

Care of Veterinary Vaccine Syringes

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This NebGuide explains the basics of veterinary vaccine syringe cleaning and care.

Inadequately cleaned vaccine syringes are often responsible for localized infections associated with vaccination. Swellings around the injection site is common, especially when killed vaccines such as clostridial bacterins are given subcutaneously. Generally, these swellings can be considered good evidence that the animal is developing a proper immune response, but if the injection site swelling is greater than a small hen's egg, the swelling may be due to infection and should be examined.

Infected injection site swellings will be full of fluid, while normal injection site nodules should not contain fluid. If the infection is severe, it may become generalized and the animal may die from a condition known as phlegmonous cellulitis. If the swelling is hard it could be due to getting the subcutaneous injection too deep and penetrating part of the first layer of muscles. If this is the cause, consider using a "B-Bevel" 5/8-inch needle or a short (1/2 or 3/4 inch) regular bevel needle. The injection point on the B-Bevel needle is shorter than a regular injection needle. Subcutaneous injections, they are less likely to accidentally get a portion of the medication or vaccine in the outer layer of the muscle underlying the skin. Using an injection needle cover placed over the needle and attached to the syringe will also shorten the injection needle approximately 3/8 inch. This will effectively shorten a standard 1-inch injection needle to 5/8 inch.

Sterile disposable syringes will virtually eliminate injection site infections. If you require multiple dose syringes, several brands of disposable sterile automatic vaccine syringes are available. In addition, there is at least one manufacturer of a pistol grip syringe that uses a sterile disposable barrel and plunger. This syringe also includes a protective needle guard to help protect the needle from bending and breaking off should the animal restraint be inadequate.

Special Care

Points for multiple dose syringes:

If multiple dose syringes are reused, the following cleaning and care points will help you avoid injection site infections:

1. Clean the external syringe surface with soap, water and a brush.
2. Rinse the inside components of the vaccine syringe, including tubes and connectors with distilled or de-ionized water that is near the boiling point (greater than 180°F). This is accomplished by repeatedly drawing water that is greater than 180°F into the syringe and squirting it out. Three to five rinses should be adequate. Remove as much water from inside the syringe as can be squirted out and let the syringe cool before using. Heat kills modified live vaccine (MLV) products. You should not use a soap or disinfectant on internal components. Soap or disinfectant residues may kill MLV vaccines.
3. Store the vaccine syringe in a dust free, dry (low humidity) environment. It is best if the newly cleaned vaccine syringe is stored in a new zip-lock bag and placed in the freezer.
4. Vaccine transfer needles should be boiled in water and allowed to cool before using. Transfer needles should be stored in a new zip-lock bag in the freezer.

Special care points for metal syringes:

Metal syringes can be taken apart and boiled in hot water.

- a. Clean work area. Don't try to work in an area subject to blowing dust.
- b. Wash external surface of syringes.
- c. Operator needs to wash his or her hands for two minutes.
- d. Cover clean work area with new clean paper towels.
- e. Disassemble syringes.
- f. Wash syringe parts with clean hot tap water (do not wash the internal parts with soap or disinfectant).
- g. Boil all internal syringe parts in boiling de-ionized or distilled water for five minutes.
- h. Reassemble while hot.
- i. Use a small amount of CLEAN vegetable oil spray to lubricate rubbers.

- j. After assembly is completed rinse the internal parts three to five times with water greater than 180°F.
- k. Allow the syringe to cool for 10 minutes before using.
- l. If storing the syringe, place the syringe in a new zip-lock bag.
- m. Store the syringe in a freezer.
- n. Prior to using the syringe after storage, rinse the internal syringe with water greater than 180°F. Boil two cups of water in microwave and pull boiled water into syringe three to five times.
- o. Let syringe cool for five to 10 minutes before using.

Special care points for plastic automatic syringes:

Plastic syringes can be heat sterilized in a microwave oven. Note, this is another method of heat sterilization; there is nothing special about microwaves in this instance. The plastic automatic syringe must be covered in water while being heated in a microwave oven.

- a. Wash the external parts of the plastic automatic syringe in soap and water.
- b. Rinse the internal parts with hot tap water (do not use soap or disinfectant) by drawing water up through the intake tube while repeatedly depressing the syringe plunger.
- c. Completely fill the plastic automatic syringe with deionized or distilled water (draw off tube and syringe should be full of water).
- d. Wrap the plastic automatic syringe in five to ten layers of **wet** paper towels.
- e. Place the wet paper towel wrapped syringe in a zip-lock bag.
- f. Leave zip-lock bag open and place in a microwave oven.
- g. Set microwave oven on high setting and microwave each plastic automatic syringe individually for five minutes.
- h. Check moistness of paper towel wrapping halfway through the process and remoisten if paper towels appear to be drying out (don't let paper towels dry out — microwave ovens can start paper towels on fire if they are allowed to dry out while in the microwave).

- i. Remove the plastic automatic syringe from the zip-lock bag and unwrap. Most of the water that was filling the plastic automatic syringe will have boiled off, if not, squirt out all remaining water.
- j. Allow syringe to cool for 10 minutes before using the vaccine syringe.
- k. If storing, remove zip-lock bag containing the plastic automatic syringe from the microwave oven and place directly in the freezer.

Microwave oven sterilization of vaccine transfer needles:

Vaccine transfer needles can be heat sterilized in a microwave oven. The transfer needle must be covered in water while being heated in the microwave oven.

Two methods are available:

1. Clean the transfer needle in hot tap water (no soap or disinfectant) and place the cleaned transfer needle in clean cup. Completely cover with six to eight ounces of de-ionized or distilled water. Microwave using the high setting to bring the water to a boil and continue to boil for one additional minute. Never allow the water level to evaporate to the level of the transfer needle. It must be completely covered during the entire process.
2. Clean the transfer needle in hot tap water (no soap or disinfectant) and wrap in several layers of paper towels. Soak the towels and transfer needle in water and place in a zip-lock bag. Place the zip-lock bag in a microwave oven and leave the top of the bag open. Microwave, using the high setting for two minutes. Do not let the paper towels dry out while being heated in the microwave oven.

Quality Control

If you think you are having a problem with syringe sterility ask your veterinarian to evaluate your vaccine syringe preparation technique.

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