

Guidelines for subcutaneous and intramuscular injection

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SUBCUTANEOUS INJECTIONS

AGE	APPROPRIATE INJECTION SITE(S)	NEEDLE LENGTH/GAUGE	RECOMMENDED MAXIMUM VOLUME†
Birth to 12 months	Fatty tissue overlying vastus lateralis muscle (anterolateral thigh)	5/8" / 23–27 gauge	0.5 to 1 mL
12 months and older	Fatty tissue overlying triceps (preferred) or vastus lateralis (anterolateral thigh)*	5/8" / 23–25 gauge	0.5 to 2 mL[§]

*The abdomen (except the navel and waistline) and upper outer portion of the buttocks may be used for subcutaneous injection of medications (e.g. heparin, insulin), particularly larger volumes. Immunizations should be administered to the anterolateral thigh or upper arm as above.

The above table assumes a 45-degree injection angle. Alternatively, a 90-degree angle may be used if 2 inches of skin can be grasped between thumb and forefinger OR if a shorter needle length (3/8") is used.

†Recommended volume depends on patient-specific factors including:

- Age
- Weight
- Sex (adolescents and adults only)
- Subcutaneous adipose tissue
- Injection site

§Larger volumes may cause more discomfort; the fatty tissue overlying the abdomen should be used for medication volumes greater than 1 mL to reduce discomfort. If leakage or adverse reactions occur at the injection site, consider reduced volumes for subsequent injections

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INTRAMUSCULAR INJECTIONS

AGE	<u>APPROPRIATE INJECTION SITE(S)*</u>	<u>NEEDLE LENGTH[†] & GAUGE (G)[§]</u>	<u>RECOMMENDED MAXIMUM VOLUME</u> ♦
Pre-term (less than 37 weeks gestation) and term neonates less than 1 month	vastus lateralis (anterolateral thigh)	5/8" (23–25 G)	1 mL
1 to 12 months	vastus lateralis (anterolateral thigh)	5/8"-1" (23–25 G)	1 mL
1 to 2 years	vastus lateralis (preferred)	5/8"-1 ¼" (22-25 G)	1 mL
	deltoid (ONLY if vastus lateralis unavailable)	5/8"-1" (22-25 G)	0.5 mL
3 to 5 years	deltoid (preferred)	5/8"-1" (22-25 G)	1 mL
	vastus lateralis (anterolateral thigh)	1"-1 ¼" (22-25 G)	1.5 mL
6 to 15 years	deltoid (preferred)	5/8"-1" (22-25 G)	1.5 mL
	vastus lateralis (anterolateral thigh)	1"-1 ½" (22-25 G)	3 mL
15 to 18 years	deltoid (preferred)	Less than 60 kg: 5/8"-1" 60 kg or more: 1"-1 ½" (22-25 G)	2 mL
	vastus lateralis (anterolateral thigh)	1"-1 ½" (22-25 G)	5 mL
Adult Female	deltoid	Less than 60 kg: 5/8"-1" 60-90 kg: 1"-1 ½" More than 90 kg: 1 ½" (22-25 G)	2 mL
	vastus lateralis (anterolateral thigh)	1"-1 ½" (22-25 G)	5 mL
	ventrogluteal	1 ½" (22 G)	5 mL
Adult Male	deltoid	Less than 60 kg: 5/8"-1" 60-118 kg: 1"-1 ½" More than 118 kg: 1 ½" (22-25 G)	2 mL
	vastus lateralis (anterolateral thigh)	1"-1 ½" (22-25 G)	5 mL

*The ventrogluteal site may be used for children greater than 7 months when large volumes or viscous solutions must be administered (e.g. injectable antipsychotics, immunoglobulins, depot medications). It should not be used for the administration of immunizations.

AGE	INJECTION SITE*	NEEDLE LENGTH [†] & GAUGE (G) [§]	MAXIMUM VOLUME
5 years and under	ventrogluteal	5/8" (22 G)	1.5 mL
6 to 15 years	ventrogluteal	1"-1 ½" (22 G)	2.5 mL
15 years and older	ventrogluteal	1 ½" (22 G)	5 mL

The dorsogluteal site is **not recommended in children** due to the risk of damage to the sciatic nerve and gluteal artery.

†Where allowed, 5/8" needle lengths are usually adequate if the skin is stretched flat between the thumb and forefinger and the needle is inserted at a 90-degree angle to the skin

§Select gauge based on viscosity of product; viscous products (e.g. immunoglobulins, injectable antipsychotics, depot medications) require larger needles (i.e. 22 G or larger). If using a narrow (i.e. 25 gauge) needle for IM injection, inject slowly over 5 seconds to reduce injection pain and muscle trauma. Smaller gauges, (i.e. 23 G or smaller) are preferred for patients with bleeding disorders

◆For long-acting injectable antipsychotics, manufacturer recommend sites and volumes may differ from those above. Please follow the product-specific labelling when available.