

Vaccination Questions Most Commonly Asked by Healthcare Professionals

Scheduling Vaccinations

Q: Why are vaccines generally not given to infants under 6 weeks of age?

A: Mainly because little safety or efficacy data exist on doses given before 6 weeks of age, and the vaccines aren't licensed for this use. The data that exist suggest that the response to doses given before 6 weeks is poor; the response to hepatitis B and BCG vaccines is the exception.

Q: The number of injections recommended to be given at a single office visit is increasing, and we are running out of injection sites. Should we defer certain vaccines?

A: We strongly recommend that you do not defer any recommended vaccines. This would be a missed opportunity. No upper limit has been established regarding the number of vaccines that can be administered in one visit. When giving several injections at a single visit, separate 2 intramuscular (IM) vaccines by at least 1 inch (2.5 cm) in the body of the muscle to reduce the likelihood of local reactions overlapping. Here is a link to a collection of illustrations (i.e., "site maps") that shows how one can administer all indicated doses to children: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/D/site-map.pdf.¹¹ If live parenteral (injected) vaccines (MMR and/or yellow fever) and live attenuated influenza vaccine (LAIV) are not administered during the same visit, they should be separated by 4 weeks or more.

Q: If I have to give more than 1 injection in a muscle, are certain vaccines best given together?

A: Since DTP and pneumococcal conjugate are the vaccines most likely to cause a local reaction, it's practical to administer them in separate limbs (if possible), so there is no confusion about which vaccine caused the reaction.

Q: What is meant by "minimum intervals" between vaccine doses?

A: Vaccination schedules are generally determined by clinical trials, usually prior to licensure of the vaccine. The spacing of doses in the clinical trial usually becomes the recommended schedule. A "minimum interval" is shorter than the recommended interval, and is the shortest time between two doses of a vaccine series in which an adequate response to the second dose can be expected.

Q: Is it necessary to start a vaccine series over if a patient doesn't come back for a dose at the recommended time, even if there's been a year or more delay?

A: For routinely administered vaccines, there is no vaccine series that needs to be restarted because of an interval that is longer than recommended. In certain circumstances, oral typhoid vaccine (which is sometimes given for international travel) needs to be restarted if the vaccine series isn't completed within the recommended time frame.

Precautions and Contraindications

Q: For which vaccines is an egg allergy a contraindication? What about MMR vaccine?

A: Influenza and yellow fever vaccines are the only vaccines that are contraindicated for people who have a history of a severe (anaphylactic) allergy to eggs. Allergy to eggs is no longer considered a contraindication for giving MMR vaccine. Though measles and mumps vaccines are grown in chick embryo tissue culture, several studies have documented the

safety of these vaccines in children with severe egg allergy.

Q: What are the special recommendations for administering intramuscular injections in people with clotting disorders?

A: IM injections should be scheduled shortly after antihemophilia therapy or prior to a dose of anticoagulant. For both IM and SC (subcutaneous) injections, a fine needle (23 gauge or smaller) should be used and firm pressure (subcutaneous) applied to the site, without rubbing, for at least 2 minutes. Providers should not administer a vaccine by a route that is not approved for that particular vaccine (e.g., administration of IM vaccines by the SC route).

Administering Vaccines

Q: Is it necessary to wear gloves when we administer vaccinations?

A: No. Occupational Safety and Health Administration (OSHA) regulations do not require healthcare personnel to wear gloves when administering vaccinations, unless the healthcare worker is likely to come into contact with potentially infectious body fluids or has an open lesion on her or his hand

If a healthcare worker chooses to wear gloves, he or she must change them between each patient encounter.

Q: Are vaccine diluents interchangeable?

A: As a general rule vaccine diluents are not interchangeable.

Q: When a vaccine vial is new and the cap has just been removed, is the rubber stopper sterile, or should it be cleansed with alcohol before inserting the needle?

A: The rubber stopper is not sterile. When you remove the protective cap from a vaccine or diluent vial, you should always clean the stopper with an alcohol wipe.

Q: Is it okay to draw up vaccines at the beginning of the shift? If it isn't, how much in advance can this be done?

A: PAHO discourages the practice of prefilling vaccine into syringes, primarily because of the increased possibility of administration and dosing errors. Another reason to discourage the practice in general is that some vaccines have a very limited shelf life after reconstitution.

Q: Is it necessary to aspirate before vaccinating?

A: No. PAHO does not recommend aspirating (pulling back on the syringe plunger once the needle is in the arm before injecting, to see if you get blood return) when administering vaccines. No data exist to justify the need for this practice. IM injections are not given in areas where large vessels are present. Given the size of the needle and the angle at which you inject the vaccine, it would be very difficult to administer the vaccine intravenously.

Q: If a dose of vaccine is given by the wrong route (IM instead of SC or vice versa), does it need to be repeated?

A: Although vaccines should always be given by the route recommended by the manufacturer, if a vaccine is inadvertently given by the wrong route, PAHO recommends that it be counted as valid with two exceptions: Hepatitis B or rabies vaccine given by any route other than IM should not be counted as valid and should be repeated.

Q: What length of needle should be used to give infants IM injections?

A: PAHO recommends that a 5/8" needle be used to administer IM injections in a newborn or premature infant only if the skin is stretched

tight and the subcutaneous tissues are not bunched. For infants age 1 month or older, IM injections should be given in the anterolateral thigh with a 1" needle.

Regarding Persons With Health Conditions

Q: Is there any reason to delay or adjust the immunization schedule for children with Down syndrome?

A: No. Children with Down syndrome should receive all indicated vaccines on the recommended schedule. These children are often at greater risk for complications from vaccine-preventable diseases than are children without Down syndrome.

Q: Should vaccines be withheld for patients on steroids?

A: Steroid therapies that are short term (less than 2 weeks); alternate-day; physiologic replacement; topical (skin or eyes); aerosol; or given by intra-articular, bursal, or tendon injection are not considered contraindications to the use of live virus vaccines. The immunosuppressive effects of corticosteroid treatment vary, but many clinicians consider a dose equivalent to either 2 mg/kg of body weight or a total of 20 mg per day of prednisone for 2 or more weeks as sufficiently immunosuppressive to raise concern about the safety of vaccination with live virus vaccines (e.g., MMR, varicella, LAIV, yellow fever). Providers should wait at least 1 month after discontinuation of therapy or reduction of dose before administering a live virus vaccine to patients who have received high systemically absorbed doses of corticosteroids for 2 weeks or more. Inactivated vaccines and toxoids can be administered to all immunocompromised patients in usual doses and schedules, although the response to these vaccines may be suboptimal.

Q: Should you administer vaccine to a person who is taking antibiotics?

A: Treatment with antibiotics is not a valid reason to defer vaccination. If the child or adult is otherwise well, or has only a minor illness, vaccines should be administered. But if the person has a moderate or severe acute illness (regardless of antibiotic use) one should defer vaccination until the person's condition has improved.

A "moderate or severe acute illness" is a precaution for administering any vaccine. A mild acute illness (e.g., diarrhea or mild upper-respiratory tract infection) with or without fever is not. The concern in vaccinating someone with moderate or severe illness is that a fever following the vaccine could complicate management of the concurrent illness (that is, it could be difficult to determine if the fever was from the vaccine or due to the concurrent illness). In deciding whether to vaccinate a patient with moderate or severe illness, the clinician needs to determine if forgoing vaccination will increase the patient's risk to vaccine-preventable diseases, as is the case if the patient is unlikely to return for vaccination or to seek vaccination elsewhere. It is important to ensure vaccination soon after the person recovers.

Note: The U.S. Centers for Disease Control and Prevention CDC publishes Vaccine Information Statements (VISs) in English only, but translations done by other sources are also available. To access all currently available VISs in more than 35 languages and some alternative formats (audio/video), go to the Immunization Action Coalition's website at www.immunize.org/vis.

Adapted from http://www.immunize.org/askexperts/experts_general.asp on 12 November 2010. We thank the Immunization Action Coalition and the U.S. Centers for Disease Control and Prevention. Additional "Ask the Experts" Q&As can be consulted online at <http://www.immunize.org/askexperts>.

¹¹ Information is also available from previous issues of the *Immunization Newsletter*: How to administer Intramuscular (IM) Injections (April 2003) (available at <http://www.paho.org/english/ad/fch/im/sne2502.pdf>) and How to Administer Subcutaneous (SC) Injections (June 2003) (available at <http://www.paho.org/english/ad/fch/im/sne2503.pdf>).