

SKILLS STATION LESSON PLAN

VACCINE PREPARATION AND ADMINISTRATION

Overview/Rationale

Regardless of the vaccine and the administration, there are basic steps in vaccine preparation. In this Skills Station participants demonstrate vaccine preparation and administration. Skills Station facilitators correct technique, offer suggestions, and provide guidance.

Objectives

By the end of this lesson, the participant will be able to:

1. Describe steps to take before preparing any vaccines;
 - 2A. Demonstrate how to draw up vaccine from a single-dose vial;
 - 2B. Demonstrate how to draw up vaccine from a multi-dose vial;
 - 2C. Demonstrate how to prepare a manufacturer-filled syringe;
3. Demonstrate how to reconstitute vaccine;
4. Describe the common sites and needle length for an intramuscular (IM) injection;
5. Demonstrate how to inject an intramuscular (IM) vaccine;
6. Demonstrate how to inject a subcutaneous (SC) vaccine;
7. Describe the common sites and needle length for a subcutaneous (SC) injection;
8. Demonstrate/explain how to administer oral vaccine;
9. Demonstrate/explain how to administer nasal mist vaccine.

Duration

Approximately 60 minutes

Necessary Materials

Oranges (one for every 4-5 participants)
Vaccine in single dose vial (one dose per participant)
Vaccine in multi-dose vial (one dose per participant)
Vaccine and diluent for reconstitution (one dose per participant)
1" 23 to 25 gauge needles and syringes for IM injections (one per participant)
5/8" 25 gauge needles and syringes for SC injections (one per participant)
Alcohol swabs (at least 2 per participant)
Sharps containers
Trash cans (one at each station)

Optional Materials

Hand sanitizer
Bandages
Mock provider's order(s)

Trainer Notes

- This Skills Station must be facilitated by a licensed clinician, i.e. RN
- This Skills Station can be done one-on-one or in small groups of up to 5 participants.
- Allow 30-45 minutes if doing it as a group.

- Ask open-ended questions, such as, “How does it work in your practice?” to engage the participants.
- Have copies of CDPH job aids available for reference.
- Depending on supplies, the trainer can decide whether to demonstrate administration of oral and nasal vaccines for the group, or to have participants practice.
- Some vaccines, e.g. nasal flu vaccine, is licensed for specific ages and populations. Check the most current recommendations before each ISI.
- Expired vaccine works well in this Skills Station.

Procedures

These are listed sequentially. Experienced trainers may want to change the order; new trainers may want to check off items to make sure everything is covered.

1. Ask the participant(s) to explain the necessary steps to do before preparing vaccines. :

- Wash hands
- Check the provider’s order
- Gather necessary materials, e.g. needles, syringes, bandages, etc.
- Give the patient the relevant Vaccine Information Statement(s)

2A. Have the participant demonstrate drawing up vaccine from a single-dose vial.

- Check the provider’s order
- Remove the vaccine from storage and shake the vial to re-suspend the vaccine
- Inspect the vial against the provider’s order and for expiration date, discoloration, etc.
- Remove the plastic cap
- Wipe the stopper with an alcohol pad and let it dry
- Remove the needle and syringe from the package and assemble them, if necessary
- Uncap the needle
- Hold the vial steady on the table, and insert the needle straight into the center of the stopper
- Pick up the vial, invert it, and pull the needle back so the tip is in the liquid
- Pull back on the plunger until the entire contents of the vial are withdrawn
- Withdraw the needle from the vial
- If there are any air bubbles, tap the barrel gently, then gently push them out. Do not allow them to expel vaccine.
- Recap the needle using both hands, being careful to avoid contaminating it
- Label the syringe or place it on a labeled tray

2B. Have the participant demonstrate drawing up vaccine from a multi-dose vial.

- Check the provider’s order
- Remove the vaccine from storage
- Inspect the vial against the provider’s order and for expiration date, discoloration, etc.
- Remove the plastic cap
- Wipe the stopper with an alcohol pad and let it dry
- Remove the needle and syringe from the package and assemble them, if necessary
- Uncap the needle
- Pull the plunger back equal to the amount of one dose of vaccine, usually half a cc. This avoids creating a vacuum: the air in the barrel takes up the same amount of space as the vaccine being withdrawn.
- Hold the vial steady on the table, and insert the needle straight into the center of the stopper

- _____ Pick up the vial, invert it, and pull the needle back so the tip is in the liquid
- _____ Withdraw one dose by pulling the barrel of the syringe back to the dose mark
- _____ Hold the needle and vial together and turn them over and return them to the tabletop
- _____ Carefully withdraw the needle from the vial
- _____ Clear the barrel of any air bubbles
- _____ Recap the needle using both hands, being careful to avoid contaminating it
- _____ Label the syringe or place it on a labeled tray

2C. Have the participant demonstrate drawing up vaccine from a manufacturer-filled syringe.

- _____ Check the provider's order
- _____ Remove the syringe from storage and shake the vial to re-suspend the vaccine
- _____ Inspect the vial against the provider's order and for expiration date, discoloration, etc.
- _____ Remove the appropriate length needle from storage
- _____ Attach the needle by threading it onto the syringe and twisting it until it does not turn
- _____ Prefilled syringe are labeled, however some practices have labeling policies

3. Demonstrate how to reconstitute vaccine;

- _____ Check the provider's order
- _____ Remove the vaccine from storage. (MMR and varicella are light sensitive and should be prepared immediately prior to administration.)
- _____ Remove the diluent from storage. (Diluent can be kept in the refrigerator or at room temp.)
- _____ Inspect the vial against the provider's order and for expiration date, discoloration, etc.
- _____ Select the appropriate syringe and needle
- _____ Remove the plastic caps
- _____ Wipe the stoppers with an alcohol pad and let them dry
- _____ Assemble the needle, if necessary
- _____ Hold the diluent vial steady on the table, and insert the needle straight into the center of the stopper
- _____ Pick up the vial, invert it, and pull the needle back so the tip is in the liquid
- _____ Withdraw all the diluent into the syringe
- _____ Withdraw the needle
- _____ Now hold the vaccine vial steady on the table and insert the needle into the center of the stopper
- _____ Hold the vial and syringe together and carefully shake the vial to mix it well
- _____ Invert the vial and pull the needle back so the tip is in the liquid, then pull back on the plunger to withdraw all the contents
- _____ Carefully withdraw the needle from the vial
- _____ Clear the barrel of any air bubbles
- _____ Recap the needle using both hands, being careful to avoid contaminating it
- _____ Label the syringe or place it on a labeled tray

4. Describe the common needle length and sites and for an intramuscular (IM) injection;

- _____ IM injections are usually given with a 1" 23-25 gauge needle.
- _____ For larger patients a longer needle may be used
- _____ IM injections are given in the muscle, so the needle is inserted at a 90 degree angle
- _____ Most vaccines are administered by the IM route

_____ The vastus lateralis, the anterior lateral thigh, is the most common injection site for infants. It is a relatively large muscle mass and has few major nerves or blood vessels. If a child stands and dangles his arm, his middle finger points right to the site.

_____ The deltoid of the upper arm is the most common injection site for patients older than 2-3 years. It is located 2 or 3 fingers below the acromian process.

5. Demonstrate how to inject an intramuscular (IM) vaccine;

_____ Expose the injection site

_____ Clean the site with an alcohol pad and let it dry

_____ With your non-dominant hand, isolate the muscle

_____ With your dominant hand, hold the needle about an inch from the site.

_____ Quickly insert the needle into the skin at a 90 degree angle

_____ Push the plunger down in a steady motion and inject all the contents

_____ Remove the needle and simultaneously apply light pressure at the site

_____ Immediately discard the needle into a Sharps container

_____ If there is bleeding, apply a bandage to the injection site

6. Describe the common needle length and sites and for a subcutaneous (SC) injection;

_____ SC needles are usually given with a 5/8" 25 gauge needle.

_____ SC injections are given into the fatty tissue under the skin

_____ MMR and Varicella are given SC

_____ The fatty tissue on the upper arm is the usual anatomic site for SC injections

7. Demonstrate how to inject a subcutaneous (SC) vaccine;

_____ Expose the injection site

_____ Clean the site with an alcohol pad and let it dry

_____ With your non-dominant hand, pinch up some fatty tissue

_____ With your dominant hand, hold the needle about an inch from the site.

_____ Quickly insert the needle into the skin at a 45 degree angle

_____ Push the plunger down in a steady motion and inject all the contents

_____ Remove the needle and simultaneously apply light pressure at the site

_____ Immediately discard the needle into a Sharps container

_____ If there is bleeding, apply a bandage to the injection site

8. Demonstrate/explain how to administer oral vaccine;

_____ Rotavirus vaccine is administered in the mouth, not by injection

_____ Remove the vaccine from storage. Depending on the product, you may also need to remove diluent from storage and reconstitute it. Check the package insert for details

_____ Inspect the vaccine against the provider's order and for expiration date, tampering, etc.

_____ Have the parent hold the baby securely and support the baby's head

_____ Administer all the vaccine into the infant's mouth, against the cheek

_____ If the baby spits up, it is not necessary to repeat the dose

_____ Immediately discard the applicator into a Sharps container

9. Demonstrate/explain how to administer nasal mist vaccine.

_____ Nasal influenza (flu) vaccine is misted into the patient's nose, half a dose in each nostril

_____ The vaccine comes in a prefilled applicator

_____ Remove the vaccine from storage

- _____ Inspect the vaccine against the provider's order and for expiration date, tampering, etc.
- _____ Remove the rubber tip protector
- _____ With the patient sitting upright, place the tip just inside the nostril
- _____ Depress the plunger quickly until the dose divider prevents you from going further
- _____ Pinch and remove the clip divider from the plunger
- _____ Plate the tip in the patient's other nostril
- _____ Depress the plunger until the remaining mist expelled
- _____ Immediately discard the applicator into a Sharps container