

Preventing Vaccine Administration Errors

Julie Tomaro, RN, MPH

PUBLIC HEALTH
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Case Study #1

Isabella, a 4 year old new to your office, received 0.25mL dose of Fluzone on 9/5/17 according to the Immunization Information System. There is no documentation of previous flu doses.

www.immunize.org/catg.d/p4072.pdf

Questions:

1. Is the 0.25mL dose of Fluzone appropriate for her age?
2. What, if anything, needs to be done about the dose of Fluzone?
3. Does she need a second flu vaccine dose this season?

Influenza Vaccine Products for the 2017–2018 Influenza Season

Manufacturer	Trade Name (vaccine abbreviation) ¹	How Supplied	Mercury Content (mg/100.5mL)	Age Group	Vaccine Product Billing Code ²	
					CPT	Medicare
AstraZeneca	FluMist [®] (LAIV4)	0.2 mL (single-use nasal spray)	0	2 through 49 years	90672	90672
ClaxoSmithKline	Fluarix (IV4)	0.5 mL (single-dose syringe)	0	3 years & older	90686	90686
ID Biomedical Corp. of Quebec, a subsidiary of ClaxoSmithKline	FluLaval (IV4)	0.5 mL (single-dose syringe)	0	6 months & older	90686	90686
	FluLaval (IV4)	5.0 mL (multi-dose vial)	~25	6 months & older	90688	90688
Protein Sciences Corp.	FluLok (RV3)	0.5 mL (single-dose vial)	0	18 years & older	90673	90673
	FluLok (RV4)	0.5 mL (single-dose syringe)	0	18 years & older	90682	90682
		0.25 mL (single-dose syringe)	0	6 through 35 months	90655	90655
		0.5 mL (single-dose syringe)	0	3 years & older	90656	90656
	Fluzone (IV4)	0.5 mL (single-dose vial)	0	3 years & older	90656	90656
		5.0 mL (multi-dose vial)	25	6 through 35 months	90687	90687
Sanofi Pasteur, Inc.		0.5 mL (multi-dose vial)	25	3 years & older	90688	90688
	Fluzone High-Dose (IV3-HD)	0.5 mL (single-dose syringe)	0	65 years & older	90662	90662
	Fluzone Intradermal (IV4-ID)	0.1 mL (single-dose microinjection system)	0	18 through 64 years	90630	90630
	Afluria (IV3)	0.5 mL (single-dose syringe)	0	5 years & older ⁴	90656	90656
		5.0 mL (multi-dose vial)	24.5	5 years & older ⁴	90658	Q2035
	Afluria (IV4)	0.5 mL (single-dose syringe)	0	5 years & older ⁴	90686	90686
		5.0 mL (multi-dose vial)	24.5	5 years & older ⁴	90688	90688
Seqirus	Fluad (aIV3)	0.5 mL (single-dose syringe)	0	65 years & older	90653	90653
	Fluarix (IV3)	0.5 mL (single-dose syringe)	~1	4 years & older	90656	90656
		5.0 mL (multi-dose vial)	25	4 years & older	90658	Q2037
	Flucelex (ccIV4)	0.5 mL (single-dose syringe)	0	4 years & older	90674	90674
		5.0 mL (multi-dose vial)	25	4 years & older	90749/90750 ⁵	Q2039/90750 ⁵

FOOTNOTES

1. INFLIVAX = egg-based trivalent/quadrivalent inactivated influenza vaccine (bivalent); where necessary to refer to cell culture-based vaccine, the prefix "cc" is used (e.g., ccIV3/ccIV4); INFLIVAX = trivalent/quadrivalent recombinant hemagglutinin influenza vaccine (trivalent); AIV3 = adjuvanted trivalent inactivated influenza vaccine.
2. An administration code should always be reported in addition to the vaccine product code. Note: Third party payers may have specific policies and guidelines that might require providing additional information on their claim forms.
3. Live attenuated influenza vaccine (LAIV) (FluMist) is not recommended by CDC's Advisory Committee on Immunization Practices for use in the U.S. for the 2017–18 influenza season.
4. Afluria is approved by the Food and Drug Administration for intramuscular administration with the Pharmject Stratis.
5. Needs-Free Injection System for persons age 18 through 64 years.
6. CPT code 90756 was released on July 1, 2017 for implementation on January 1, 2018. Payers may implement the code based on beneficiaries' needs any time after the code's release. The CPT Editorial Panel allowed a 6-month period to allow payers adequate time to prepare their systems; however, processing periods for individual payers may accommodate a more abbreviated timeframe.

The Centers for Medicare & Medicaid Services (CMS) will implement vaccine code 90756 on January 1, 2018. Before January 1, 2018, claims should use the HCPCS Healthcare Common Procedure Coding System Q2039 when billing Medicare.

IMMUNIZATION ACTION COALITION Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

Technical content reviewed by the Centers for Disease Control and Prevention

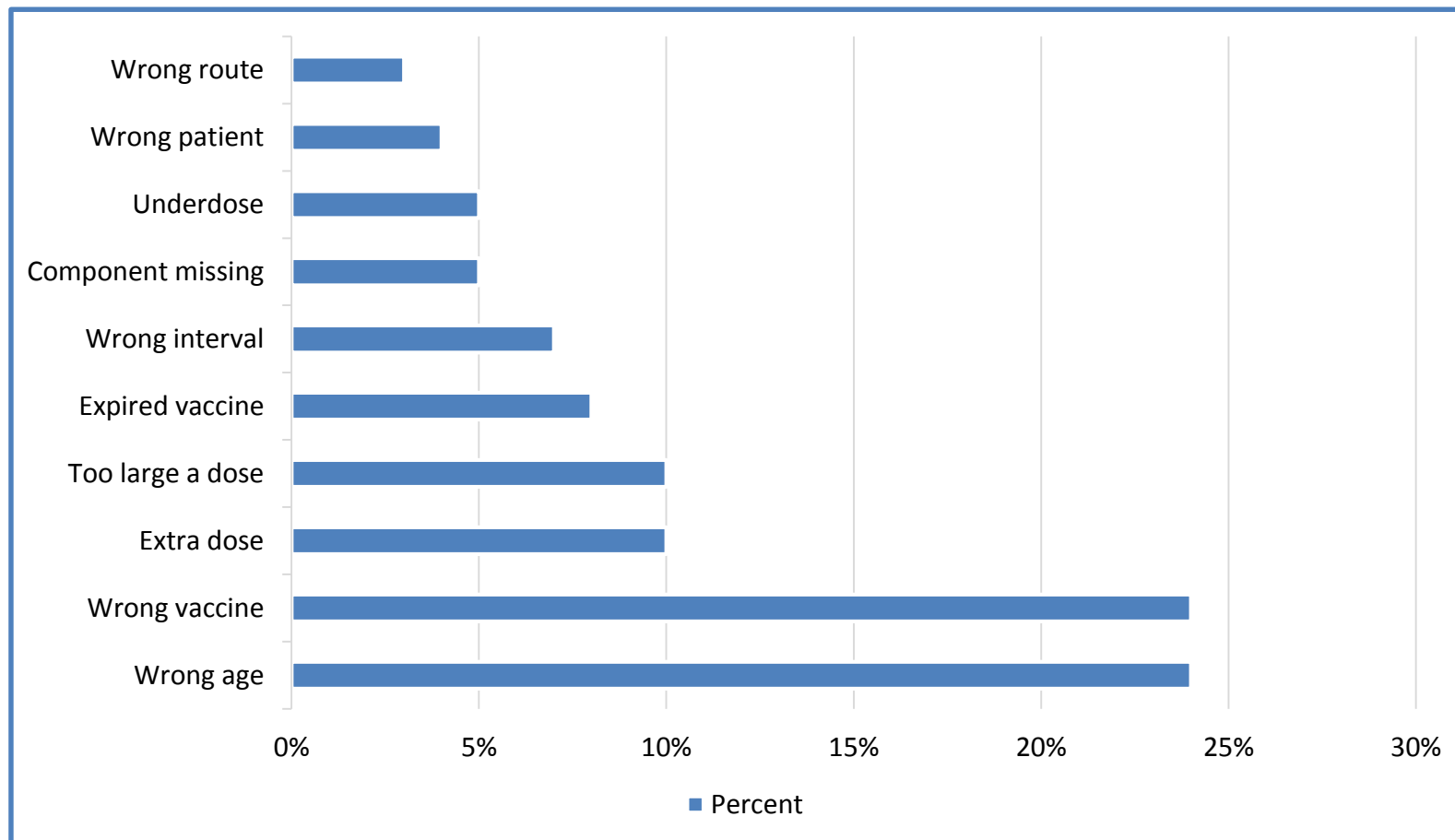
Case Study #2

Two patients in our clinic were given the DTaP-IPV component of Pentacel and one patient was only given the Hib component.

Questions:

1. Does this count as a valid dose of DTaP and IPV?
2. Can we mix the unused Hib component with sterile water and give it separately?
3. Does the patient who received the Hib component need to have another Hib dose?

What are the most common vaccine administration errors?



Why worry about appropriate vaccine administration?

- Limit vaccine adverse reactions
- Optimize the immune response
- Based on clinical trials that determine the dose, route, and schedule for each vaccine

Errors can affect cost, convenience, effectiveness, and confidence in vaccine and providers

Know the “7 Rights” of Vaccine Administration

www.immunize.org/catg.d/p2020.pdf

#1: Right patient

- Provide culturally and linguistically appropriate education

#2: Right time

#3: Right vaccine (and diluent)

#4: Right dosage

#5: Right route, needle, and technique

#6: Right injection site

#7: Right documentation

- Provide most current VIS in an appropriate language

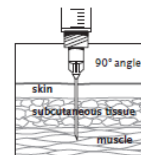
Administration by the Intramuscular (IM) Route

Administer these vaccines via IM route

- Diphtheria-tetanus-pertussis (DTaP, Tdap)
 - Diphtheria-tetanus (DT, Td)
 - *Haemophilus influenzae* type b (Hib)
 - Hepatitis A (HepA)
 - Hepatitis B (HepB)
 - Human papillomavirus (HPV)
 - Inactivated influenza (IIV)
 - Meningococcal serogroup B (MenB)
 - Quadrivalent meningococcal conjugate (MenACWY [MCV4])
 - Pneumococcal conjugate (PCV13)
- Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPSV23) vaccines either IM or Subcut.

PATIENT AGE	INJECTION SITE	NEEDLE SIZE
Newborn (0–28 days)	Anterolateral thigh muscle	½”* (22–25 gauge)
Infant (1–12 months)	Anterolateral thigh muscle	1”* (22–25 gauge)
Toddler (1–2 years)	Anterolateral thigh muscle	1–1¼” (22–25 gauge)
	Alternate site: Deltoid muscle of arm if muscle mass is adequate	½–1”* (22–25 gauge)
Children (3–18 years)	Deltoid muscle (upper arm)	½–1”* (22–25 gauge)
	Alternate site: Anterolateral thigh muscle	1–1¼”* (22–25 gauge)
Adults 19 years and older	Deltoid muscle (upper arm)	1–1½”** (22–25 gauge)
	Alternate site: Anterolateral thigh muscle	1–1½”* (22–25 gauge)

* A ½” needle usually is adequate for neonates (first 28 days of life), preterm infants, and children ages 1 through 18 years if the skin is stretched flat between the thumb and forefinger and the needle is inserted at a 90° angle to the skin.
 † A ½” needle may be used in patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the skin is stretched tight, the subcutaneous tissue is not bunched, and the injection is made at a 90° angle; a 1” needle is sufficient in patients weighing 130–155 lbs (60–70 kg); a 1–1¼” needle is recommended in women weighing 155–200 lbs (70–90 kg) and men weighing 155–260 lbs (70–118 kg); a 1½” needle is recommended in women weighing more than 200 lbs (91 kg) or men weighing more than 260 lbs (118 kg).



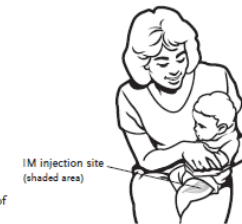
Needle insertion

Use a needle long enough to reach deep into the muscle.
 Insert needle at a 90° angle to the skin with a quick thrust.
 (Before administering an injection of vaccine, it is not necessary to aspirate, i.e., to pull back on the syringe plunger after needle insertion.)
 Multiple injections given in the same extremity should be separated by a minimum of 1”, if possible.

† CDC. “ACIP General Recommendations on Immunization” at www.immunize.org/acip

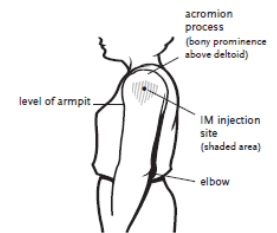


Intramuscular (IM) injection site for infants and toddlers



Insert needle at a 90° angle into the anterolateral thigh muscle.

Intramuscular (IM) injection site for children and adults



Give in the central and thickest portion of the deltoid muscle – above the level of the armpit and approximately 2–3 fingerbreadths (~2”) below the acromion process. See the diagram. To avoid causing an injury, do not inject too high (near the acromion process) or too low.

CONTINUED ON THE NEXT PAGE ►

Technical content reviewed by the Centers for Disease Control and Prevention
www.immunize.org/catg.d/p2020.pdf • Item #P2020 (12/15)

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Best Practices

- Educate staff about vaccines and proper administration practices
 - Integrate into staff education policies/procedures
- Always screen for contraindications and precautions: use a standard screening tool, available in other languages
- Give appropriate VIS, available in multiple languages

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Skills Checklist for Immunization

The Skills Checklist is a self-assessment tool for health care staff who administer immunizations. To complete it, review the competency areas below and the clinical skills, techniques, and procedures outlined for each of them. Score yourself in the Self-Assessment column. If you check **Need to Improve**, you indicate further study, practice, or change is needed. When you check **Meets or Exceeds**, you indicate you believe you are performing at the expected level of competence, or higher.

Supervisors: Use the Skills Checklist to clarify responsibilities and expectations for staff who administer vaccines. When you use it for performance reviews, give staff the opportunity to score themselves in advance. Next, observe their performance as they provide immunizations to several patients and score in the **Supervisor Review** columns. If improvement is needed, meet with them to develop a **Plan of Action** (p. 2) that will help them achieve the level of competence you expect; circle desired actions or write in others.

The DVD "Immunization Techniques: Best Practices with Infants, Children, and Adults" ensures that staff administer vaccines correctly. Order online at www.immunize.org/dvd

Competency	Clinical Skills, Techniques, and Procedures	Self-Assessment		Supervisor Review		Plan of Action*
		Need to Improve	Meets or Exceeds	Need to Improve	Meets or Exceeds	
A. Patient/Parent Education	1. Welcomes patient/family, establishes rapport, and answers any questions.					
	2. Explains what vaccines will be given and which type(s) of injection will be done.					
	3. Accommodates language or literacy barriers and special needs of patient/parents to help make them feel comfortable and informed about the procedure.					
	4. Verifies patient/parents received the Vaccine Information Statements for indicated vaccines and had time to read them and ask questions.					
	5. Screens for contraindications. (MA score NA-not applicable-if this is MD function)					
	6. Reviews comfort measures and after care instructions with patient/parents, inviting questions.					
B. Medical Protocols	1. Identifies the location of the medical protocols (i.e. immunization protocol, emergency protocol, reference material).					
	2. Identifies the location of the epinephrine, its administration technique, and clinical situations where its use would be indicated.					
	3. Maintains up-to-date CPR certification.					
	4. Understands the need to report any needlestick injury and to maintain a sharps injury log.					
C. Vaccine Handling	1. Checks vial expiration date. Double-checks vial label and contents prior to drawing up.					
	2. Maintains aseptic technique throughout.					
	3. Selects the correct needle size for IM and SC.					
	4. Shakes vaccine vial and/or reconstitutes and mixes using the diluent supplied. Inverts vial and draws up correct dose of vaccine. Rechecks vial label.					
	5. Labels each filled syringe or uses labeled tray to keep them identified.					
	6. Demonstrates knowledge of proper vaccine handling, e.g. protects MMR from light, logs refrigerator temperature.					

Adapted from California Department of Public Health - Immunization Branch
Immunization Action Coalition • Corel Post-Immunization • (615) 427-9070 • www.immunizationaction.org • www.immunize.org

Helpful Resources

- Use the Washington State Immunization Information System
 - Check the forecast *before* administering vaccines
 - Enter any missing doses
- Adult and childhood immunization schedule:
www.cdc.gov/vaccines/schedules/hcp/index.html
- Pink Book:
www.cdc.gov/vaccines/pubs/pinkbook/index.html
- Immunization Action Coalition Ask the Experts:
www.immunize.org/askexperts/
- IAC clinic resources:
www.immunize.org/handouts/administering-vaccines.asp

Helpful Resources

- Send an email to immunenurses@doh.wa.gov
- Medical Assistants Resources and Training on Immunizations: <http://www.marti-us.org/>
- CDC vaccine administration course: www2.cdc.gov/vaccines/ed/vaxadmin/va/ce.asp
- Report vaccine administration errors to VERP: <http://verp.ismp.org/>
- Report to VAERS: <https://vaers.hhs.gov/>
 - If not associated with an adverse health event, but may pose a safety risk (e.g. administering a vaccine when contraindicated)