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

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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 prepare 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
   - 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