

Proper injection techniques for pigs

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Introduction

Improper injection techniques cost the pork industry thousands of dollars each year. Injection-site reactions, broken needles and lack of product efficacy are consequences of improper injection technique. Everyone involved in treating pigs must understand and use proper injection techniques. Each pork producer should develop an education plan to assure that all animal caretakers understand the responsibilities that go with giving injections to food producing animals.

Injection techniques

There are five ways to give injectable medications to pigs:

1. In the muscle (Intramuscularly, also referred to as IM injection):
 - Use a spot on the neck just behind and below the ear, *but in front of the shoulder*.
 - Inject only into clean, dry areas.
 - To reduce leakage in small pigs, push the skin forward or backward slightly before injection, then let the skin snap back when needle is removed.
 - Do not use a needle to inject in the ham or loin. There may be some bleeding, bruising and scarring of the muscle that may blemish the cut of meat. This standard applies to sows as well as to market hogs.
 - If a producer considers the use of alternate injection techniques or technologies, the veterinarian and packer should help to determine the acceptability of these techniques. Avoiding carcass defects and/or physical hazards such as broken needles are the paramount concerns.
 - Use the proper size and length needle to ensure the medication is deposited in the muscle, not in other tissues.
2. Under the skin (Subcutaneously or SQ):
 - Slide the needle under the skin away from the site of skin puncture before depositing the product.
 - Inject only into clean, dry areas.
 - Use the proper length needle and angle to avoid injecting into the muscle.
 - For small pigs, use the loose flaps of skin in the flank or behind the elbow.
 - For larger pigs, inject in neck behind the ear at the same location as for IM injections after grabbing the skin to make an elevated area to inject into.
3. In the abdominal cavity (Intraperitoneally or IP):
 - This technique should be used under veterinary supervision and guidance as serious injury, including the death of the pig, can occur.
4. In the vein (Intravenously or IV):
 - This technique should be used only upon veterinary instruction and guidance as serious injury, including the death of the pig, can occur.

5. In the nasal passages (Intranasally or IN):
 - Withdraw the product from the bottle using a syringe and needle. Remove the needle from the syringe. Use the recommended application tip for administering the product.
 - Keep the pig's head tilted upward during, and immediately following administration to help the product reach the deep nasal passages.

Intramuscular Injection	Gauge	Length
Baby Pigs	18 or 20	5/8" or 1/2"
Nursery	16 or 18	3/4" or 5/8"
Finisher	16	1"
Breeding Stock	14, 15 or 16	1" or 1-1/2"
Subcutaneous Injection	Gauge	Length
Nursery	16 or 18	1/2"
Finisher	16	3/4"
Breeding Stock	14 or 16	5/8" or 1"

The following are recommended needle sizes and lengths:

Developing a Standard Operating Procedure (SOP) for Needle Use

Developing a standard operating procedure (SOP) will help pork producers address needle use in their operations in a logical, consistent way. It will also help animal caretakers, including employees and family, become acquainted with how issues such as needle breakage are to be handled. If needle breakage does occur, producers should encourage honesty, proper identification and reporting. Here are some points to consider in a needle-use SOP:

1. Prevention
 - a. Evaluate the strength and detectability characteristics of the needles used.
 - b. Provide needle-use guidelines to all animal caretakers that address:
 - i. Proper animal restraint.
 - ii. Proper site and technique for injection.
 - iii. Proper size and length of needle according to the pig's age, the injection site and the characteristics of the product to be injected.
 - iv. Knowing when to change the needle to maintain cleanliness and sharpness.
 - v. Retrieving dropped needles. Packers report finding a significant number of needles lodged in the tissues around the mouth, throat and jowls of sows and market hogs. It is important that measures are taken to minimize the loss of needles in areas occupied by hogs.
 - vi. Changing bent needles – Bent needles should never be straightened. They should be carefully removed and replaced.
 - vii. Needle reconciliation. Producers should consider the appropriate number of needles that would be reasonable to use for a particular job and reconcile the number of needles at the beginning of the job, the number used and the number of needles at the finish.
2. Identification of hogs that carry or are at risk of carrying a broken needle
 - a. A plan for immediately identifying hogs known or suspected of harboring a broken needle fragment should be established. Permanent identification of the animal if the one applied at the time of the incident is not permanent should be considered.
 - b. Employees should receive appropriate training and incentives to follow training.
 - c. All pertinent information regarding the event should be recorded. This information can include: activity, gauge and brand of needle, location, restraint used, person giving the injection and person who reported the incident.
3. Communications with the packer
 - a. Packers have payment and notification policies for pigs at risk of carrying broken needles. When producers develop an SOP for handling animals suspected of carrying needle fragments, they should consider packer policies including how the hogs should be identified and how packers should be notified.

Disposal of used needles and other hazardous materials

Used needles, knife blades and syringes are called "sharps" and must be disposed of according to state regulations to prevent environmental contamination and injury to fellow workers, children, waste handlers and livestock. Proper disposal involves placing sharps in a rigid, puncture-resistant container immediately after use.

Commercially available containers can be purchased from many farm supply stores, safety supply houses, drug stores or from veterinarians. Some states allow sharps to be placed in containers such as empty detergent bottles made of heavy plastic with screw-on caps. Glass containers are not acceptable for sharps disposal because they are more likely to break in the disposal process.

Regardless of the type of container, it should be suitable to prevent the exposure of needles both on the farm and throughout the transportation to the final disposal location. A sharps container must be clearly labeled as a biohazard waste container. When the container is full, the cap or lid should be securely tightened and sealed with heavy tape. Producers should contact the agency in charge of overseeing the disposal of biomedical wastes in their state to find out about the rules that apply to their operation. The Web site www.epa.gov/epaoswer/osw/stateweb.htm provides information on agencies that regulate biomedical or infectious waste disposal in every state. Approved sharps collection stations are available in some regions.

Another option may be to ask a veterinarian or a local hospital if their facility accepts farm-generated medical wastes.

Additional information for sharps disposal is available at <http://pasture.ecn.purdue.edu/~epados/pams/PDFs/vetwaste.pdf>.

Needle-free Technology

Needle-free injection systems eliminate the issue of broken needle in carcasses. In Pork Checkoff sponsored research, vaccines administered by needle-free injection produced immunity equal to that of conventionally administered vaccines. No injection-site reactions were noted with either the needle-free or conventional methods in this trial.

Effective vaccines and antimicrobials which can be administered through the drinking water also are available today. These products are completely needle-free. As always, contact your herd veterinarian or animal health supplier about such products.

This information was adapted from the PQA Plus™ program. For more information refer to the PQA Plus manual.