SARS-CoV-2 VACCINE
ADMINISTRATION TRAINING[1]

Infection Control and Sterile Technique

General Precautions

Persons administering vaccinations should follow appropriate precautions to minimize risk for disease exposure and spread. Hands should be cleansed with an alcohol-based waterless antiseptic hand rub or washed with soap and water before preparing vaccines for administration and between each patient contact. Occupational Safety and Health Administration (OSHA) regulations do not require gloves to be worn when administering vaccinations, unless persons administering vaccinations have open lesions on their hands or are likely to come into contact with a patient's body fluids. If worn, gloves should be changed between patients.

Safe Use of Needles and Syringes

Needles and syringes used for vaccine injections must be sterile and disposable. A separate needle and syringe should be used for each injection. Bloodborne diseases (e.g., hepatitis B, hepatitis C, human immunodeficiency virus [HIV]) are occupational hazards for clinicians and other health-care providers. The Needlestick Safety and Prevention Act was enacted in 2000 to reduce the incidence of needlestick injury and the consequent risk for bloodborne diseases acquired from patients. These federal regulations require the use of engineering and work practice controls to eliminate or minimize employee exposure to bloodborne pathogens (see https://www.osha.gov/SLTC/bloodbornepathogens/standards.html). Engineering controls means controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the workplace. Additional information about implementation and enforcement of these regulations is available from OSHA. To prevent inadvertent needlestick injury or reuse, safety mechanisms should be deployed after use and needles and syringes should be discarded immediately in labeled, puncture-proof containers located in the same room where the vaccine is administered. Used needles should never be recapped.

Route of Administration

Injectable Route- SARS-CoV-2 vaccines are administered via Intramuscular (IM) injection

Routes of administration are recommended by the manufacturer for each vaccine. Deviation from the recommended route of administration might reduce vaccine efficacy or increase the risk for local adverse reactions. The method of administration of injectable vaccines is determined, in part, by the inclusion of adjuvants in some vaccines. To decrease risk of local adverse events, inactivated vaccines containing an adjuvant should be injected into a muscle.

[1] Adapted from Northwestern Medicine North Region EMS System, Chicago, IL

Intramuscular Injections

Injectable vaccine should be administered where local, neural, vascular, or tissue injury is unlikely. Use of longer needles has been associated with less redness or swelling than occurs with shorter needles because of injection into deeper muscle mass. Appropriate needle length depends on age and body mass. Injection technique is the most important parameter to ensure efficient intramuscular vaccine delivery. For all intramuscular injections, the needle should be long enough to reach the muscle mass and prevent vaccine from seeping into subcutaneous tissue, but not so long as to involve underlying nerves, blood vessels, or bone. Vaccinators should be familiar with the anatomy of the area into which they are injecting vaccine.

Intramuscular injections are administered at a 90-degree angle to the skin, preferably into the anterolateral aspect of the thigh or the deltoid muscle of the upper arm, depending on the age of the patient (Table 1). For purposes of the SARS-CoV-2 vaccines, it will be in the deltoid muscle. The needle gauge for intramuscular injection is 22-25 gauge. A decision on needle length and site of injection must be made for each person on the basis of the size of the muscle, the thickness of adipose tissue at the injection site, the volume of the material to be administered, injection technique, and the depth below the muscle surface into which the material is to be injected (Figure 1). If the subcutaneous and muscle tissue are bunched to minimize the chance of striking bone, a 1-inch needle or larger is required to ensure intramuscular administration. Aspiration before injection of vaccines or toxoids (i.e., pulling back on the syringe plunger after needle insertion but before injection) is not necessary because no large blood vessels are present at the recommended injection sites.

Clinical Implications of Nonstandard Vaccination Practices

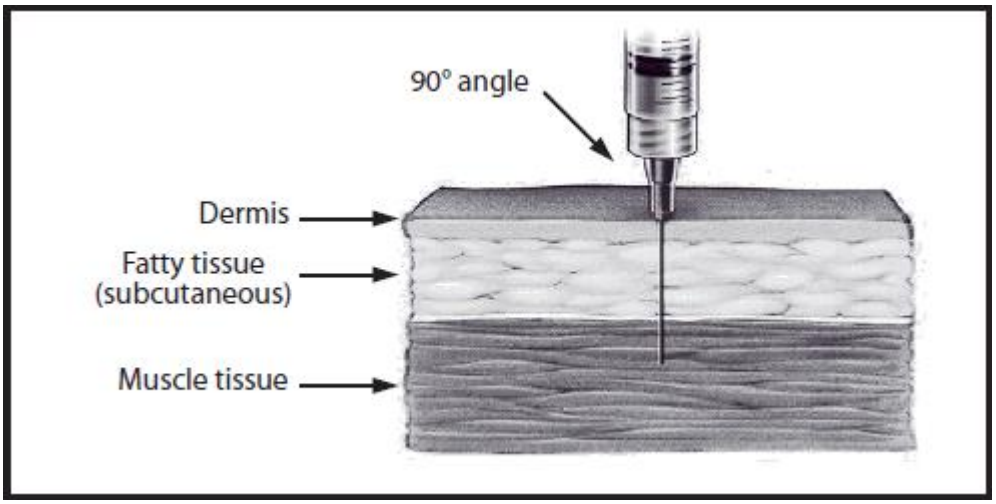
Best practice guidance for route, site, and dosage of vaccines is derived from data from clinical trials, practical experience, normal periodicity of health-care visits, and theoretical considerations. ACIP discourages variations from the recommended route, site, volume, or number of doses of any vaccine. Variation from the recommended route and site can result in inadequate protection.

TABLE 1. Needle length and injection site of Intramuscular (IM) injections for children aged ≤18 years (by age) and adults aged ≥19 years (by sex and weight)

Age group	Needle length	Injection site
Children, 6-10 years	5/8-1 inch (16-25 mm)	Deltoid muscle of arm (preferred)
	1-1.25 inches (25-32 mm)	Anterolateral thigh

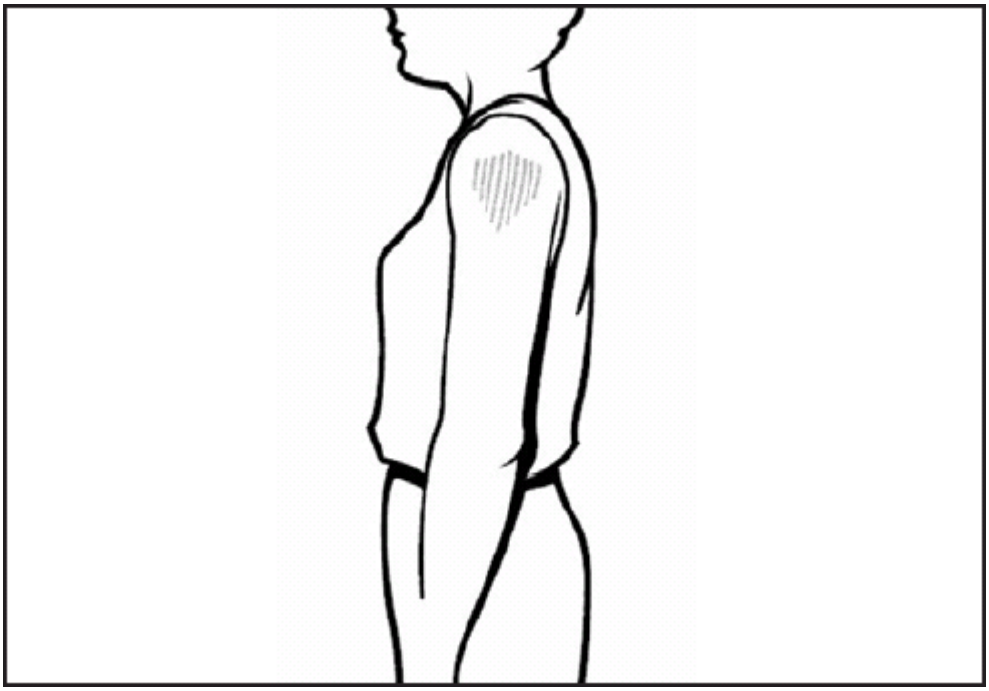
Children, 11-18 years	5/8-1 inch (16-25 mm) 1-1.5 inches (25-38 mm)	Deltoid muscle of arm (preferred) Anterolateral thigh
Adults (≥19 years)		
Men and women, <60 kg (130 lbs)	1 inch (25 mm)	Deltoid muscle of arm
Men and women, 60-70 kg (130-152 lbs)	1 inch (25 mm)	
Men, 70-118 kg (152-260 lbs)	1-1.5 inches (25-38 mm)	
Women, 70-90 kg (152-200 lbs)		
Men, >118 kg (260 lbs)	1.5 inches (38 mm)	
Women, >90 kg (200 lbs)		

Figure 1. Intramuscular needle insertion



Source: Adapted from California Immunization Branch. This drawing shows intramuscular needle insertion into a cross- section of skin. The needle is inserted at a 90-degree angle and penetrates the dermis, fatty tissue (subcutaneous), and muscle tissue.

Figure 2. Intramuscular site of administration: deltoid



Source: Adapted from Minnesota Department of Health. This line drawing is a side view of an adult. The deltoid muscle of the arm is shaded, showing the proper site for intramuscular vaccine administration.

REFERENCE
Centers for Disease Control and Prevention, Advisory Committee on Immunization Practices
General Best Practice Guidelines for Immunization: Vaccine Administration
https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/administration.html