-71 months with underlying medical conditions who received less than three doses of PCV7 before age 24 months should receive a series of two doses of PCV13 ≥8 weeks apart, followed by one dose of PPSV23 administered ≥8 weeks later.

3. Children aged 24-71 months with underlying medical conditions who received an incomplete schedule of three doses of PCV7 before age 24 months should receive one dose of PCV13 followed by one dose of PPSV23 administered ≥8 weeks later.

4. When elective splenectomy, immunocompromising therapy, or cochlear implant placement is being planned, PCV13 and/or PPSV23 vaccination should be completed at least two weeks before surgery or initiation of therapy.

5. Adults aged ≥19 years with immunocompromising conditions, functional or anatomic asplenia, CSF leaks, or cochlear implants and who have not previously received PCV13 or PPSV23 should receive a dose of PCV13 first, followed by a dose of PPSV23 at least eight weeks later.

6. Adults aged ≥65 years who have not previously received the pneumococcal vaccine, or whose previous vaccination history is unknown, should receive a dose of PCV13 first, followed by a dose of PPSV23, ideally one year later.
   - If PPSV23 cannot be given during this time period, the dose of PPSV23 should be given during the next visit.
   - The minimum interval between PCV13 and PPSV23 is eight weeks.

7. Adults aged ≥65 years who have previously received at least one dose of PPSV23 should also receive a dose of PCV13 if they have not yet received it. A dose of PCV13 should be given at least one year after receipt of the most recent PPSV23 dose. For those for whom an additional dose of PPSV23 is indicated (that is, persons with functional or anatomic asplenia and immunocompromised persons), this subsequent PPSV23 dose should be given one year after PCV13 and at least five years after the most recent dose of PPSV23.

Underlying medical conditions or other indications for administration of 23-valent pneumococcal polysaccharide vaccine (PPSV23) and revaccination among persons ≥2 years*, by risk group.
<table>
<thead>
<tr>
<th>Risk group</th>
<th>Underlying medical condition</th>
<th>One dose recommended</th>
<th>Revaccination five years after first dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunocompetent persons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic heart disease(^a)</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Chronic lung disease(^b)</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Cerebrospinal fluid leak</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Cochlear implant</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Alcoholism</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Chronic liver disease, cirrhosis</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Cigarette smoking</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Persons with functional or anatomic asplenia</td>
<td>Sickle cell disease/other hemoglobinopathy</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Congenital or acquired asplenia</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Splenic dysfunction</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Immunocompromised persons</td>
<td>HIV infection</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Chronic renal failure</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Nephrotic syndrome</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Leukemia</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Lymphoma</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Hodgkin disease</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Generalized malignancy</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Solid organ transplant</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Multiple myeloma</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Congenital or acquired immunodeficiency(^c)</td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Iatrogenic immunosuppression(^d)</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\)All adults aged ≥65 years should routinely receive a dose of PCV13 and a dose of PPSV23 in series.

\(^b\)Including congestive heart failure and cardiomyopathies, excluding hypertension

\(^c\)Including chronic obstructive pulmonary disease, emphysema, and asthma

\(^d\)Includes B- (humoral) or T-lymphocyte deficiency, complement deficiencies, and phagocytic disorders (excluding chronic granulomatous disease)

\(^d\)Diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy

The optimal order of pneumococcal vaccination for adults aged ≥65 years is PCV13 followed by PPSV23, one year later.

**Contraindications**
- Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component

**Precautions**
- Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.

**Reactions**
1. The most common adverse reactions are local reactions including pain, swelling or erythema at the site of injection.
2. Local reactions are reported more frequently following a second dose of PPSV23 vaccine than following the first dose.
**Potential Allergy**
*When in doubt about the contents of a particular vaccine, check the current package insert.*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumovax 23</td>
<td>No</td>
</tr>
</tbody>
</table>

**Administration**
Dosage, route, and site: 0.5 mL subcutaneously or intramuscularly into the anterolateral aspect of the upper thigh for younger children, or into the deltoid for older children and adults.

Cleansing Agent: Alcohol

**Storage**
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Pneumococcal Conjugate Vaccine (PCV13) (Rev. 11/2016)

Introduction
PCV13 is a 13-valent pneumococcal conjugate vaccine. On February 24, 2010, the Food and Drug Administration (FDA) approved PCV13, which replaces PCV7. The PCV13 formulation contains antigens of *Streptococcus pneumoniae* serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F and 23F. The schedules below provide recommendations for PCV13 use during the transition from PCV7 to PCV13 and beyond.

Prevnar 13® – Wyeth

Schedule
Infants and children aged 2 months through 4 years: See Tables 1 and 2 below and the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

Children aged 24 through 71 months with the following underlying medical conditions (see Table 3 for recommended schedule):
1. Immunocompetent children with chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure), chronic lung disease (including asthma if treated with high-dose oral corticosteroid therapy), diabetes mellitus, cerebrospinal fluid leaks, or cochlear implant.
2. Children with anatomic or functional asplenia (including sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, or splenic dysfunction).
3. Children with immunocompromising conditions: HIV infection, chronic renal failure and nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas and Hodgkin’s disease; or solid organ transplantation, congenital immunodeficiency (including B-[humoral] or T-lymphocyte deficiencies; complement deficiencies, particularly C1, C2, C3 and C4 deficiency; and phagocytic disorders, excluding chronic granulomatous disease).

Children aged 6 through 18 years with certain underlying medical conditions (anatomic or functional asplenia, sickle cell disease, HIV-infection, and cochlear implant or cerebrospinal fluid leaks):
1. A single dose of PCV13 is recommended for children aged 6-18 years who have not received PCV13 previously and are at an increased risk for invasive pneumococcal disease because of the medical conditions listed above, regardless of whether they have previously received PCV7 or PPSV23.
2. Routine use of PCV13 is not recommended for healthy children aged 5 years and older.

Adults with immunocompromising conditions:
1. Adults aged ≥19 years who have immunocompromising conditions or other conditions associated with immunosuppression (for example, HIV infection, leukemia, lymphoma, generalized malignancy, organ or bone marrow transplantation), functional or anatomic asplenia, CSF leaks, or cochlear implants, and who have not previously received PCV13 or PPSV23, should receive a dose of PCV13 first, followed by a dose of PPSV23 at least eight weeks later.
2. Adults aged ≥19 years with immunocompromising conditions or other conditions associated with immunosuppression (for example, HIV infection, leukemia, lymphoma, generalized
malignancy, organ or bone marrow transplantation), functional or anatomic asplenia, CSF leaks, or cochlear implants, who previously have received one or more doses of PPSV23, should be given a PCV13 dose greater than or equal to one year after the last PPSV23 dose was received. See the ACIP recommendations for optimal order of administering PCV13 and PPSV23 in adults.

Adults aged ≥65 years:
1. Adults aged ≥65 years who have not previously received pneumococcal vaccine, or whose previous vaccination history is unknown, should receive a dose of PCV13 first, followed by a dose of PPSV23, ideally one year later.
   • If PPSV23 cannot be given during this time period, the dose of PPSV23 should be given during the next visit.
   • The minimum interval between PCV13 and PPSV23 is eight weeks.
2. Adults aged ≥65 years who have previously received at least one dose of PPSV23 also should receive a dose of PCV13 if they have not yet received it. A dose of PCV13 should be given at least one year after receipt of the most recent PPSV23 dose. For those for whom an additional dose of PPSV23 is indicated (that is, persons with functional or anatomic asplenia and immunocompromised persons), this subsequent PPSV23 dose should be given one year after PCV13 and at least five years after the most recent dose of PPSV23.
3. Adults who received PCV13 at age 64 years or younger do not need any additional doses of PCV13 at age ≥65 years.

Table 1. Recommended schedule for administering PCV13 to children under the age of 24 months by PCV vaccination history and age.

<table>
<thead>
<tr>
<th>Age at first visit</th>
<th>Vaccination history: total number of PCV7 and/or PCV13 doses received previously</th>
<th>Recommended PCV13 regimen*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-6 months</td>
<td>0 doses</td>
<td>3 doses, 8 weeks apart; fourth dose at age 12-15 months</td>
</tr>
<tr>
<td></td>
<td>1 dose</td>
<td>2 doses, 8 weeks apart; fourth dose at age 12-15 months</td>
</tr>
<tr>
<td></td>
<td>2 doses</td>
<td>1 dose, 8 weeks after the most recent dose; fourth dose at age 12-15 months</td>
</tr>
<tr>
<td>7-11 months</td>
<td>0 doses</td>
<td>2 doses, 8 weeks apart; third dose at 12-15 months</td>
</tr>
<tr>
<td></td>
<td>1 or 2 doses before age 7 months</td>
<td>1 dose at age 7-11 months, with a second dose at 12-15 months, ≥8 weeks later</td>
</tr>
<tr>
<td>12-23 months</td>
<td>0 doses</td>
<td>2 doses, ≥8 weeks apart</td>
</tr>
<tr>
<td></td>
<td>1 dose before age 12 months</td>
<td>2 doses, ≥8 weeks apart</td>
</tr>
<tr>
<td></td>
<td>1 dose at ≥12 months</td>
<td>1 dose, ≥8 weeks after the most recent dose^2</td>
</tr>
<tr>
<td></td>
<td>2 or 3 doses before age 12 months</td>
<td>1 dose, ≥8 weeks after the most recent dose^b</td>
</tr>
<tr>
<td></td>
<td>4 doses of PCV7 or other age-</td>
<td>1 supplemental dose ≥8 weeks after the most</td>
</tr>
</tbody>
</table>
appropriate, complete PCV7 schedule recent dose

*Minimum interval between doses is eight weeks, except for children vaccinated at age <1 year, for whom minimum interval between doses is four weeks.

bNo additional PCV13 doses are indicated for children aged 12-23 months who have received two or three doses of PCV7 before age 12 months and at least one dose of PCV13 at age ≥12 months.

Table 2. Recommended transition schedule from PCV7 to PCV13 among children aged <60 months, according to number of previous doses of PCV7 received.

<table>
<thead>
<tr>
<th>Infant series</th>
<th>Booster dose</th>
<th>Supplemental PCV13 dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 months 4 months 6 months ≥12 months* 14-59 months b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCV7 PCV13 PCV13 PCV13 ---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCV7 PCV7 PCV13 PCV13 ---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCV7 PCV7 PCV7 PCV13 ---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCV7 PCV7 PCV7 PCV7 PCV13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*No additional PCV13 doses are indicated for children aged 12-23 months who have received two or three doses of PCV before age 12 months and at least one dose of PCV13 at age ≥12 months.

bFor children with underlying medical conditions, a single supplemental PCV13 dose is recommended through age 71 months

Table 3. Recommended schedules for administering doses of PCV13 to children aged ≥24 months by PCV vaccination history and age.

<table>
<thead>
<tr>
<th>Age at examination (months)</th>
<th>Vaccination history: total number of PCV7 and/or PCV13 doses received previously</th>
<th>Recommended PCV13 Regimen*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy children 24 through 59 months</td>
<td>Unvaccinated or any incomplete schedule</td>
<td>1 dose, ≥ 8 weeks after the most recent dose</td>
</tr>
<tr>
<td></td>
<td>4 doses of PCV7 or other age-appropriate, complete PCV7 schedule</td>
<td>1 supplemental dose, ≥ 8 weeks after the most recent dose</td>
</tr>
<tr>
<td>Children 24 through 71 months with underlying medical conditions</td>
<td>Unvaccinated or any incomplete schedule of &lt;3 doses</td>
<td>2 doses, one ≥ 8 weeks after the most recent dose and another dose ≥ 8 weeks later</td>
</tr>
<tr>
<td></td>
<td>Any incomplete schedule of 3 doses</td>
<td>1 dose, ≥ 8 weeks after the most recent dose</td>
</tr>
<tr>
<td></td>
<td>4 doses of PCV7 or other age-appropriate complete PCV7 schedule</td>
<td>1 supplemental dose, ≥ 8 weeks after the most recent dose</td>
</tr>
</tbody>
</table>

*Minimum interval between doses is eight weeks.

bFor children who have certain underlying medical conditions a supplemental PCV13 dose is recommended through 71 months of age.

**Contraindications**
Severe allergic reaction (for example, anaphylaxis) after a previous dose of (PCV7, PCV13, or any diphtheria toxoid-containing vaccine) or to a component of a vaccine (PCV7, PCV13, or any diphtheria toxoid-containing vaccine)
Precautions
Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F

Reactions
1. Swelling, redness, or pain at the site of injection.
2. Fever, decreased appetite, increased or decreased sleep.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Alum</th>
<th>Yeast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevnar</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site: 0.5 mL intramuscularly into the anterolateral aspect of the upper thigh for infants and younger children, or into the deltoid for older children and adults.

Cleansing agent: alcohol

Storage
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
Inactivated Polio Vaccine (IPV) (Rev. 11/2018)

Introduction
IPV is the recommended vaccine for routine polio immunization. IPV provided by the Wisconsin Immunization Program is not routinely available for use in adults. OPV (oral polio vaccine) has not been recommended for routine immunization in the U.S. since 2000 and is not available from the Wisconsin Immunization Program.

IPOL® – Sanofi Pasteur

Combination vaccines containing IPV:
1. Pediarix™ (DTaP-Hepatitis B-IPV) – GlaxoSmithKline (p. 20) licensed for persons aged 6 weeks through 6 years
2. Pentacel® (DTaP-Hib-IPV) – Sanofi Pasteur (p. 22) licensed for persons aged 6 weeks through 4 years
3. Kinrix™ (DTaP-IPV) – GlaxoSmithKline (p. 15) licensed for persons aged 4 through 6 years
4. Quadracel™ (DTaP-IPV) – Sanofi Pasteur (p. 17) licensed for persons aged 4 through 6 years

Schedule
IPOL is licensed for use in persons aged ≥6 weeks.

Administer the primary series of IPV at ages 2, 4, and 6–18 months, with a booster at age 4–6 years. The final dose in the series should be administered on or after the fourth birthday and at least six months after the previous dose. See the Childhood Immunization Schedule and Catch-Up Immunization Schedule.

Catch-Up Vaccination
1. In the first six months of life, minimum age and minimum intervals are only recommended if the person is at risk for imminent exposure to circulating poliovirus (that is, travel to a polio-endemic region or during an outbreak).
2. If four or more doses are administered before age 4 years, an additional dose should be administered at age 4 through 6 years and at least six months after the previous dose.
3. A fourth dose is not necessary if the third dose was administered at age 4 years or older and at least six months after the previous dose.
4. If both OPV and IPV were administered as part of a series, a total of four doses should be administered, regardless of the child’s current age.
5. IPV is not routinely recommended for U.S. residents aged 18 years or older.

Adults (18 years and older): Routine polio immunization is not necessary for adults residing in the U.S. IPV is recommended for persons traveling to countries with a high incidence of polio and for health care workers in close contact with patients who may be excreting polio viruses.

Contraindications
Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.
**Precautions**
1. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F
2. Pregnancy

**Reactions**
1. Minor local reactions (pain and redness) at injection site.
2. No serious adverse reactions have been documented.

**Potential Allergy**
*When in doubt about the contents of a particular vaccine, check the current package insert.*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Neomycin</th>
<th>2-Phenoxyethanol</th>
<th>Polymyxin B</th>
<th>Streptomycin</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPOL</td>
<td>Yes – syringe</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No – vial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Administration**
Dosage, route, and site: 0.5 mL subcutaneously or intramuscularly into the anterolateral aspect of the upper thigh for infants and younger children or into fatty tissue over triceps for older children and adults.

Cleansing Agent: alcohol

**Storage**
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE. This vaccine should be clear and colorless. Do not use vaccine that shows turbidity or particles. Protect from light.
Rotavirus Vaccine (live, attenuated, oral) (Rev. 12/2016)

Introduction
Two different rotavirus vaccine products are licensed for routine vaccination of infants. RotaTeq (RV5) is a live, oral vaccine containing five reassortant rotavirus strains. Rotarix (RV1) is a lyophilized, live, oral vaccine derived from the human 89-12 strain.

1. RotaTeq® (RV5) – Merck
2. Rotarix® (RV1) – GlaxoSmithKline

Schedule
1. Rotavirus vaccines are licensed for use in infants aged 6 weeks through 8 months and should be integrated into the routine childhood immunization schedule.
2. RotaTeq (RV5) is administered in a three-dose series and Rotarix (RV1) is administered in a two-dose series.

See the Childhood Immunization Schedule and Catch-Up Immunization Schedule.

Dosage intervals and ages for rotavirus vaccines.

<table>
<thead>
<tr>
<th></th>
<th>RotaTeq (RV5)</th>
<th>Rotarix (RV1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of doses in series</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Recommended age for doses</td>
<td>2, 4, and 6 months</td>
<td>2 and 4 months</td>
</tr>
<tr>
<td>Minimum age for first dose</td>
<td>6 weeks</td>
<td></td>
</tr>
<tr>
<td>Maximum age for first dose</td>
<td>14 weeks, 6 days</td>
<td></td>
</tr>
<tr>
<td>Interval between doses</td>
<td>≥4 weeks</td>
<td></td>
</tr>
<tr>
<td>Maximum age for last dose</td>
<td>8 months, 0 days</td>
<td></td>
</tr>
</tbody>
</table>

If any dose in the series was RotaTeq (RV5) or the product is unknown for any dose in the series, a total of three doses of rotavirus vaccine should be given. ACIP recommends that the rotavirus vaccine series be completed with the same product whenever possible. However, vaccination should not be deferred because the product used for a previous dose(s) is not available or is unknown.

The first dose of either rotavirus vaccine is recommended to be administered at 2 months of age but may be administered between 6 weeks and 14 weeks, 6 days of age. Do not initiate vaccination if the infant is aged 15 weeks or older. If the first dose is inadvertently administered (off label) to an infant who is older than 15 weeks of age, administer the remaining doses according to the schedule. The minimum interval between doses of rotavirus vaccine is four weeks. All doses should be administered by age 8 months. Do not administer doses if the infant is older than 8 months of age. Rotavirus vaccine may be administered at any time before, concurrent with, or after administration of any blood product, including antibody-containing products, following the routinely recommended schedule for rotavirus vaccine.

Contraindications
1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component.
2. Severe combined immunodeficiency (SCID).
3. History of intussusception or of uncorrected congenital malformation of the gastrointestinal tract that would predispose the infant to intussusception.
Precautions
1. Altered immunocompetence other than SCID.
2. Chronic gastrointestinal disease.
3. Spina bifida or bladder extrophy.
4. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.

Special Situations
1. Preterm infants (born <37 weeks gestation): Administer rotavirus vaccine if the infant is at least 6 weeks of age, discharged from the hospital, and clinically stable.
2. Exposure to an immune compromised person and pregnant female: Infants living with an immune compromised person or pregnant female can receive rotavirus vaccine.
3. Breastfeeding: Infants who are breastfed can receive rotavirus vaccine. No restrictions are placed on the infant's feeding before or after receipt of rotavirus vaccine.
4. Regurgitation: Re-administering a dose of rotavirus vaccine to an infant who regurgitates, spits out, or vomits during or after administration of the vaccine is not necessary. Any remaining doses should be administered at the appropriate intervals.

Reactions
Mild temporary diarrhea or vomiting can occur within seven days of administration.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
</tr>
</thead>
<tbody>
<tr>
<td>RotaTeq</td>
<td>No</td>
</tr>
<tr>
<td>Rotarix</td>
<td>Yes – applicator</td>
</tr>
<tr>
<td></td>
<td>No – vial and transfer adapter</td>
</tr>
</tbody>
</table>

Administration
Dosage, route, and site:
1. RotaTeq (RV5): each 2 mL dose is in a squeezable plastic tube and is ready for (oral) administration. Tear open the pouch, remove the tube, hold the dispensing tip up vertically, puncture the seal by first screwing the cap clockwise and then remove the cap counterclockwise. To administer, squeeze the liquid into the infant's mouth until the dosing tube is empty. A residual drop may remain in the tip of the tube.
2. Rotarix (RV1): each 1 mL dose is for oral administration only and must be reconstituted. Steps for reconstitution are as follows. Remove plastic cover from vial of lyophilized vaccine. Connect transfer adapter onto vial by pushing it downwards until the transfer adapter is properly and securely in place. Shake the oral applicator containing the liquid diluent vigorously. The shaken suspension will appear as a turbid liquid with a slow settling white deposit. Remove the protective tip cap from the oral applicator. Connect the oral applicator into the transfer adapter by pushing it firmly on the device. Transfer the entire content of the oral applicator into the vial of lyophilized vaccine. With the oral applicator still attached, shake the vial and examine for complete suspension. The reconstituted vaccine will appear more turbid than the diluent alone. Withdraw the entire mixture back into the oral applicator. Remove the oral applicator from the transfer adapter. The infant should be seated in a reclining position. Administer (orally) the entire content of the oral applicator (on the inside of the cheek).
**Storage**
Refrigerate at 36° to 46°F (2° to 8°C). DO NOT FREEZE.
1. RotaTeq (RV5) may appear pink or yellow in color. Protect from light.
2. Rotarix (RV1) should be administered within 24 hours of reconstitution. It may be refrigerated or stored at room temperature after reconstitution.
Introduction
Varicella vaccine is recommended for all children without contraindications at 12 through 15 months of age, with a second dose at age 4 through 6 years. The vaccine may be given to all children at this age regardless of prior history of varicella disease.

Varivax® – Merck

Combination vaccine containing varicella: ProQuad® (measles, mumps, rubella and varicella)—Merck (p. 50) licensed for persons aged 12 months through 12 years.

Schedule
See the Childhood Immunization Schedule, Catch-Up Immunization Schedule and Adult Immunization Schedule.

1. Routine vaccination: Administer the first dose of varicella vaccine at age 12 through 15 months, and the second dose at age 4 through 6 years. The second dose may be administered before age 4 years, provided at least three months have elapsed since the first dose. If the second dose was administered at least four weeks after the first dose, it can be accepted as valid.

2. Catch-up vaccination: Ensure that all persons aged 7 through 18 years without evidence of immunity have two doses of varicella vaccine. For children aged 7 through 12 years, the recommended minimum interval between doses is three months. If the second dose was administered at least four weeks after the first dose, it can be accepted as valid.

3. Adult vaccination: Administer varicella vaccine to all persons aged ≥19 years without evidence of immunity; the minimum interval between doses is four weeks.

MMR and varicella vaccines can be administered on the same day. If not administered on the same day, theses vaccines should be separated by at least 28 days.

Contraindications
1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component (for example, neomycin or gelatin)
2. Known severe immunodeficiency (for example, from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy [substantially immunosuppressive steroid dose is considered to be ≥2 weeks of daily receipt of 20 mg or 2 mg/kg body weight of prednisone or equivalent] or patients with HIV infection who are severely immunocompromised)

3. Pregnancy
4. Family history of congenital or hereditary immunodeficiency in a first-degree relative (e.g., parents and siblings), unless the immune competence of the potential vaccine recipient has been substantiated clinically or verified by a laboratory.

Precautions
1. Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product, see Recommended intervals between administration of immune globulin preparations and measles- or varicella-containing vaccine).
2. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F.
3. Receipt of specific antiviral drugs (for example, acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination)

4. Use of aspirin or aspirin-containing products

Reactions
The most common adverse reactions following varicella vaccine are local reactions, such as pain, soreness, erythema, and swelling.

Potential Allergy
“When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Gelatin</th>
<th>Neomycin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varivax</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Transmission of Vaccine Virus to Contacts
Healthy vaccinated persons have a minimal risk of transmitting vaccine virus to their contacts. This risk may be higher in those who develop a varicella-like rash following vaccination. No precautions need to be taken after vaccination of healthy children who do not develop a rash. Children who develop a rash should avoid contact with susceptible persons who are immunocompromised or otherwise at high risk of serious complications for the duration of the rash.

Administration
Dosage, route, and site: 0.5 mL subcutaneously into the anterolateral aspect of the upper thigh for infants and younger children, or into fatty tissue over triceps for older children and adults.

Cleansing agent: alcohol

Storage
Routine storage before reconstitution: Store vaccine frozen at an average temperature of -58° to 5°F (-50° to -15°C). Temperature of the freezer should be verified before ordering vaccine.

Temporary storage before reconstitution: Vaccine may be stored at refrigerator temperature 36° to 46°F (2° to 8°C) for up to 72 continuous hours (three days). Do not refreeze. Discard vaccine if not administered within 72 hours.

Temporary storage after reconstitution (if it cannot be administered immediately): Reconstitute according to directions in the package insert and administer immediately. Once reconstituted, the vaccine can be stored at refrigerator temperature 36° to 46°F (2° to 8°C) for up to 30 minutes. Discard vaccine if not administered within 30 minutes.

Store diluent separately at room temperature or in the refrigerator.
Herpes Zoster Vaccine (Shingles Vaccine) (Rev. 11/2019)

Introduction
Zostavax or Zoster Vaccine Live (ZVL) was licensed in 2006 for use in adults 60 years and older. In March 2011, the Food and Drug Administration (FDA) approved the use of ZVL in adults aged 50 through 59 years. In June 2011, the Advisory Committee on Immunization Practices (ACIP) did not recommend the vaccine for adults aged 50 through 59 years because of concerns of resulting decreases in vaccine supply and lower risk of zoster in this age group. Shingrix or recombinant zoster vaccine (RZV) was licensed in 2017 for use in adults aged 50 years and older.

1. Zostavax® – Merck (ZVL)
2. Shingrix – GlaxoSmithKline (RZV)

ZVL is a live, attenuated vaccine. It includes an attenuated strain of varicella zoster virus, the same strain in the varicella and MMRV vaccines, but at a much higher titer. RZV is a recombinant adjuvanted subunit vaccine containing recombinant glycoprotein E in combination with a novel adjuvant (AS01B) and is administered as a two-dose series.

Schedule
1. RZV is preferred over ZVL for the prevention of herpes zoster and related complications (i.e., postherpetic neuralgia).
2. RZV may be used in immunocompetent adults aged 50 years and older, irrespective of prior receipt of ZVL. Screening for a history of chickenpox is not required.
3. Following the first dose of RZV, the second dose should be given two to six months later (minimum interval between doses is four weeks). The vaccine series need not be restarted if more than six months have elapsed since the first dose; however, the efficacy of alternative dosing regimens has not been evaluated. RZV should not be given less than two months after ZVL.
4. ZVL remains a recommended vaccine for prevention of herpes zoster in immunocompetent adults aged 60 years and older.
5. Administer a single dose of ZVL to adults aged 60 years and older whether or not they report a prior episode of herpes zoster.

See the Adult Immunization Schedule.

Contraindications
1. Severe allergic reaction (for example, anaphylaxis) after a previous dose or to a vaccine component
2. Pregnancy (ZVL only)
3. Known severe immunodeficiency (for example, from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised)(ZVL only)

Precautions
1. Moderate or severe acute illness with oral (or equivalent) temperature ≥100.4°F. Do not administer ZVL or RZV during an acute episode of herpes zoster.
2. Pregnancy and breastfeeding (RZV only)
3. Receipt of specific antiviral drugs (for example, acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination)(ZVL only)

Reactions
1. No more than 0.9% of ZVL recipients reported any given injection site symptom as grade 3 (reactions related to vaccination which were severe enough to prevent normal activities), whereas 16.5% of RZV recipients reported any grade 3 adverse event (compared with 3.1% of placebo recipients).
2. The most common adverse reactions following ZVL were local reactions including pain, soreness, and erythema.
3. The most common adverse reactions following RZV were pain (78%), myalgia (45%), and fatigue (45%).
4. No serious adverse events were identified.

Potential Allergy
*When in doubt about the contents of a particular vaccine, check the current package insert.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Latex</th>
<th>Gelatin</th>
<th>Neomycin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zostavax (ZVL)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Shingrix (RZV)</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Administration
ZVL dosage, route, and site: 0.65 mL subcutaneously (SC) into fatty tissue over triceps.
RZV dosage, route, and site: 0.5 mL intramuscularly (IM) into the deltoid.

Cleansing agent: alcohol

Storage
ZVL: Before reconstitution, zoster vaccine must be stored frozen at -58° to +5°F (-50° to -15°C). Do not store on dry ice.

The diluent should be stored separately at room temperature or in the refrigerator (36° to 46°F or 2° to 8°C).

Discard if not used within 30 minutes of reconstitution.

RZV: Prepare by reconstituting the lyophilized varicella zoster virus glycoprotein E antigen component with the accompanying AS01B adjuvant suspension component. After reconstitution, administer immediately or store refrigerated (36° to 46°F or 2° to 8°C) and use within six hours. Discard reconstituted vaccine if not used within six hours.
IMMUNIZATION PROGRAM ORDERS (MEDICAL AUTHORIZATION),
POLICY AND PROCEDURE APPROVAL AND INDEMNIFICATION

Introduction
This form is to be used for three functions: to submit signed immunization program orders, to signify approval or request modification of the Policy and Procedure Manual and to request indemnification for the medical advisor.

According to Wis. Stat. § 252.04 (9)(a)(b)(c), all health departments using state or federally funded vaccines shall submit written immunization program orders (medical authorization) signed by their medical advisor that are in accordance with the Policy and Procedure Manual (protocols) issued by the Wisconsin Immunization Program. Any modification to the Policy and Procedure Manual is to be made in writing to the Chief Medical Officer and State Epidemiologist for Communicable Diseases and Emergency Response for approval.

The Statutes also provide indemnification for the medical advisor as long as that physician issues written orders for the administration of immunizations that are in accordance with the Policy and Procedure Manual developed by the Immunization Program, is not an employee of the county, city, or village, and does not receive compensation. Indemnification means the medical advisor becomes a "state agent" and thereby receives liability protection from the state.

Annual re-approval is not required. However, this form must be submitted when a new physician signs the Immunization Program orders or when a physician requests modifications to the existing Policy and Procedure Manual.

Complete all three sections below. Send a completed form to the Wisconsin Immunization Program, P.O. Box 2659, Madison, WI 53701-2659.

(1) Immunization Program Orders (Medical Authorization)
The Policy and Procedure Manual (Protocols) has been reviewed and is approved for the immunization program of:

Agency

Name – Physician

WI Medical License No.

Address

Telephone Number

SIGNATURE – Physician Date Signed

(2) Policy and Procedure Manual Approval
Dr. ________________________________, medical a
for the health department immunization clinics. (check one):
☐ Agrees to accept the Immunization Program Policy and Procedure Manual as written.
☐ Agrees to accept the Immunization Program Policy and Procedure Manual with the enclosed modifications.

(3) **Indemnification**

Dr. ____________________________, medical a for the health department immunization clinics requests indemnification by the state. (check one):

☐ Yes (must meet the criteria listed on the first page of Appendix A)

☐ No
VACCINES AVAILABLE FROM THE WISCONSIN IMMUNIZATION PROGRAM to LOCAL HEALTH DEPARTMENTS and TRIBAL HEALTH CLINICS: USE AND ELIGIBILITY

Appendix B: Children (aged <19 years)

These are general guidelines subject to change based on vaccine availability. The age group restrictions for vaccines are based on recommendations of the Advisory Committee on Immunization Practices (ACIP) and by funding limitations and may differ from the age groups for which the vaccine is licensed. These vaccines are available for children who are VFC eligible, uninsured, or underinsured*. Patients with health insurance shall be directed to their primary health care provider and some may be eligible to receive immunizations at pharmacies.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Eligible Age Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTaP</td>
<td>2 months through 6 years</td>
</tr>
<tr>
<td>Hep A</td>
<td>12 months through 18 years. Target: 12 months through 23 months</td>
</tr>
<tr>
<td>Hep B</td>
<td>Birth through 18 years</td>
</tr>
<tr>
<td>Hib</td>
<td>2 months through 4 years</td>
</tr>
<tr>
<td>HPV</td>
<td>Children: 9 years through 18 years. Target: 11-12 years</td>
</tr>
<tr>
<td>Influenza (live, intranasal spray)</td>
<td>2 years through 18 years</td>
</tr>
<tr>
<td>Influenza (injectable)</td>
<td>6 months through 18 years (age indications vary according to presentations)</td>
</tr>
<tr>
<td>Meningococcal (MenACWY)</td>
<td>11 years through 18 years, target 11-12 years and first-year college students living in residence halls High-risk children 2 years through 18 years (Menactra or Menevo)</td>
</tr>
<tr>
<td>Meningococcal serogroup B (MenB)</td>
<td>10 years through 18 years at an increased risk for meningococcal disease attributable to serogroup B Children aged 16 through 18 years without a high-risk condition</td>
</tr>
<tr>
<td>MMR</td>
<td>6-11 months, directly exposed to measles 12 months through 18 years</td>
</tr>
<tr>
<td>MMRV</td>
<td>12 months through 12 years</td>
</tr>
<tr>
<td>Pediarix (DTaP-Hep B-Polio)</td>
<td>2 months through 6 years</td>
</tr>
<tr>
<td>Pentacel (DTaP-IPV-Hib)</td>
<td>2 months through 4 years</td>
</tr>
<tr>
<td>Pneumococcal (PCV13)</td>
<td>2 months through 4 years (routine), through 18 years for high-risk children</td>
</tr>
<tr>
<td>Pneumococcal (PPSV23)</td>
<td>2 years through 18 years for high-risk children</td>
</tr>
<tr>
<td>Polio</td>
<td>2 months through 18 years</td>
</tr>
<tr>
<td>Rotavirus</td>
<td>6 weeks through 32 weeks</td>
</tr>
<tr>
<td>Td</td>
<td>7 years through 18 years</td>
</tr>
<tr>
<td>Tdap</td>
<td>7 years through 18 years (target 11-18 years) (Sanofi Pasteur or GSK)</td>
</tr>
<tr>
<td>Twinrix (Hep A-Hep B)</td>
<td>18 years</td>
</tr>
<tr>
<td>Varicella</td>
<td>1 year through 18 years</td>
</tr>
</tbody>
</table>

*Underinsured children are those who meet at least one of the following:
- Have health insurance, but the coverage does not include any vaccines.
- Have health insurance that covers only selected vaccines (for example, Tdap is covered by insurance, but HPV is not. The individual would then be eligible for HPV at the LHD).
• Have health insurance that caps vaccine coverage at a certain amount. These children would be eligible after the cap has been met (for example, the insurance cap for vaccines is $400 and after $400 has been spent on vaccines, the individual would then be considered underinsured).

Appendix B1: Uninsured and Underinsured* Adults (aged 19 years and older)

Some vaccines provided to local health departments (LHDs) by the Wisconsin Immunization Program can be offered to eligible adults at public health immunization clinics. **State-supplied vaccines are for uninsured and underinsured* patients only.** Adults with health insurance shall be directed to their primary health care provider, and some may be eligible to receive immunizations at pharmacies.

Administering state-supplied vaccines to employees in a business office, health care setting, college, or other mass clinic needs prior approval of the state Immunization Program. State-supplied vaccines provided to LHDs and tribal clinics shall be administered without charge for the cost of the vaccine. Eligible adults who are unwilling or unable to pay an administration fee or donation should not be denied vaccine. Adult refugees, evacuees, and immigrants are also eligible for state-supplied vaccine if they are uninsured or underinsured (see table below).

During state-declared outbreaks of vaccine-preventable diseases, the eligibility criteria for state-supplied vaccine may be expanded after consultation with the Wisconsin Immunization Program.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Eligibility for state-supplied vaccine—can only be used for uninsured and underinsured adults</th>
</tr>
</thead>
</table>
| Hepatitis A | Aged 19 years and older and:  
  • Patients with hepatitis B or C, men who have sex with men, persons who use injection and noninjection drugs, persons who have a clotting factor disorder, and persons with chronic liver disease.  
  • Close contacts of recent international adoptees.  
  • Persons experiencing homelessness  
  **Note:** Twinrix is preferred if the patient is not immune to HBV and is also eligible for Hepatitis A vaccine. |
| Hepatitis B | Aged 19 years and older and:  
  • Unvaccinated adults with risk behaviors for HBV infection (for example, persons with more than one sex partner during the previous six months, current or recent injection-drug users, men who have sex with men, and persons seeking evaluation or treatment for an STD).  
  • Household contacts and sex partners of HBsAg-positive persons.  
  • Diabetics and/or persons with end-stage renal disease.  
  • Persons with HIV infection and/or chronic liver disease (for example, resulting from HCV infection).  
  **Note:** Twinrix is preferred if the patient is not immune to Hepatitis A and is also eligible for Hepatitis B vaccine. |
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Eligibility for state-supplied vaccine—can only be used for uninsured and underinsured adults</th>
</tr>
</thead>
</table>
| Hepatitis A – Hepatitis B (Twinrix) | Aged 19 years and older and:  
- Unvaccinated adults with risk behaviors for HBV infection (for example, persons with more than one sex partner during the previous 6 months, current or recent injection-drug users, men who have sex with men, and persons seeking evaluation or treatment for an STD).  
- Household contacts and sex partners of HBsAg-positive persons.  
- Diabetics and/or persons with end-stage renal disease.  
- Persons with HIV infection and/or chronic liver disease (for example, resulting from HCV infection).  
- Persons experiencing homelessness |
| HPV | Aged 19–26 years, male or female.  
Aged 27 and older to complete a vaccine series initiated before age 27 years, male or female |
| Meningococcal Conjugate (MenACWY) | Healthy adults aged 19-21 years who have not received a dose after their 16th birthday  
High-risk individuals aged 22-55 years (for example, complement deficiency or functional or anatomical asplenia, including sickle cell disease) |
| Meningococcal serogroup B (MenB) | Aged 19 years and older and persons at an increased risk for meningococcal disease attributable to serogroup B (that is, persons with complement component deficiencies, anatomic or functional asplenia, microbiologists routinely exposed, or persons at increased risk because of a serogroup B meningococcal disease outbreak). |
| MMR | Aged 19 years and older and:  
- Health care professionals or health care professional students, regardless of age.  
- Persons born in the U.S. during or after 1957.  
- Persons born outside the U.S. |
| Pneumococcal Conjugate (PCV13) | Aged 65 years and older.  
Aged 19–64 years and has an immunocompromising condition (for example, HIV infection, leukemia, lymphoma, generalized malignancy, organ or bone marrow transplantation), functional or anatomic asplenia (from sickle cell disease or splenectomy), CSF leak, or cochlear implant. |
| Pneumococcal Polysaccharide (PPSV23) | Aged 65 years and older.  
Aged 19–64 years and meets one or more of the following criteria: chronic illness (for example, diabetes mellitus, chronic heart disease or chronic lung disease), anatomic or functional asplenia (including sickle cell disease), immunocompromised (resulting from disease, chemotherapy, or steroids), HIV infection, cochlear implant, asthma, or cigarette smoker. |
| Td | Aged 19 years and older.  
Administer Td if the individual has already received Tdap and Td is needed for: completing the primary series, routine boosting, or wound management. |
| Tdap | 19 years of age and older. |
| Varicella | Aged 19 years and older and:  
- Health care professionals or health care professional students, regardless of age.  
- Persons born in the U.S. after 1980, or  
- Persons born outside the U.S. |

*Underinsured adults are those who meet at least one of the following:  
- Have health insurance, but the coverage does not include any vaccines.  
- Have health insurance that covers only selected vaccines (for example, Tdap is covered by insurance, but HPV is not. The individual would then be eligible for HPV at the LHD).*
• Have health insurance that caps vaccine coverage at a certain amount. These adults would be eligible after the cap has been met (for example, the insurance cap for vaccines is $400 and after $400 has been spent on vaccines, the individual would then be considered underinsured).

Notes:
• Insured individuals are those who have insurance that covers the cost of vaccine. This includes individuals who have a co-pay or deductible.
• Adults with Medicaid coverage are considered insured as they are covered for all ACIP-recommended vaccines.
• Medicare beneficiaries who have already received a dose of Tdap and are due for a Td booster are eligible to receive it at the LHD because they are considered to be underinsured for Td because Medicare only covers Td for post-exposure prophylaxis.
• Fully insured exception (per CDC)—fully insured household or sexual contacts of hepatitis B infected individuals may receive Hepatitis B vaccine or Twinrix®.
• American Indians and Alaska Natives whose only source of health care is provided by Indian Health Service, tribal, or urban Indian health care organization are not considered fully insured and may be vaccinated at LHDs if the Indian Health Service, tribal, or urban Indian health care organization does not provide vaccines listed in the table above.
February 18, 2019

Dear Health Officer,

A major barrier to childhood immunization faced by some parents is their inability to attend a public health immunization clinic during working hours. As a result, a minor may present for an immunization unaccompanied or accompanied by an individual who is not the parent, guardian, or legal custodian. Although this is not necessarily a common occurrence in local health departments (LHD), and parents should continue to be encouraged to attend the clinic with their children, the enclosed Template Policy and Procedure for Local Health Departments on Vaccine Consent for Immunization of Minors was prepared in response to increasing questions on this topic.

The Template was developed in consultation with the Office of Legal Counsel of the Department of Health Services and is provided for your consideration. It should serve as a starting point for discussion between the local health officer, public health nurse, medical advisor, and LHD legal counsel to address the need to establish a local policy and procedure. It is the expectation of the Immunization Program that LHDs will decide whether minors will be immunized without the parent, guardian, or legal custodian being present. If you develop such a policy and procedure, it should become an appendix to your Immunization Clinic Policy and Procedure Manual. Because this is a local decision, it is not necessary to resubmit your signed Medical Orders or Approval Sheet to the chief medical officer and state epidemiologist for communicable diseases for approval.

Sincerely,

Stephanie Schauer, Ph.D.
Immunization Program Manager
Wisconsin Immunization Program

dhs.wisconsin.gov
Template Policy and Procedure for Local Health Departments
Vaccine Consent for Immunization of Minors

Policy Statement
The local health department (LHD) supports the belief that parents/guardians/legal custodians should be present when their minor child(ren) receives a vaccine. The LHD is cognizant that situations can and do occur when the parent/guardian/legal custodian cannot be present. This can serve as a barrier to receiving needed immunizations for their minor child(ren). In order to reduce and eliminate this barrier, this policy allows for vaccines to be administered to a minor when a parent/guardian/legal custodian is not physically present at the time of vaccination. In order for this to occur, the public health nurse shall assure and document that the parent/guardian/legal custodian: 1) has requested the appropriate vaccine(s); 2) has had an opportunity to provide information about allergies and contraindications/precautions; and 3) understands the minor and major adverse events that may occur as a result of the immunization. There are no federal or state laws requiring a signature of a parent/guardian/legal custodian for immunization of a minor.

Procedure
A. Any minor under the age of 18 years should be accompanied by a parent/guardian/legal custodian.

B. If a parent/guardian/legal custodian cannot accompany their minor child, the individual accompanying the minor should present written and signed permission from the parent/guardian/legal custodian. This permission must meet the following conditions:
   1. Request appropriate vaccine(s) to be administered.
   2. List any contraindications and allergies.
   3. Demonstrate understanding of potential adverse events of immunization of the minor child.

Use of the Vaccine(s) Administration Record (F-44702) fulfills this requirement.

C. The public health nurse is responsible for assessing and evaluating whether the signed permission demonstrates understanding of the three conditions (in B) above. The public health nurse will then do one of the following:
   1. If the public health nurse determines that the conditions (in B) above are met, the public health nurse will:
      a. Complete the Vaccine(s) Administration Record.
      b. Attach the signed parent/guardian/legal custodian written permission to the Vaccine(s) Administration Record and on the signature line write in “see attached permission from parent/guardian/legal custodian.”
   2. If the public health nurse determines that the conditions (in B) above are NOT met on the signed permission form, the public health nurse will attempt to contact the parent/guardian/legal custodian by phone. If contact is not made, vaccines will not be administered. If contact is made, the public health nurse will:
      a. Describe who is with the minor child.
      b. Determine if it is the intention of the parent/guardian/legal custodian to have their minor child vaccinated.
      c. If the public health nurse determines that the parent/guardian/legal custodian does not want the child immunized, vaccines will not be administered.
      d. If the public health nurse determines that the parent/guardian/legal custodian wants their minor child immunized and the conditions (in B) above are met, the public health nurse will:
i. Complete the Vaccine(s) Administration Record.

ii. Document the phone call on the Vaccine(s) Administration Record including the date, time, contact person, assessment, and evaluation of parent/guardian/legal custodian’s understanding and verbal consent to immunize.

iii. Attach the parent/guardian/legal custodian written permission to the Vaccine(s) Administration Record and on the signature line write in “phone call to parent/guardian/legal custodian.”

iv. Administer the vaccine(s) according to agency policy and procedure.

D. Public health situation applications

1. Accompanied minor without permission: If a minor is accompanied by an individual who is not the parent/guardian/legal custodian and does not have written and signed permission from the parent/guardian/legal custodian, the public health nurse will follow all steps described in C.2 above.

2. Unaccompanied minor without permission: If a minor is unaccompanied and does not have written and signed permission from the parent/guardian/legal custodian, the public health nurse will follow C.2 above or determine if the minor is an emancipated minor. An example of such a minor eligible for assessment might be a married teen or teen parent. If the minor appears to be an emancipated minor, the emancipated minor could sign for him/herself. There are no federal or state laws requiring a signature of a parent/guardian/legal custodian for immunization of a minor.

3. Minor foster child(ren): Due to the many ways in which children come into foster care services, it is impossible to generalize. These situations should be handled on a case-by-case basis using the following general guidelines:
   a. The public health nurse will identify a contact at the local department of social services in case there is a need to verify who can authorize immunizations for the minor.
   b. Foster parents usually know who can authorize immunizations. When in doubt, confer with the social services contact.
   c. If immunizations are authorized by the local social services department or by the foster parent (if the foster parent has consent authority), the public health nurse will follow the steps outlined (in B) above.

4. Minor foreign exchange student: Minor foreign exchange students living with an American host family usually have a signed medical release from their parent(s) authorizing “necessary medical action.” Under this situation, the host parents could sign for the required vaccine and attach a copy of the authorization form to the Vaccine(s) Administration Record.

5. Minor parents: Minor parents (i.e., unmarried minors with children) can sign for their children.

6. Divorced parent (and step parent): A divorced (or step) parent may or may not be authorized by the court to control a child’s medical care. However, if the person alleges that he or she is the parent and the public health nurse has no reason to suspect the contrary, the vaccine request should not be denied. The public health nurse does not bear the “burden of proof” that the individual accompanying the minor either is or is not the parent, guardian, or legal custodian.

E. Multiple immunizations: When administering vaccines to a minor in a series (e.g., DTaP, Hib, or IPV), the parent/guardian/legal custodian may be given extra copies of the Vaccine Information Statement and unsigned copies of the Vaccine(s) Administration Record and instructed to sign and date each form prior to each subsequent dose. Any change in contraindications or adverse events from the previous dose of vaccine must be noted on the form. The parent/guardian/legal custodian must be instructed not to sign all copies in advance, but rather sign and date each one as close to the time of the immunization as possible. The form must be presented at the time of the clinic.
REFERENCES (REV. 11/2018)

