

## Immunization Pharmacy Protocol

Recommended Sites for Simultaneous Vaccine Administration	
Last Reviewed	24 November 2022
Last Revised	24 November 2022
This order expires	30 November 2024

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### 1. What’s new

Added additional vaccines that have been approved since the last publication in 2020.

## 2. Oregon immunization pharmacy protocol

- A. Vaccinators must be familiar with the anatomy of the area where they are administering vaccines.
- B. Determine needle size and site for injection for each patient based on patient's age, body mass, the vaccine volume and correct route for administration. See tables below.
- C. Vaccinator and patient should be positioned so that vaccinator can easily identify anatomical landmarks. For older children and adults, having vaccinator and patient at the same eye level is ideal.
- D. Comfort measures, such as distraction (e.g., playing music or pretending to blow away the pain), cooling of the injection site(s), topical analgesia, ingestion of sweet liquids, breastfeeding, swaddling, and slow, lateral swaying can help infants or children cope with the discomfort associated with vaccination.
- E. Ask client to remain seated on the premises for 15 minutes after vaccination to decrease the risk of injury should they faint.

I have read, understand and agree to participate by the terms of this protocol.

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Immunizing pharmacist

Date

### 3. Needle size and route

<b>Intramuscular (IM) Route: 22–25 -gauge needle</b>			
<b>Age</b>	<b>Needle length</b>	<b>Preferred injection Site</b>	<b>Alternate site / Notes</b>
Children 7–10 years of age	5/8"–1"	Deltoid muscle of arm	Anterolateral thigh muscle
Adolescents 11–18 years of age	5/8"–1"	Deltoid muscle of arm	Anterolateral thigh muscle (1–1½" needle)
<b>Adults</b>			
Female or male <130 lbs	5/8"	Deltoid muscle of arm	Stretch skin flat between the thumb and forefinger and insert needle at a 90° angle
Female or male 130–152 lbs	1"	Deltoid muscle of arm	Anterolateral thigh muscle
Female 153–200 lbs Male 153–260 lbs	1–1½"		
Female 200+ lbs Male 260+ lbs	1½"		
<b>Subcutaneous (SQ) Route: 23–25 -gauge needle</b>			
<b>Age</b>	<b>Needle length</b>	<b>Preferred injection Site</b>	
Children ≥7 years of age – adults	5/8"	Fatty tissue over triceps or Fatty tissue over anterolateral thigh muscle	
<b>Other Routes – Oral and Nasal</b>			
<b>Age</b>	<b>Route</b>	<b>Notes</b>	
Children ≥7 years of age and adults	Oral		
Children ≥7 years of age and adults	Nasal	Insert tip of sprayer slightly into naris. Spray half of contents into one naris. Remove dose-divider clip and repeat procedure in other naris.	

### 4. U.S. Licensed vaccines – Dose and Route

<b>Vaccine Antigens</b>	<b>Product Name</b>	<b>Dose</b>	<b>Route</b>
Cholera	Vaxchora®	Powder	Oral
<b>COVID-19 Vaccines</b>			
COVID-19	Comirnaty® (18+)	0.3 mL	IM

Vaccine Antigens	Product Name	Dose	Route
	Spikevax® (18+)	0.5 mL	IM
	Pfizer bivalent booster (5–11)	0.2 mL	IM
	Pfizer bivalent booster (12+)	0.3 mL	IM
	Pfizer (3years–4 years)	0.2 mL	IM
	Pfizer (5–11 years)	0.2 mL	IM
	Pfizer (12–17 years)	0.3 mL	IM
	Moderna (3 years–5 years)	0.25 mL	IM
	Moderna (6 years–11 years)	0.5 mL	IM
	Moderna (12+)	0.5 mL	IM
	Moderna bivalent booster (6–11 years)	0.25 mL	IM
	Moderna bivalent booster 12+)	0.5 mL	IM
	Novavax (12+)	0.5 mL	IM
	Dengue	Dengvaxia®	0.5 mL
<b>Diphtheria-Tetanus -Containing Vaccines</b>			
Tdap	Adacel®	0.5 mL	IM
	Boostrix®		
Td	Tenivac®		
	TDVax™		
Haemophilus influenzae type b (Hib)	ActHIB®		
	Hiberix®		
	PedvaxHIB®		
Hepatitis A pediatric (HepA)	Havrix®	0.5 mL	IM
	Vaqta®		
Hepatitis A adult (HepA)	Havrix®	1.0 mL	IM
	Vaqta®		
Hepatitis A – Hepatitis B (HepA-HepB)	Twinrix®	1.0 mL	IM
Hepatitis B pediatric (HepB)	Engerix-B®	0.5 mL	
	Recombivax HB®		

Vaccine Antigens	Product Name	Dose	Route
Hepatitis B adult (HepB)	Engerix-B®	1.0 mL	
	Recombivax HB®		
	Prehevbrio™		
	Hepelisav-B®	0.5 mL	
Human Papilloma Virus (HPV)	Guardasil 9®	0.5 mL	IM
Inactivated influenza	Afluria Quadrivalent®	0.5 mL*	IM
	Fluad®	0.5 mL	
	Fluad Quadrivalent®		
	Fluarix Quadrivalent®		
	Flublok Quadrivalent®		
	Flucelvax Quadrivalent®		
	FluLaval Quadrivalent®		
	Fluzone High Dose®	0.7 mL	
Fluzone Quadrivalent®	0.5 mL		
Live, attenuated influenza	Flumist Quadrivalent®	0.2 mL	Nasal
Japanese encephalitis	Ixiaro®	0.5 mL	IM
Measles, Mumps, Rubella (MMR)	M-M-R II®	0.5 mL	SQ
Measles, Mumps, Rubella and varicella (MMRV)	Proquad®		
Meningococcal Conjugate (MenACWY)	Menveo®		
	MenQuadfi®		
Meningococcal Serogroup B (MenB)	Bexsero®	0.5 mL	IM
	Trumenba®		
Pneumococcal Conjugate (PCV)	Prevnar 13®	0.5 mL	IM
	Prevnar 20™		
	Vaxneuvance™		
Pneumococcal Polysaccharide (PPV23)	Pneumovax 23®	0.5 mL	IM or SQ
Polio, inactivated (IPV)	Ipol®	0.5 mL	IM or SQ

Vaccine Antigens	Product Name	Dose	Route
Rabies	Imovax®	0.5 mL	IM
	RabAvert®		
Typhoid	Typhim VI®	0.5 mL	IM
	Vivotif®	Capsules	Oral
Varicella (Var)	Varivax®	0.5 mL	SQ
Yellow Fever	YF-Vax®	0.5 mL	SQ
Zoster	Shingrix®	0.5 mL	IM

## 5. Recommendations for use

N/A

## 6. Contraindications

N/A

## 7. Warnings and precautions

N/A

## 8. Other considerations

- A. Inactivated vaccines containing an adjuvant should be injected into a muscle. Administering a vaccine containing an adjuvant either subcutaneously or intradermally can cause local irritation, induration, skin discoloration, inflammation, and granuloma formation.
- B. If multiple injections are to be given in a single visit, use different anatomic sites when possible. For younger children, if more than 2 vaccines are injected in a single limb, the thigh is the preferred site because of greater muscle mass.
- C. Multiple injections given in the same extremity should be separated by a minimum of 1".
- D. 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.

- E. Different vaccines should never be mixed in the same syringe unless specifically licensed for such use.
- F. Single-dose vials and manufacturer-filled syringes are designed for single-dose administration and should be discarded if vaccine has been withdrawn or reconstituted and not used within the time frame specified by the manufacturer. Syringes that are prefilled by the manufacturer and activated (i.e., syringe cap removed or needle attached) but unused should be discarded at the end of the clinic day.
- G. Changing needles between drawing vaccine from a vial and injecting it into a recipient is not necessary unless the needle has been damaged or contaminated.
- H. 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, and a process that includes aspiration might be more painful for infants.
- I. The buttock is not an acceptable site for vaccine administration. Doses of hepatitis B and rabies given in the buttock are not valid and must be repeated.
- J. In patients with bleeding disorders, the risk of bleeding after an IM injection can be minimized by vaccine administration immediately after receipt of replacement factor, use of a 23-gauge (or smaller) needle, and immediate application of direct pressure to the immunization site for at least 2 minutes by the clock.

## 9. Side effects and adverse reactions

N/A

## 10. Storage and handling

N/A

## 11. Adverse events reporting

Report suspected adverse events to the Vaccine Adverse Events Reporting System (VAERS) online at <https://vaers.hhs.gov/reportevent.html>. VAERS Reporting Table: <https://vaers.hhs.gov/resources/infoproviders.htm>

## 12. References

1. Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Available at: [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html). Accessed 10

To request this material in an alternative format (e.g., Braille) or to clarify any part of the above order, contact the Oregon Health Authority Immunization Program at 971-673-0300 and 711 for TTY. For other questions, consult with the vaccine recipient's primary health care provider or a consulting physician.

Electronic copy of this standing order is available at: [standing orders](#)

Electronic copy of this pharmacy protocol is available at: [protocols](#)

### 13. Appendix

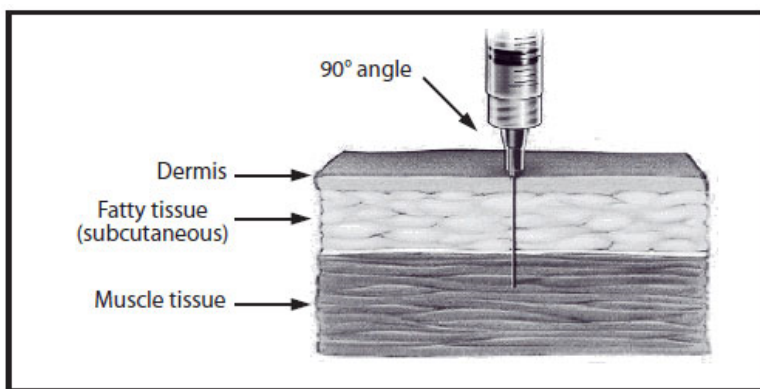


Figure 1. Intramuscular needle insertion

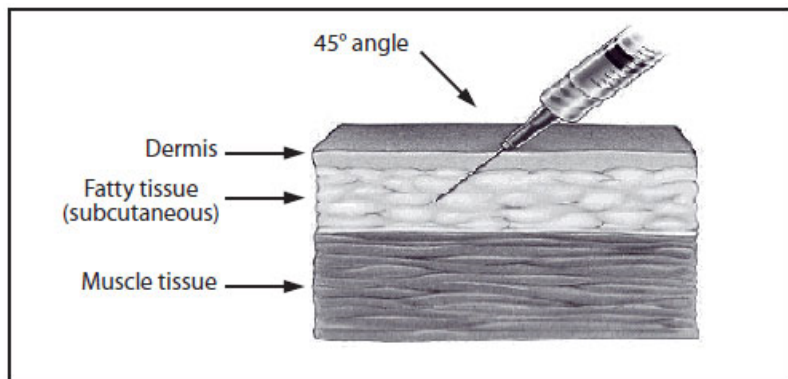


Figure 2. Subcutaneous needle insertion





Figure 3. Anterolateral thigh – use for intramuscular/subcutaneous vaccine administration in infants.

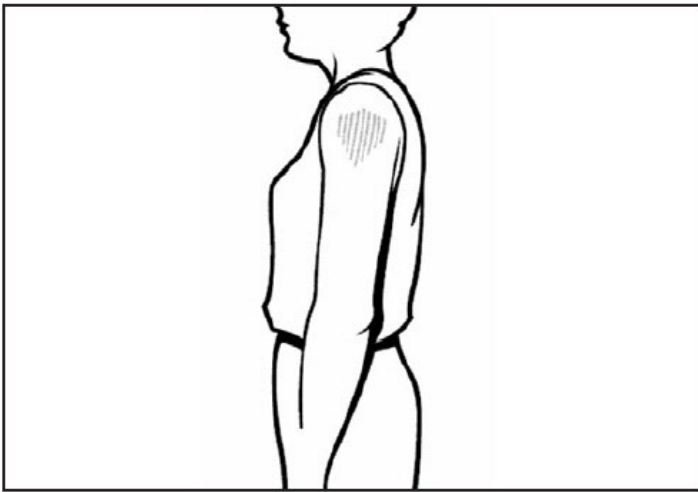


Figure 4. Deltoid – use for intramuscular vaccine administration in older children and adults.

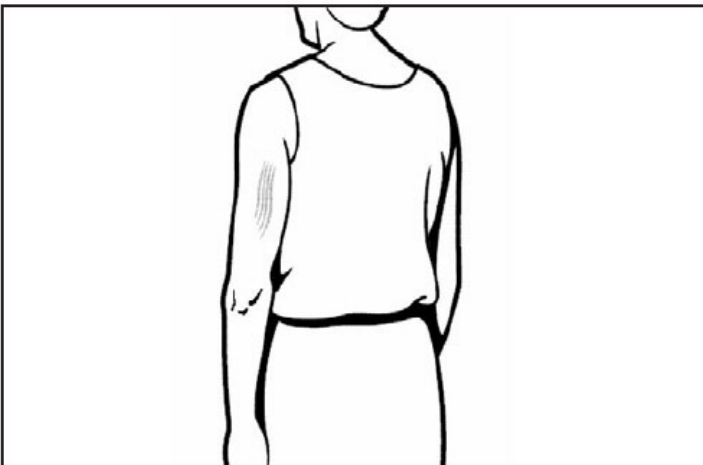


Figure 5. Tricep – use for subcutaneous vaccine administration in older children and adults.