Proper vaccine preparation, site and route selection, needle length, and injection techniques are essential to the appropriate administration of vaccines. Being ready to handle rare reactions is essential.

**Overview of this section:**
Best Practices Checklist: Vaccine Administration
Five "Rights" to Avoid Medication Wrongs
Don't Hesitate to Vaccinate
Preparing the Shot
Giving the Shot
After the Shot
Key Resources for Vaccine Administration

Improperly administered injections may result in injuries or prevent vaccines from providing optimal protection.

**Who to Call**
Centers for Disease Control and Prevention
800-232-4636
**Best Practices Checklist: Vaccine Administration**

The information in this checklist will be covered in more detail throughout this section.

### “Five rights” to avoid medication wrongs
- Persons who administer vaccines and staff who manage or support vaccine administration are properly trained and receive ongoing education to avoid medication errors.

### Preparing the shot
- We check the dose, vial expiration date, the vial label, and contents prior to drawing up and administering vaccine.
- We check the vaccine label three times: when pulling vaccine from the container, when withdrawing the vaccine, and before replacing it on the shelf or disposing of the empty container.
- We prepare the vaccines for one patient at a time.
- We properly prepare the vaccine.
- We reconstitute vaccine using only the diluent supplied and use it within the proper reconstituted shelf life.
- We label each filled syringe with the date and time it was drawn up, the vaccine type, and the lot number. We do this to identify syringe contents in case the patient changes their mind.
- We follow needle safety and infection control precautions (e.g., washing hands, using gloves, never recapping needles, using sharps containers).

### Giving the shot
- We use the right size needle when giving intramuscular (IM) injections to infants/toddlers.
- We use only the muscle site identified for the patient’s age group.
- We trained our staff to know the appropriate route (IM or SQ) for each vaccine.
- Our staff are trained to administer multiple vaccinations to patients who are due for multiple vaccinations.
- We prepare patient/parents for what to expect when giving the shot.

### After the shot
- We have an anaphylaxis protocol which is clearly posted and reviewed annually.
- We review comfort measures to and after care instructions with patient/parents, inviting questions.
- We train our staff how to manage vaccine reactions including an anaphylactic episode.
- We have an emergency kit in the area where immunizations are administered.
- We know how to obtain Vaccine Adverse Events Reporting System (VAERS) forms and how to report post-vaccination adverse events as required by the National childhood Injury Act (NCVIA).
Avoid missed opportunities
Don’t be a vaccine-hesitant provider; give all the vaccines that are due. Studies have shown that the primary reason for missing an opportunity to vaccinate is the provider’s reluctance to administer all vaccines that are needed at one visit. This robs the patient of the opportunity to be protected from serious diseases. Here are some important tips to help you avoid missed opportunities:

• Parents are less concerned about the number of injections than providers might predict.

• Most parents will generally accept all the vaccinations recommended at a visit if the provider presents the benefits of doing so:
  ○ Simultaneous administration of vaccines (i.e., on the same day, not at the same anatomic site) does not result in decreased antibody responses or increased rates of adverse reactions.
  ○ A minute or two of pain from shots is well worth the benefit of being protected from disease for years to come.
  ○ Spreading out injections can provoke more fear of needles than giving shots on time. Babies in their first year of life quickly forget the pain of shots if comforted immediately after them. Why delay when an older child will begin to anticipate and struggle against discomfort?

Remember these five "rights" of medication administration to avoid making medication errors when you vaccinate patients:

1. Right patient – including proper age; check the package insert.
2. Right dose – check the package insert for directions.
3. Right vaccine/diluent – follow indications and contraindications.
4. Right route – use the proper needle length and site (intramuscular, subcutaneous, nasal, or oral).
5. Right time – check the age indications and minimum intervals between doses.

Following these five "rights" will not only keep you in line with best practices but also will greatly reduce wasted vaccine and adverse events.
Preparing the Shot

Proper preparation assures the vaccine isn't wasted and the patient is protected.

- Open only one multi-dose vial of a specific vaccine at a time.
- Never combine vaccines in a syringe unless it is specifically recommended in the package insert.
- Check the vaccine label three times: when pulling vaccine from the container, when withdrawing the vaccine, and before replacing it on the shelf or disposing of the empty container.
- Check the label three times; when you remove the vaccine from storage, when you draw it up, and when you dispose of the syringe or place the vial back into storage.
- Be familiar with each vaccine’s storage and handling information provided in the package insert; see Guide to Receiving, Storing, and Handling Vaccines on pages 19-25.

Don't pre-fill syringes: Too much can go wrong

- The practice of pre-filling syringes for more than one patient at a time is a quality control and patient safety issue.
- Pre-filling syringes is a violation of medication administration practice standards, which state that you should only administer vaccine you have personally prepared and drawn up.
- You cannot be sure of the composition and sterility of the dose you are administering if you haven't prepared it.
- Bacteria can contaminate and grow in syringes pre-filled from single-dose vials, because these vials do not contain bacteriostatic agents.
- Once vaccine is inside the syringe, it is difficult to tell which vaccine is which; this may lead to administration errors.
- Bulk plastic syringes, as opposed to manufactured pre-filled glass syringes, are designed for immediate administration and not for vaccine storage.
- No stability data are available for vaccines stored in plastic syringes. Vaccine components may interact with the plastic over time and affect vaccine potency.
- Pre-filling may lead to wasting vaccine, because you will have to discard any vaccine you are unable to use within the reconstituted shelf life or work day.

Reconstitute vaccines correctly

To ensure adequate potency and safety of a vaccine that requires reconstitution (combining vaccine with diluent):

- Only use the diluent provided by the manufacturer, because it is the only approved diluent, and in some cases, the diluent also contains an antigen for the vaccine (e.g., Pentacel, Menveo).
- Check the expiration dates on both the diluent and the vaccine. Don't use expired diluent or vaccine.
- Reconstitute the vaccine immediately before administering it.
- Use the reconstituted vaccine within its recommended shelf life; see the table Reconstituted Vaccine: Diluents and Shelf Life on page 151.
- Follow proper disposal procedures for discarding reconstituted vaccine that wasn’t administered within the recommended shelf life; see Disposing of Vaccine on page 27.
**Reconstituted Vaccine: Diluents and Shelf Life**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Diluent*</th>
<th>Reconstituted shelf life</th>
</tr>
</thead>
<tbody>
<tr>
<td>ActHIB (Hib)</td>
<td>sanofi pasteur 0.4% saline</td>
<td>24 hours when stored in refrigerator</td>
</tr>
<tr>
<td>Hiberix (Hib)</td>
<td>GSK 0.9% saline</td>
<td>24 hours when stored in refrigerator</td>
</tr>
<tr>
<td>Imovax (Rabies)</td>
<td>sanofi pasteur distilled sterile water</td>
<td>30 minutes</td>
</tr>
<tr>
<td>M-M-R II (Measles, mumps, rubella)</td>
<td>Merck sterile water</td>
<td>8 hours when protected from light and stored in refrigerator</td>
</tr>
<tr>
<td>MenHlrix (Meningococcal C/Y-Hib)</td>
<td>GSK 0.9% saline</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Menomune (Meningococcal)</td>
<td>Single-dose vials - sanofi pasteur distilled sterile water</td>
<td>30 minutes for single-dose vial</td>
</tr>
<tr>
<td></td>
<td>Multi-dose vials - sanofi pasteur distilled sterile water with thimerosal</td>
<td>35 days when stored in multi-dose vial in refrigerator</td>
</tr>
<tr>
<td>Menveo (Meningococcal)</td>
<td>MenCWY conjugate</td>
<td>8 hours at or below room temperature, 68° to 77°F (20° to 25°C)</td>
</tr>
<tr>
<td>Pentacel (DTaP-IPV-Hib)</td>
<td>sanofi pasteur DTaP-IPV</td>
<td>30 minutes</td>
</tr>
<tr>
<td>ProQuad (Measles, mumps, rubella, varicella)</td>
<td>Merck sterile water</td>
<td>30 minutes when protected from light and stored in refrigerator</td>
</tr>
<tr>
<td>RabAvert (Rabies)</td>
<td>Novartis sterile water</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Rotarix (Rotavirus)</td>
<td>GSK calcium carbonate, sterile water, and xanthane</td>
<td>24 hours when stored in refrigerator</td>
</tr>
<tr>
<td>Varivax (Varicella)</td>
<td>Merck sterile water</td>
<td>30 minutes when protected from light</td>
</tr>
<tr>
<td>YF-VAX (Yellow fever)</td>
<td>sanofi pasteur saline</td>
<td>60 minutes</td>
</tr>
<tr>
<td>Zostavax (Zoster)</td>
<td>Merck sterile water</td>
<td>30 minutes when protected from light</td>
</tr>
</tbody>
</table>

*Use only the diluent provided by the manufacturer because it is a component of the vaccine.

If you have drawn up vaccine for a patient who changes their mind:

1. Mark the syringe with the date and time it was drawn up, the vaccine type, and the lot number.
2. Use within the same eight-hour work day or within the proper reconstituted shelf life.
3. If the vaccine isn't used within the same eight-hour work day or reconstituted shelf life, whichever is shorter, discard it using proper disposal procedures. See Disposing of Vaccine on page 27.
**Practice needle safety and infection control**

Health care workers who use needles are at increased risk of exposure to blood-borne pathogens as a result of needle-stick injuries. Take precautions to protect yourself and your patients!

**Avoid needle sticks**
- Never recap used needles.
- Dispose of used needles promptly in appropriate sharps disposal containers.
- Use needles with safety devices.

**Gloving**
- Use of gloves is not required when administering injections. However, gloves are recommended if you anticipate coming into contact with potentially infectious body fluids or have open lesions on your hands. Determine your clinic or agency’s own policies.
- If you use gloves, change them with each patient.
- Hand washing or use of hand sanitizer is recommended before and after each patient.
- Remember, wearing gloves does not protect against needle-stick injuries.

**Jet injectors**
- Currently available single-use jet injectors do not pose a risk of blood-borne transmission if used properly and can be beneficial in a community setting where a large number of people are receiving the same vaccine.
- Assure that staff are appropriately trained in jet injector use.
- Avoid unnecessary bleeding or bruising by applying pressure to the injection site.
- Be certain the jet injector delivers vaccine by the desired route (IM or SQ).
Give all vaccines in the same visit: Simultaneous administration

All vaccines, whether live or inactivated, can be given at the same visit. However, if not administered at the same visit, follow these simple rules (based on ACIP General Recommendations, Table 3 Guidelines for spacing of live and inactivated antigens, page 96):

- Two or more inactivated vaccines can be given at same visit or at any interval between doses.
- Inactivated and live vaccines can be given at the same visit or at any interval between doses.
- Two or more live intranasal or injectable vaccines must be given at least four weeks apart if not given at the same visit.
- Live oral vaccines: Can be given at the same visit or at any interval before or after inactivated or live injectable vaccines.

**Live vaccines:**
- Influenza: LAIV, intranasal
- Measles, mumps, rubella
- Measles, mumps, rubella, varicella
- Rotavirus, oral
- Typhoid, oral
- Varicella
- Yellow fever
- Zoster

**Inactivated vaccines:**
- DTaP, DT, Td, TT, Tdap
- *Haemophilus influenzae* type b
- Hepatitis A
- Hepatitis B
- Human papillomavirus
- Influenza: TIV, injectable
- Japanese encephalitis
- Meningococcal, conjugate and polysaccharide
- Pneumococcal, conjugate and polysaccharide
- Polio, injectable
- Rabies
- Typhoid, injectable

**Selecting the injection site (IM or SQ)**
- Intramuscular (IM) injections are generally recommended for inactivated vaccines and vaccines that contain an adjuvant or preservative; see How to Administer IM Injections on page 171.
- Subcutaneous (SQ) injections are generally recommended for live vaccines and other vaccines that may cause fewer local reactions; see How to Administer SQ Injections on page 172.
When giving injections use only the muscle site identified for the patient's age group, usually the vastus lateralis for infants and toddlers and the deltoid for older children, adolescents, and adults.

Don't use the gluteal area (buttocks) to administer vaccine. It is covered by a significant layer of subcutaneous fat that can prevent the needle from reaching the muscle. In young children, an IM injection in the gluteal area has the potential to damage the sciatic nerve.

Vaccine given by the wrong route?
- If a vaccine is administered by the wrong route, e.g., SQ rather than IM, the injection usually does not need to be repeated. Hepatitis B and rabies vaccinations are the exception to this rule. If hepatitis B or rabies vaccine is improperly administered, SQ rather than IM, the dose should be repeated.
- Keep in mind that improperly administered IM vaccines may cause a local reaction (e.g., irritation, redness, swelling, or necrosis). Make sure to advise the patient/parent of possible local reactions.

Administering more than one vaccine at the same site
If multiple vaccines are being administered at a single visit, try to give each vaccine at a different site. However, if two or more injections are given in a single limb follow these rules:

For infants and younger children:
- Use the vastus lateralis muscle
- Separate injections by 1 inch or more

For older children and adults:
- Use the deltoid muscle
- Separate injections by 1 inch or more

For simultaneous administration of a vaccine and an immune globulin (e.g., hepatitis B and hepatitis B immunoglobulin [HBIg]), use different limbs for each injection.

Creating an immunization site map
When giving multiple and/or simultaneous injections a site map of which vaccines to give and where can be a helpful tool. A site map takes the guess work out of deciding which vaccine to give at which site. An additional benefit is knowing which vaccine may have caused a local reaction. Create an immunization site map for your clinic by writing the vaccine name or abbreviation next to the appropriate site on the Infant, Toddler, Teen and Adult Immunization Site Maps on pages 173-174.

Immunization Techniques: Best Practices with Infants, Children, and Adults (Video by California Department of Public Health)
Brush up on skills and techniques for giving vaccines. Use this video for training and orientation, as well as a refresher for more experienced staff. See page 161 for more information.
### Preparing patients for injections

Each age presents its own set of challenges when preparing to give shots. To deliver the shot in the quickest and most comfortable position for the patient, parent, and you, first ask the patient (and parent!) to relax. Also give parents a copy of *Be There for Your Child During Shots* on page 163.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Considerations</th>
</tr>
</thead>
</table>
| **Infants** | • Prepare for the parent to be more anxious than the infant and advise them of what to expect. Ideally, keep infant and parent together.  
• Prepare for the infant to instinctively pull away from the source of pain. |
| **Toddlers** | • Prepare for the toddler to attempt to grab the syringe and to instinctively pull away from the source of pain.  
• Toddlers will be anxious about the new environment. Have the toddler sit on the parent’s lap; toddlers are usually more cooperative and less anxious there.  
• Toddlers are stronger than infants but more easily distracted. Provide distractions such as toys, pictures books, wiggling their toes, or finding an object in the room.  
• Reassure the toddler honestly, "It might feel like a sting or pinch but will only last a few seconds." |
| **Children** | • Prepare for the child to be anxious; children tend to be most anxious in anticipation of the shot.  
• Give choices (when possible) such as which arm to give the shot in. However, be aware that negotiation may have to be sacrificed.  
• Provide distractions such as asking them to squeeze mom’s hand as hard as they can, wiggle their toes, or find an object in the room.  
• Reassure the child honestly: "It might feel like a sting or pinch but will only last a few seconds."  
• Tell the child, “It’s okay to cry,” and that their main job is to hold still. |
| **Adolescents** | • Prepare for possible fainting. To avoid an injury from falling, have the patient sit during and after the injection.  
• Observe for 15 minutes for possible fainting.  
• Instruct them to relax: provide a visual distraction, ask them to take a deep breath and exhale slowly, or to shake their arms and drop them to their sides, or to pretend to be in a special place. (Adolescents respond well to instructions to relax prior to the injection.)  
• Reassure them honestly: "It might feel like a sting or pinch but will only last a few seconds." |
| **Adults** | • Evaluate past history of fainting during injections. To avoid an injury from falling, have the patient sit during and after the injection.  
• Prepare for adults to tense their arm before shots. Assess for muscle mass remembering that as people age the densest part of the muscle may be slightly lower.  
• Advise them to relax: provide a visual distraction, ask them to drop their arms to their sides, to take a deep breath and exhale slowly, or to pretend to be in a special place. |
Positioning for injections
When positioning an infant, toddler, or young child keep in mind that they will instinctively jerk away from the source of pain. Warn parents about this if they are holding them.

How to position for administering in the thigh
- Tuck the child’s legs between the parent’s legs and have the parent hold the legs in place. If the child’s legs are too short to tuck between the parent’s legs, the shot giver should stabilize the legs with her arms as she gives the injection.
- Have the parent hold the child’s arms as if embracing the child and stabilize the arms with their arms as the shot giver gives the injection.

How to position for administering in the arm
- Have the child sit facing forward on the parent’s lap.
- Tuck one arm behind the parent’s back and have the parent hold the other arm with one hand.
- Tuck the child’s legs between the parent’s legs and have the parent hold the legs in place.

How to position using an exam table
- Place the infant/toddler on an exam table on their back with their knees at the edge of the table so that their lower legs dangle over the edge of the table. Note: Position an infant on the exam table so you can stabilize their legs/feet by placing them under your arms.
- Press your body against the infant/toddler’s knees so the child is stabilized.
- Instruct the parent to lean over the infant/toddler’s upper torso, holding the infant/toddler’s hands. This position allows the parent to comfort the infant/toddler as well as stabilize the infant/toddler’s hands.
**Guidance following vaccination**
- Observe the patient for 15 minutes after vaccination.
- Advise the parent/patient on the use of a non-aspirin pain reliever.
- Give the patient a copy of their immunization record (e.g., MIIC immunization record, Minnesota “Gold Card”).
- Schedule their next immunization appointment before they leave the clinic.
- Document immunizations in the medical record. Refer to *Documenting Shots* on page 181 for more information on immunization documentation requirements.
- Be familiar with the treatment of vaccine reactions; see *Guidelines for Managing Possible Immediate Reactions* table on page 158.
- Document any adverse reaction and submit a VAERS report; see pages 175-179.

**Managing vaccine reactions**
Read this section carefully. Don’t be stuck trying to read information on how to manage a reaction while it is happening! All staff involved with immunizing should familiarize themselves with the material in this section before they have to deal with any sort of reaction to a vaccine. Review your facility’s anaphylaxis policy/protocol every year and hold annual staff meetings to review this material.

Vaccine reactions can be as mild as local injection-site discomfort or as severe or life-threatening as anaphylaxis. Staff should be prepared to handle all types of reactions. The *Guidelines for Managing Possible Immediate Reactions* on page 158 describes management of such reactions.

**What is anaphylaxis?**
Anaphylaxis is a potentially life-threatening allergic reaction to a foreign substance. It is extremely rare after immunization. When it occurs, it usually begins within minutes following the injection, although delayed reactions are possible. Early recognition and treatment of anaphylaxis is vital. All staff should feel confident to manage the situation properly. Personnel administering vaccines need to be able to distinguish symptoms of anaphylaxis from vasovagal syncope (fainting).

**Prepare in advance for an anaphylactic episode**
- Have a written policy/protocol in place for medical emergencies and anaphylaxis.
- Know where your policy/protocol is; review, revise, and have your medical director sign it annually.
- Assemble an anaphylaxis kit that contains epinephrine, syringes, needles, CPR mask or barrier, stethoscope, and a blood pressure cuff.
- Know where these emergency materials are located and how to use them.
- Have detailed prescriptions for what medications should be given. Typically, epinephrine and diphenhydramamine (Benadryl) are the medications used.
- Periodically conduct practice drills using your policy/protocol (e.g., review how to draw up medications from ampules, use an EpiPen, start oxygen, and use your CPR barrier mask).
- Check epinephrine expiration dates each quarter as well as the oxygen level of your tank, if you have one.
- Make sure a phone is accessible at immunization clinic sites.
### Guidelines for Managing Possible Immediate Reactions

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Symptoms</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Localized</strong></td>
<td>• Soreness, redness and/or swelling at the injection site</td>
<td>• Apply cold compress to the injection site.</td>
</tr>
<tr>
<td></td>
<td>• Continued bleeding</td>
<td>• Apply bandage over the injection site and add direct (hand) pressure.</td>
</tr>
</tbody>
</table>
| **Psychosomatic** | • Extreme paleness  
   • Sweating  
   • Coldness of the hands and feet  
   • Nausea  
   • Light-headedness  
   • Visual disturbance | • Have patient sit or lie down until free of symptoms or for 10-15 minutes after injection to prevent fainting or fall-related injuries.  
   • Loosen any tight clothing.                                                                 |
|              | • Fainting                                                                                                                                  | • Protect the patient's head, have them lie flat, and maintain an open airway.        |
|              | • Fall with loss of consciousness                                                                                                          | • Maintain an open airway.  
   • Call 911.  
   • Examine patient to determine if injury is present before attempting to move them. |
|              | • Vomiting                                                                                                                                  | • If patient is unconscious, roll them onto their side or turn their head to the side and, if necessary, wipe out the mouth with your fingers, preferably gloved and wrapped in cloth.  
   • Do not pour water over the patient’s face or try to give any liquids unless the patient is fully conscious and upright.  
   • If patient is alert keep them upright.                                                                 |
| **Anaphylaxis** | • Anxiety  
   • Coughing  
   • Generalized itching  
   • “Pins and needles” sensation of the skin  
   • Flushing  
   • Facial edema (swelling of lips, mouth, throat)  
   • Nausea  
   • Stomach pain  
   • Urticaria (hives)  
   • Respiratory difficulties (wheezing, hoarse voice, tightness in the chest)  
   • Hypotension - cardiovascular collapse can occur without respiratory symptoms | • Initiate your facility’s anaphylaxis protocol.  
   • See the TAKE ACTION box on page 159.                                                                 |
If you suspect anaphylaxis

1. Have someone call for emergency help (911). Make sure emergency responders know how to get into the building and where to find the room. You may want to have someone meet and escort them.

2. Administer prescribed medication, usually epinephrine, (intramuscularly) for immediate action. Some providers may also include diphenhydramine (Benadryl) for sustained action.

3. Maintain an airway; give oxygen if available. Allow the patient to sit in a chair with a table or desktop to lean on if they find it is easier to breathe that way and their vital signs are stable.

4. Monitor for signs of shock (pallor, low blood pressure, unresponsiveness). If you observe signs of shock, place the patient in a reclining position with lower limbs elevated.

5. Be prepared to give CPR.

6. Make sure the patient is seen immediately by a physician for evaluation and possible follow-up care, even if they are stable when emergency responders arrive.

7. Contact the parent/guardian if they are not present, especially if the patient is a minor.

8. Document the patient’s adverse reaction and the related intervention as soon as possible by entering the reaction in the patient record and submitting a VAERS report.

9. Notify the patient’s clinic or health care provider (if you are not the primary provider) of this episode so that future reactions can be prevented.

Note: Your protocol should include these action steps!
**Report adverse reactions to vaccines**

The federal Vaccine Adverse Events Reporting System (VAERS) is a vaccine safety surveillance program that collects information about adverse events (possible side effects) that occur after the administration of U.S.-licensed vaccines. VAERS is co-managed by the Centers for Disease Control and Prevention and the Food and Drug Administration.

### Requirements for Reporting Adverse Events Following Vaccination

<table>
<thead>
<tr>
<th>Who can report to VAERS?</th>
<th>Health care providers and vaccine manufacturers are required to report post-vaccination adverse events outlined in the <em>Reportable Events Table</em> (see page 175); however, anyone can submit a report.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What should be reported?</td>
<td>Use a VAERS report form to report any adverse event, including:</td>
</tr>
<tr>
<td></td>
<td>• Any clinically significant adverse event that occurs after the administration of any vaccine—even if you are unsure whether a vaccine caused the event</td>
</tr>
<tr>
<td></td>
<td>• Any event included in the <em>Reportable Events Table</em> (see page 175) that occurs within the time period specified (For a current copy of the <em>Reportable Events Table</em> call VAERS at 1-800-822-7967 or download it from vaers.hhs.gov.)</td>
</tr>
<tr>
<td></td>
<td>• Any event listed in the manufacturer’s package insert as a contraindication to subsequent doses of the vaccine</td>
</tr>
<tr>
<td>How to obtain a report form</td>
<td>• You can obtain pre-addressed postage-paid VAERS report forms by calling VAERS at 1-800-822-7967.</td>
</tr>
<tr>
<td></td>
<td>• You may use photocopies of the form to submit reports (see page 178).</td>
</tr>
<tr>
<td></td>
<td>• You may also download printable copies of the VAERS form as well as other information about VAERS from vaers.hhs.gov/index.</td>
</tr>
<tr>
<td>Where to send a completed VAERS report</td>
<td>You can submit completed VAERS report forms any of these three ways:</td>
</tr>
<tr>
<td></td>
<td>• Online: vaers.hhs.gov/esub/index.</td>
</tr>
<tr>
<td></td>
<td>• Fax: 877-721-0366</td>
</tr>
<tr>
<td></td>
<td>• Mail: Vaccine Adverse Event Reporting System P.O. Box 1100 Rockville, MD 20849-1100</td>
</tr>
<tr>
<td>Further information on VAERS</td>
<td>• Call VAERS toll-free at 1-800-822-7967.</td>
</tr>
<tr>
<td></td>
<td>• Visit the VAERS website (vaers.hhs.gov) for information on vaccine safety, links to vaccine industry news, and summaries of all reports to VAERS.</td>
</tr>
</tbody>
</table>

### Pregnancy Registry

Health care providers are encouraged to report any instances of prenatal exposure to a varicella containing vaccine (Varivax, ProQuad, or Zostavax) or human papillomavirus vaccine (Gardasil or Cervarix). Both Merck and GlaxoSmithKline maintain a surveillance registry on pregnancy outcomes and newborn health status outcomes following vaccination with these vaccines.

- **Merck vaccines** (Varivax, ProQuad, Zostavax, and Gardasil): 800-986 8999
  www.merckpregnancyregistries.com/home.html
- **GlaxoSmithKline vaccine** (Cervarix): 888-452 9622
**Key Resources for Vaccine Administration**

- **Be There For Your Child During Shots (MDH)**
  A brochure for parents to help prepare their child for shots, including what they can do before, during, and after the shots. Brochure can be ordered using the Immunization Materials for Use with the Public order form: www.health.state.mn.us/divs/idepc/immunize/ordermat.html.

- **Vaccine Product Summary (MDH)**
  Summary chart showing each vaccine's generic and brand names, manufacturer, licensed age groups, dosing information, and administration route.
  www.health.state.mn.us/divs/idepc/immunize/hcp/vaxprodsum.pdf

- **How to Administer an Intramuscular (IM) or Subcutaneous (SQ) Injections (MDH)**
  Illustrated guide to giving IM and SQ vaccinations for infants, children, and adults. Includes injection site, needle length and size, and angle of needle insertion.
  www.health.state.mn.us/divs/idepc/immunize/hcp/admim.pdf

- **Immunization Site Map (California Department of Public Health, Immunization Branch)**
  Illustrated site maps for giving vaccinations to infants, toddlers, and adults.

- **VAERS Table of Reportable Events Following Vaccination**
  Listing of post-vaccination adverse events by vaccine.
  http://vaers.hhs.gov/resources/VAERS_Table_of_Reportable_Events_Following_Vaccination.pdf

- **VAERS Report Form**
  Photocopy-ready, pre-addressed, postage-paid VAERS report form for reporting any adverse event.
  http://vaers.hhs.gov/esub/index

- **Immunization Techniques: Best Practices with Infants, Children, and Adults (Video by the California Department of Public Health)**
  Not included in this section, but a good resource guide to vaccine administration techniques. Focuses on the skills and techniques needed for vaccine administration. Use it for training and orientation, or as a refresher for more experienced staff. Available for purchase on DVD (25 minutes) from the Immunization Action Coalition. Order from www.immunize.org/shop/toolkit_iztechdvd.asp
Be there for your child during shots.

Infants:
- Bring your child’s immunization record.
- Read vaccine information statements.
- Ask any questions.
- Bring along a favorite toy or blanket.
- Stay calm—your baby picks up your feelings.

Toddlers—All above, plus:
- Reassure your child honestly, “It might sting but it will only last a few seconds.”
- Never threaten your child with shots, “If you are not good, I will have the nurse give you a shot.”
- Encourage older siblings to reassure and comfort, not to scare your toddler.

Infants—Distract and comfort by:
- Touching soothingly and talking softly.
- Making eye contact as you smile at him/her.

Toddlers—Also try:
- Holding your child securely on your lap.
- Talking to or singing with your child.
- Helping your child take deep breaths and slowly blow out the pain.
- Using a hand puppet.
- Pointing out posters or objects around the room.
- Telling your child a story or have him/her tell you one.
- Allowing your child to cry, don’t force him/her to be brave.
- Be ready to hold the arm or leg still when the shot is given.

Infants—Comfort by:
- Holding, cuddling, caressing, and/or breastfeeding
- Talking lovingly and soothingly.
- Asking your doctor for advice on using a non-aspirin pain reliever when you get home.

Toddlers—Also try:
- Giving praises and hugs or a surprise.
- Reassuring your child that everything is okay.
- Make an appointment before you leave the clinic.
- Mark your calendar for your next appointment.
- Review vaccine information statements for possible reactions.
- A cool wet cloth can reduce redness, soreness, and/or swelling where the shot was given.
- Observe your child for the next few days. You might see a small rash or notice a fever. If you are concerned that something does not seem right with your baby, or you can’t bring the fever down, call your doctor or clinic.
- To reduce pain or fever, your doctor may recommend you give your child a non-aspirin pain reliever.
- Also try giving your child a sponge bath with lukewarm water to reduce fever.
- Give your child plenty of fluids. It is normal if he/she eats less than usual for the next 24 hours.

A parent’s love makes all the difference.
<table>
<thead>
<tr>
<th>Vaccine Generic Name</th>
<th>Vaccine Brand Name</th>
<th>Vaccine Mfr*</th>
<th>Age Group Licensed to Receive Vaccine</th>
<th>Dose</th>
<th>Adm Route</th>
<th>Additional Use Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphtheria, tetanus, pertussis (DTaP)</td>
<td>Daptacel</td>
<td>SP</td>
<td>6 weeks through 6 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td>Cannot be used on or after 7th birthday</td>
</tr>
<tr>
<td></td>
<td>Infanrix</td>
<td>GSK</td>
<td>6 weeks through 6 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td></td>
</tr>
<tr>
<td>Diphtheria, tetanus (pediatric) (DT)</td>
<td>Generic</td>
<td>SP</td>
<td>6 weeks through 6 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td>Used if child had a reaction to pertussis vaccine</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not for adolescent or adult use</td>
</tr>
<tr>
<td>DTaP–HepB–IPV</td>
<td>Pediarix</td>
<td>GSK</td>
<td>6 weeks through 6 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td>Can only be used for the first 3 doses of DTaP and IPV</td>
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</tr>
<tr>
<td>DTaP–IPV</td>
<td>Kinrix</td>
<td>GSK</td>
<td>4 through 6 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td>Can be used for the 5th dose of DTaP</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Can be used for the 4th dose of IPV series</td>
</tr>
<tr>
<td>DTaP–IPV–Hib</td>
<td>Pentacel</td>
<td>SP</td>
<td>6 weeks through 4 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td>Mix DTaP-IPV liquid with Hib powder</td>
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<tr>
<td>Tetanus, diphtheria (Td)</td>
<td>Decavac</td>
<td>SP</td>
<td>7 years and older</td>
<td>0.5 mL</td>
<td>IM</td>
<td>Not used for persons under 7 years of age</td>
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<td>Akorn</td>
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</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Tdap)</td>
<td>Boostrix</td>
<td>GSK</td>
<td>10 years and older</td>
<td>0.5 mL</td>
<td>IM</td>
<td>Tdap vaccines are licensed as a one-time dose</td>
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<td></td>
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<td></td>
<td>When giving or completing a 3-dose primary series, one of the doses should be Tdap</td>
</tr>
<tr>
<td></td>
<td>Adacel</td>
<td>SP</td>
<td>11 through 64 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type B (Hib)</td>
<td>PedvaxHIB (PRP-OMP)</td>
<td>MSD</td>
<td>6 weeks through 5 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td>2-dose primary series at 2 and 4 months of age, booster at 12–15 months of age</td>
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<tr>
<td></td>
<td>ActHIB (PRP-T)</td>
<td>SP</td>
<td>2 through 18 months</td>
<td>0.5 mL</td>
<td>IM</td>
<td>3-dose primary series at 2, 4, and 6 months of age, booster at 12–15 months of age</td>
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<tr>
<td></td>
<td>Hiberix (PRP-T)</td>
<td>GSK</td>
<td>12 months through 4 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td>Only use for final Hib dose after age 12 months of age</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Mix liquid diluent with Hib powder and withdraw 0.5mL</td>
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<td></td>
<td></td>
<td></td>
<td>Must use within 8 hours of reconstitution</td>
</tr>
<tr>
<td>Hib–HepB</td>
<td>Comvax</td>
<td>MSD</td>
<td>6 weeks through 5 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td>3-dose series at 2, 4, and 12-15 months of age</td>
</tr>
<tr>
<td>Vaccine Product Summary</td>
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<td><strong>Vaccine Generic Name</strong></td>
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<tr>
<td><strong>Vaccine Mfr.</strong></td>
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<tr>
<td><strong>Age Group Licensed to Receive Vaccine</strong></td>
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</tr>
<tr>
<td><strong>Dose</strong></td>
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<tr>
<td><strong>Adm Route</strong></td>
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<tr>
<td><strong>Additional Use Comments</strong></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hepatitis A (HepA)</th>
<th>Havrix</th>
<th>GSK</th>
<th>Pediatric: 1 through 18 years</th>
<th>0.5 mL</th>
<th>IM</th>
<th>• Do not give before 1st birthday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VAQTA</td>
<td>MSD</td>
<td>Adult: 19 years and older</td>
<td>1.0 mL</td>
<td>IM</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td>Engerix-B</td>
<td>GSK</td>
<td>Pediatric: birth through 19 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td>• Do not restart the series</td>
</tr>
<tr>
<td></td>
<td>Recombivax HB</td>
<td>MSD</td>
<td>Adult: 20 years and older</td>
<td>1.0 mL</td>
<td>IM</td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV2, HPV4)</td>
<td>Gardasil, HPV4 (Types 6, 11, 16, 18)</td>
<td>MSD</td>
<td>Adult: 20 years and older</td>
<td>1.0 mL</td>
<td>IM</td>
<td>• Not available through MnVFC</td>
</tr>
<tr>
<td></td>
<td>Cervarix HPV2 (Types 16, 18)</td>
<td>MSD</td>
<td>Adolescents: 11 through 15 years</td>
<td>1.0 mL</td>
<td>IM</td>
<td>• Hep A dose in Twinrix is NOT an adult dose so 3 doses are required</td>
</tr>
<tr>
<td></td>
<td>Twinrix</td>
<td>GSK</td>
<td>Adult: 18 years and older</td>
<td>1.0 mL</td>
<td>IM</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Teenage: 15 through 18 years</td>
<td>1.0 mL</td>
<td>IM</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Adolescents: 11 through 15 years</td>
<td>1.0 mL</td>
<td>IM</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Adult: 18 years and older</td>
<td>1.0 mL</td>
<td>IM</td>
<td></td>
</tr>
<tr>
<td>Inactivated polio (IPV)</td>
<td>Ipol</td>
<td>MSD</td>
<td>Adult: 19 years and older</td>
<td>1.0 mL</td>
<td>IM</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Adults: 19 years and older</td>
<td>1.0 mL</td>
<td>IM</td>
<td></td>
</tr>
</tbody>
</table>

Available on the web at: www.health.state.mn.us/divs/idepc/immunize/hcp/vaxprodsum.pdf

www.health.state.mn.us/immunize Got Your Shots? Providers Guide - VACCINE ADMINISTRATION
<table>
<thead>
<tr>
<th>Vaccine Generic Name</th>
<th>Vaccine Brand Name</th>
<th>Vaccine Mfr*</th>
<th>Age Group Licensed to Receive Vaccine</th>
<th>Dose</th>
<th>Adm Route</th>
<th>Additional Use Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza, inactivated influenza vaccine (IIV)</td>
<td>Agriflu (IIV3)</td>
<td>NOV</td>
<td>18 years and older</td>
<td>0.5 mL</td>
<td>IM</td>
<td>• Not currently on the market.</td>
</tr>
<tr>
<td>Fluzone (IIV3 or IIV4)</td>
<td>SP</td>
<td>6 months and older</td>
<td>See note</td>
<td>IM</td>
<td>• Age 6 months through 35 months: 0.25 mL dose</td>
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<td></td>
<td></td>
<td>• Age 3 years and older: 0.5 mL dose</td>
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<td></td>
<td></td>
<td>• Follow ACIP’s two-dose recommendation for children age 6 months through 8 years</td>
<td></td>
</tr>
<tr>
<td>Fluzone, High-dose (IIV3)</td>
<td>SP</td>
<td>65 years and older</td>
<td>0.5 mL</td>
<td>IM</td>
<td>• Not available through MnVFC</td>
<td></td>
</tr>
<tr>
<td>Fluzone, Intradermal (IIV3)</td>
<td>SP</td>
<td>18 through 64 years</td>
<td>0.1 mL</td>
<td>ID</td>
<td>• Apply over deltoid part of arm</td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td>• Syringe/needle is specifically designed for administering into the intradermal layer of skin</td>
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<td></td>
<td></td>
<td>• Not available through MnVFC</td>
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</tr>
<tr>
<td>Fluvinir (IIV3)</td>
<td>NOV</td>
<td>4 years and older</td>
<td>0.5 mL</td>
<td>IM</td>
<td>• Follow ACIP’s two-dose recommendation for children age 4 through 8 years</td>
<td></td>
</tr>
<tr>
<td>Afluria (IIV3)</td>
<td>CSL</td>
<td>5 years and older (See additional use comments)</td>
<td>0.5 mL</td>
<td>IM</td>
<td>• ACIP does not recommend Afluria for children age 5 through 8 years unless no other licensed age-appropriate vaccine is available and the child is at increased risk for influenza complications (i.e., certain medical conditions).</td>
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<td></td>
<td>• Afluria may be used in children age 9 years and older.</td>
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<td></td>
<td></td>
<td>• Not available through MnVFC</td>
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</tr>
<tr>
<td>FluLaval (IIV3 or IIV4)</td>
<td>GSK</td>
<td>3 years and older</td>
<td>0.5 mL</td>
<td>IM</td>
<td>• Not available through MnVFC</td>
<td></td>
</tr>
<tr>
<td>Fluvarix (IIV3 or IIV4)</td>
<td>GSK</td>
<td>3 years and older</td>
<td>0.5 mL</td>
<td>IM</td>
<td>• Follow ACIP’s two-dose recommendation for children age 2 through 8 years</td>
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<td></td>
<td></td>
<td></td>
<td>• Not available through MnVFC</td>
<td></td>
</tr>
<tr>
<td>Influenza, cell culture inactivated influenza vaccine (ccIIV)</td>
<td>Flucelvax (ccIIV3)</td>
<td>NOV</td>
<td>18 years and older</td>
<td>0.5 mL</td>
<td>IM</td>
<td>• Not available through MnVFC</td>
</tr>
<tr>
<td>Influenza, recombinant influenza vaccine (RIV)</td>
<td>Flublok (RIV3)</td>
<td>PSC</td>
<td>18 years through 49 years</td>
<td>0.5 mL</td>
<td>IM</td>
<td>• Not available through MnVFC</td>
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<tr>
<td></td>
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<td></td>
<td>• Recommended option for persons with significant egg allergies</td>
<td></td>
</tr>
<tr>
<td>Influenza, live attenuated influenza vaccine (LAIV4)</td>
<td>Flumist, quadrivalent (LAIV4)</td>
<td>MEDI</td>
<td>2 through 49 years</td>
<td>0.1 mL in each nostril</td>
<td>Nasal</td>
<td>• Not available in 2012-2013 influenza season</td>
</tr>
<tr>
<td>Vaccine Generic Name</td>
<td>Vaccine Brand Name</td>
<td>Age Group Licensed to Receive Vaccine</td>
<td>Dose</td>
<td>Adm Route</td>
<td>Additional Use Comments</td>
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</tr>
</tbody>
</table>
| Japanese Encephalitis (JE) | Ixiaro | 17 years and older | 0.5mL | IM | • 2 dose series at 0 and 28 days  
  • Complete the series at least 10 days before arrival in endemic areas  
  • Not approved for children |
| Measles, mumps, rubella (MMR) | M-M-R II | 1 year and older | ~0.5 mL | SQ | • DO NOT give before the 1st birthday  
  • Give at the same time as varicella and/or PPD or any other live virus vaccine (i.e., yellow fever)  
  • If not given at the same time as varicella and/or PPD wait at least 28 days  
  • Administer entire reconstituted volume  
  • Protect from light and use within 8 hours of reconstitution |
| Measles, mumps, rubella, varicella (MMRV) | Proquad | 12 months through 12 years | 0.5 mL | SQ | • Must use within 30 minutes of reconstitution |
| Meningococcal C/Y – Hib | Menhibrix | 6 weeks through 18 months | 0.5 mL | IM | • Reconstitute with saline diluent (0.6 mL) to make 0.5 mL dose  
  • No ACIP recommendations for use as of 7/2012 |
| Meningococcal conjugate (MCV) | Menactra | 9 months through 55 years | 0.5 mL | IM | • Covers types A, C, Y, and W-135  
  • Covers types A, C, Y, and W-135  
  • Mix liquid MenA with powder C, Y, W-135  
  • Must use within 8 hours of reconstitution |
| Meningococcal polysaccharide (MPSV) | Menomune | 2 years and older | 0.5 mL | SQ | • Give to at risk persons for whom MCV4 is not licensed (i.e., persons 56 years and older with risk factors)  
  • Not available through MnVFC |
| Pneumococcal Conjugate, 13-valent (PCV) | Prevnar | 6 weeks through 17 years  
  50 years and older | 0.5 mL | IM | • Give a dose of PCV13 to healthy children through age 4 years and at risk children through 5 years who already completed the PCV7 series. |
| Pneumococcal polysaccharide, 23-valent (PPSV) | Pneumovax23 | 2 years and older | 0.5 mL | IM or SQ | |
| Rabies | Imovax | No defined age | 1 mL | IM | • Not available through MnVFC  
  • Pre-exposure  
  • Post-exposure  
  • RabAvert | NOV | 1 mL | IM | |
## Vaccine Product Summary

<table>
<thead>
<tr>
<th>Vaccine Generic Name</th>
<th>Vaccine Brand Name</th>
<th>Vaccine Mfr*</th>
<th>Age Group Licensed to Receive Vaccine</th>
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</tr>
</thead>
</table>
| **Rotavirus (RV1, RV5)** | Rotarix (RV1) | GSK | 6 weeks through 8 months | 1 mL | PO | • Rotarix: mix oral diluent into powder and give immediately after mixing  
• Rotarix: 2-dose series at 2 and 4 months of age  
• Rotateq: 3-dose series at 2, 4, and 6 months of age  
• DO NOT begin the series after 15 weeks of age  
• DO NOT give any doses after 8 months, 0 days  
• Do not repeat if child spits out the dose |
| | RotaTeq (RV5) | MSD | 6 weeks through 8 months | 2 mL | PO | |
| **Typhoid** | Typhim Vi | SP | 2 years and older | 0.5mL | IM | • Give a single dose. Give a booster dose every 2 years if person is at risk  
• Not available through MnVFC |
| | Vivotif | Berna | 7 years and older | Capsule | PO | • Give one capsule every other day for 4 doses  
• Not available through MnVFC |
| **Varicella (chickenpox) (VAR)** | Varivax | MSD | 1 year and older | 0.5 mL | SQ | • DO NOT give before the 1st birthday  
• PPD Give at the same time as varicella and/or PPD or any other live virus vaccine (i.e., yellow fever)  
• If not given at the same time as MMR and/or PPD wait at least 28 days  
• If using catch-up schedule, the minimum interval is 3 months for children age 1 through 12 years and 4 weeks for persons age 13 years and older |
| **Yellow Fever** | YF-VAX | SP | 9 months and older | 0.5 mL | SQ | • Must be a designated by MDH as a yellow fever vaccination clinic |
| **Zoster (shingles) (ZOS)** | Zostavax | MSD | 50 years and older | 0.65 mL | SQ | • Administer entire reconstituted volume  
• Must use within 30 minutes of reconstitution  
• Current routine recommendation is for persons 60 years and older |

* Vaccine Manufacturer Key:  
  - Akorn=Akorn  
  - CSL=CSL Biotherapies  
  - GSK=GlaxoSmithKline  
  - MEDI=MedImmune  
  - MSD=Merck  
  - NOV=Novartis  
  - PSC=Protein Sciences  
  - SP=sanofi pasteur  
  - WAL=Wyeth

Adapted from MDH *Standing Orders for Routine Immunizations* and Gloria Tobias’ (Countryside Public Health) *Vaccine Cheat Sheet.*

MDH, Immunization Program
How to Administer IM (Intramuscular) Injections

Administer DTaP, DT, Td, Tdap, Hib, hepA, hepB, HPV, TIV, MCV, PCV, and rabies vaccines via IM (intramuscular) route.

Administer IPV and PPSV vaccines either via IM or SQ (subcutaneous) route.

<table>
<thead>
<tr>
<th>Patient’s age</th>
<th>Site (see illustrations)</th>
<th>Needle size*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn/Infant (Birth -1 year)</td>
<td>• Anterolateral thigh</td>
<td>• 1&quot; needle</td>
</tr>
<tr>
<td></td>
<td>• 5/8&quot; in premies or newbons (0-28 days old) if muscle mass inadequate¹</td>
<td>• 23-25 gauge needle</td>
</tr>
<tr>
<td>Toddler (1-3 years)</td>
<td>• Anterolateral thigh preferred</td>
<td>• 1&quot; – 1¼&quot; needle for thigh</td>
</tr>
<tr>
<td></td>
<td>• Deltoid when adequate mass developed</td>
<td>• 5/8&quot; – 1&quot; needle for deltoid</td>
</tr>
<tr>
<td></td>
<td>• 23-25 gauge needle</td>
<td></td>
</tr>
<tr>
<td>Children (3-11 years)</td>
<td>• Deltoid</td>
<td>• 1&quot; – 1½&quot; needle²</td>
</tr>
<tr>
<td></td>
<td>• Anterolateral thigh</td>
<td>• 23-25 gauge needle</td>
</tr>
<tr>
<td>Adolescents/adults² (11 years and older)</td>
<td>• Deltoid preferred</td>
<td>• 1&quot; – 1½&quot; needle²</td>
</tr>
<tr>
<td></td>
<td>• Anterolateral thigh may be used if necessary</td>
<td></td>
</tr>
</tbody>
</table>

¹ A ⅝" needle may be used only if the skin is stretched tight, the subcutaneous tissue is not bunched, and injection is made at a 90° angle.

² A ⅝" needle is sufficient in adults weighing less than 130 lbs (60 kg).

A 1" needle is sufficient in adults weighing 130–152 lbs (60–70 kg). A 1½" needle is recommended in women weighing 152–200 lbs (70–90 kg) and men weighing 152–260 lbs (70–118 kg). A 1½" needle is recommended in women weighing more than 200 lbs (90 kg) or men weighing more than 260 lbs (118 kg).

**Needle insertion**

- Use a needle long enough to reach deep into the muscle.
- Insert needle at a 90° angle to the skin with a quick thrust.
- Retain pressure on skin around injection site with thumb and index finger while needle is inserted.
- Aspiration before injection is not required.*
- Multiple injections given in the same extremity should be separated as far as possible (preferably at least 1" apart).

*A Red Book 2009, American Academy of Pediatrics (p.19) and CDC General Recommendations on Immunization, 2011

**IM injection site area**

- Insert needle at 90° angle into vastus lateralis muscle in anterolateral aspect of middle or upper thigh.

**IM injection site area**

- Insert needle at 90° angle into densed portion of deltoid muscle above armpit and below acromion.
### How to Administer SQ (Subcutaneous) Injections

Administer MMR, MMRV, MPSV, VAR, and ZOS via SQ (subcutaneous) route.

Administer IPV and PPSV vaccines either via IM (intramuscular) or SQ route.

#### Patient's age | Site (see illustrations) | Needle size*
---|---|---
**Infants** (Birth -1 year) | • Fatty area of the thigh | • 5/8" needle • 23-25 gauge
**Toddler** (1-3 years) | • Fatty area of the thigh or outer aspect of upper arm | • 5/8" needle • 23-25 gauge
**Children** (3-11 years) | • Fatty area of the thigh or outer aspect of upper arm | • 5/8" needle • 23-25 gauge
**Adolescents/adults** (11 years and older) | • Outer aspect of upper arm | • 5/8" needle • 23-25 gauge

| Needle insertion |
---|
• Insert needle at an 45° angle to the skin.
• Pinch up on SQ tissue to prevent injecting into muscle.
• Aspiration before injection is not required.*
• Multiple injections given in the same extremity should be separated as far as possible (preferably at least 1" apart).

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Suggested sites for infant immunizations:

- **RA:** Subcutaneous tissue on upper right arm (SC)
- **RT:** Right vastus lateralis (IM) or subcutaneous tissue on right thigh (SC)
- **LA:** Subcutaneous tissue on upper left arm (SC)
- **LT:** Left vastus lateralis (IM) or subcutaneous tissue on left thigh (SC)

Suggested sites for toddler immunizations:

- **RD:** Right deltoid (IM) or subcutaneous tissue on upper right arm (SC)
- **RT:** Right vastus lateralis (IM) or subcutaneous tissue on right thigh (SC)
- **LD:** Left deltoid (IM) or subcutaneous tissue on upper left arm (SC)
- **LT:** Left vastus lateralis (IM) or subcutaneous tissue on left thigh (SC)
Teen and Adult Immunization Site Map

Create a teen and adult immunization site map for your clinic by indicating which vaccines should be given at each site. Insert the vaccine name or abbreviation next to the appropriate site.

Suggested sites for teen and adult immunizations:

RD:
Right deltoid (IM)

RD:

RSC:
Right upper arm, subcutaneous tissue (SC)

RSC:

LD:
Left deltoid (IM)

LD:

LSC:
Left upper arm, subcutaneous tissue (SC)

LSC:

Adapted with permission from the California Department of Public Health, Immunization Branch.
<table>
<thead>
<tr>
<th>Vaccine/Toxoid</th>
<th>Event and interval from vaccination</th>
</tr>
</thead>
</table>
| Tetanus in any combination; DTaP, DTP, DTP-Hib, DT, Td, TT, Tdap, DTaP-IPV, DTaP-IPV/Hib, DTaP-HepB-IPV | A. Anaphylaxis or anaphylactic shock (7 days)  
B. Brachial neuritis (28 days)  
C. Any acute complications or sequelae (including death) of above events (interval - not applicable)  
D. Events described in manufacturer's package insert as contraindications to additional doses of vaccine (interval - see package insert) |
| Pertussis in any combination; DTaP, DTP, DTP-Hib, Tdap, P, DTaP-IPV, DTaP-IPV/Hib, DTaP-HepB-IPV | A. Anaphylaxis or anaphylactic shock (7 days)  
B. Encephalopathy or encephalitis (7 days)  
C. Any acute complications or sequelae (including death) of above events (interval - not applicable)  
D. Events described in manufacturer's package insert as contraindications to additional doses of vaccine (interval - see package insert) |
| Measles, mumps and rubella in any combination; MMR, MR, M, MMRV, R         | A. Anaphylaxis or anaphylactic shock (7 days)  
B. Encephalopathy or encephalitis (15 days)  
C. Any acute complications or sequelae (including death) of above events (interval - not applicable)  
D. Events described in manufacturer's package insert as contraindications to additional doses of vaccine (interval - see package insert) |
| Rubella in any combination; MMR, MMRV, MR, R                                | A. Chronic arthritis (42 days)  
B. Any acute complications or sequelae (including death) of above event (interval - not applicable)  
C. Events described in manufacturer's package insert as contraindications to additional doses of vaccine (interval - see package insert) |
| Measles in any combination; MMR, MMRV, MR, M                                | A. Thrombocytopenic purpura (7-30 days)  
B. Vaccine-strain measles viral infection in an immunodeficient recipient (6 months)  
C. Any acute complications or sequelae (including death) of above events (interval - not applicable)  
D. Events described in manufacturer's package insert as contraindications to additional doses of vaccine (interval - see package insert) |
| Oral Polio (OPV)                                                           | A. Paralytic polio  
o in a non-immunodeficient recipient (30 days)  
o in an immunodeficient recipient (6 months)  
o in a vaccine-associated community case (interval - not applicable)  
B. Vaccine-strain polio viral infection  
o in a non-immunodeficient recipient (30 days)  
o in an immunodeficient recipient (6 months) |
<table>
<thead>
<tr>
<th>Vaccine/Toxoid</th>
<th>Event and interval from vaccination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inactivated Polio -IPV, DTaP-IPV, DTaP-IPV/HIB,</td>
<td>o in a vaccine-associated community case (interval - not applicable)</td>
</tr>
<tr>
<td>DTaP-HepB-IPV</td>
<td>C. Any acute complication or sequelae (including death) of above events (interval - not applicable)</td>
</tr>
<tr>
<td></td>
<td>D. Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
<tr>
<td>A. Anaphylaxis or anaphylactic shock (7 days)</td>
<td>B. Any acute complications or sequelae (including death) of the above event (interval - not applicable)</td>
</tr>
<tr>
<td></td>
<td>C. Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
<tr>
<td>Hepatitis B in any combination- HepB, HepA-HepB,</td>
<td>A. Anaphylaxis or anaphylactic shock (7 days)</td>
</tr>
<tr>
<td>DTaP-HepB-IPV, Hib-HepB</td>
<td>B. Any acute complication or sequelae (including death) of above event (interval - not applicable)</td>
</tr>
<tr>
<td></td>
<td>C. Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
<tr>
<td></td>
<td>Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
<tr>
<td>Hemophilus influenzae type b in any combination</td>
<td>Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
<tr>
<td>(conjugate)- Hib, Hib-HepB, DTP-Hib, DTaP-IPV/Hib</td>
<td></td>
</tr>
<tr>
<td>Varicella in any combination- VAR, MMRV</td>
<td>Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
<tr>
<td>Rotavirus (monovalent or pentavalent) RV1, RV5</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal conjugate (7-valent or 13-valent)</td>
<td>Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
<tr>
<td>PCV7, PCV13</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A in any combination- HepA, HepA-HepB</td>
<td>Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
<tr>
<td>Influenza---trivalent inactivated influenza , live</td>
<td>Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
</tbody>
</table>

Available on the web at: https://vaers.hhs.gov/resources/VAERS_Table_of_Reportable_Events_Following_Vaccination.pdf
<table>
<thead>
<tr>
<th>Vaccine/Toxoid</th>
<th>Event and interval from vaccination</th>
</tr>
</thead>
<tbody>
<tr>
<td>attenuated influenza-TIV, LAIV</td>
<td></td>
</tr>
<tr>
<td>Meningococcal - MCV4, MPSV4</td>
<td>Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
<tr>
<td>Human Papillomavirus (Quadrivalent or Bivalent)-HPV4, HPV2</td>
<td>Events described in manufacturer’s package insert as contraindications to additional doses of vaccine (interval - see package insert)</td>
</tr>
</tbody>
</table>

* Effective date: November 10, 2008. The Reportable Events Table (RET) reflects what is reportable by law (42 USC 300aa-25) to the Vaccine Adverse Event Reporting System (VAERS) including conditions found in the manufacturers package insert. In addition, healthcare professionals are encouraged to report any clinically significant or unexpected events (even if you are not certain the vaccine caused the event) for any vaccine, whether or not it is listed on the RET. Manufacturers are also required by regulation (21CFR 600.80) to report to the VAERS program all adverse events made known to them for any vaccine.
## VACCINE ADVERSE EVENT REPORTING SYSTEM

For CDC/FDA Use Only

<table>
<thead>
<tr>
<th>VAERS Number</th>
<th>Date Received</th>
</tr>
</thead>
</table>

Form completed by (Name):

Relation

- [ ] Vaccine Provider
- [ ] Patient/Parent
- [ ] Manufacturer
- [ ] Other

Physician

Address (if different from patient or provider):

City

State

Zip

Telephone no. (____) ______________________

City

State

Zip

Telephone no. (____) ______________________

### 1. State

### 2. County where administered

### 3. Date of birth

### 4. Patient age

<table>
<thead>
<tr>
<th>M</th>
<th>F</th>
</tr>
</thead>
</table>

### 5. Sex

### 6. Date form completed

<table>
<thead>
<tr>
<th>mm</th>
<th>dd</th>
<th>yy</th>
</tr>
</thead>
</table>

### 7. Describe adverse events(s) (symptoms, signs, time course) and treatment, if any

### 8. Check all appropriate:

- [ ] Life threatening illness
- [ ] Required emergency room/doctor visit
- [ ] Resulted in hospitalization (_______ days)
- [ ] Resulted in prolongation of hospitalization
- [ ] Resulted in permanent disability
- [ ] None of the above

### 9. Patient recovered

- [ ] YES
- [ ] NO
- [ ] UNKNOWN

### 10. Date of vaccination

<table>
<thead>
<tr>
<th>mm</th>
<th>dd</th>
<th>yy</th>
</tr>
</thead>
</table>

### 11. Adverse event onset

<table>
<thead>
<tr>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
</table>

### 12. Relevant diagnostic tests/laboratory data

### 13. Enter all vaccines given on date listed in no. 10

<table>
<thead>
<tr>
<th>Vaccine (type)</th>
<th>Manufacturer</th>
<th>Lot number</th>
<th>Route/Site</th>
<th>No. Previous Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 14. Any other vaccinations within 4 weeks prior to the date listed in no. 10

<table>
<thead>
<tr>
<th>Vaccine (type)</th>
<th>Manufacturer</th>
<th>Lot number</th>
<th>Route/Site</th>
<th>Date given</th>
<th>No. Previous doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 15. Vaccinated at:

- [ ] Private doctor's office/hospital
- [ ] Military clinic/hospital
- [ ] Public health clinic/hospital
- [ ] Other/unknown

### 16. Vaccine purchased with:

- [ ] Private funds
- [ ] Military funds
- [ ] Public funds
- [ ] Other/unknown

### 17. Other medications

### 18. Illness at time of vaccination (specify)

### 19. Pre-existing physician-diagnosed allergies, birth defects, medical conditions (specify)

### Only for children 5 and under

### 20. Have you reported this adverse event previously?

- [ ] No
- [ ] To health department
- [ ] To doctor
- [ ] To manufacturer

### 21. Adverse event following prior vaccination (check all applicable, specify)

<table>
<thead>
<tr>
<th>Adverse Event</th>
<th>Onset Age</th>
<th>Type Vaccine</th>
<th>Dose no. in series</th>
<th>Only for reports submitted by manufacturer/immunization project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Only for children 5 and under

### 22. Birth weight

_________ lb. _________ oz.

### 23. No. of brothers and sisters


### 25. Date received by mfr./imm.proj.

### 26. 15 day report?

- [ ] Yes
- [ ] No

### 27. Report type

- [ ] Initial
- [ ] Follow-Up

Health care providers and manufacturers are required by law (42 USC 300a-25) to report reactions to vaccines listed in the Table of Reportable Events Following Immunization. Reports for reactions to other vaccines are voluntary except when required as a condition of immunization grant awards.

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Available on the web at: https://vaers.hhs.gov/resources/vaers_form.pdf

GENERAL

• Use a separate form for each patient. Complete the form to the best of your abilities. Items 3, 4, 7, 8, 10, 11, and 13 are considered essential and should be completed whenever possible. Parents/Guardians may need to consult the facility where the vaccine was administered for some of the information (such as manufacturer, lot number or laboratory data.)
• Refer to the Reportable Events Table (RET) for events mandated for reporting by law. Reporting for other serious events felt to be related but not on the RET is encouraged.
• Health care providers other than the vaccine administrator (VA) treating a patient for a suspected adverse event should notify the VA and provide the information about the adverse event to allow the VA to complete the form to meet the VA’s legal responsibility.
• These data will be used to increase understanding of adverse events following vaccination and will become part of CDC Privacy Act System 09-20-0136, "Epidemiologic Studies and Surveillance of Disease Problems". Information identifying the person who received the vaccine or that person’s legal representative will not be made available to the public, but may be available to the vaccinee or legal representative.
• Postage will be paid by addressee. Forms may be photocopied (must be front & back on same sheet).

SPECIFIC INSTRUCTIONS

Form Completed By: To be used by parents/guardians, vaccine manufacturers/distributors, vaccine administrators, and/or the person completing the form on behalf of the patient or the health professional who administered the vaccine.

Item 7: Describe the suspected adverse event. Such things as temperature, local and general signs and symptoms, time course, duration of symptoms, diagnosis, treatment and recovery should be noted.

Item 9: Check “YES” if the patient’s health condition is the same as it was prior to the vaccine, “NO” if the patient has not returned to the pre-vaccination state of health, or “UNKNOWN” if the patient’s condition is not known.

Item 10: Give dates and times as specifically as you can remember. If you do not know the exact time, please and 11: indicate "AM" or "PM" when possible if this information is known. If more than one adverse event, give the onset date and time for the most serious event.

Item 12: Include “negative” or “normal” results of any relevant tests performed as well as abnormal findings.

Item 13: List ONLY those vaccines given on the day listed in Item 10.

Item 14: List any other vaccines that the patient received within 4 weeks prior to the date listed in Item 10.

Item 16: This section refers to how the person who gave the vaccine purchased it, not to the patient’s insurance.

Item 18: List any short term illnesses the patient had on the date the vaccine(s) was given (i.e., cold, flu, ear infection).

Item 19: List any pre-existing physician-diagnosed allergies, birth defects, medical conditions (including developmental and/or neurologic disorders) for the patient.

Item 21: List any suspected adverse events the patient, or the patient's brothers or sisters, may have had to previous vaccinations. If more than one brother or sister, or if the patient has reacted to more than one prior vaccine, use additional pages to explain completely. For the onset age of a patient, provide the age in months if less than two years old.

Item 26: This space is for manufacturers’ use only.