



Beef Quality Assurance Fact Sheet

Animal Sciences/Forages



AL-BQA-4

July, 2005(Revised May, 2010)

Administer Drugs Properly

Administering drugs properly is important for the proper action of the drug, and for the prevention of injection site lesions and violative drug residues. The best way to avoid problems is simply to follow label instructions, identify each animal that receives the drug at the time it is administered and administer the drugs correctly. Proper administration includes selecting the route of administration, choosing the correct needle, choosing the injection site, practicing good sanitation, handling drugs correctly and proper restraint.

Select the best route of administration. Drugs can be administered at least ten different ways:

- ✓ Oral
- ✓ Intravenous
- ✓ Topical
- ✓ Subcutaneous (SubQ=under the skin)
- ✓ Intramammary
- ✓ Intramuscular (IM=in the muscle)
- ✓ intranasal
- ✓ Intraruminal
- ✓ Intraperitoneal

Intravenous, subcutaneous, intramammary, intramuscular, intraruminal and intraperitoneal are injections. Most injections are given either intramuscular (into a muscle) or subcutaneous (under the skin). The label will provide an acceptable route of administration. In some cases, the label may specify more than one route of administration. *When the label calls for either subcutaneous or*



Figure 1. "Tenting" method

intramuscular, give the drug subcutaneous to reduce the chances of violative residues and lesions in the muscle.

When giving a subcutaneous injection, use the "tenting" method (figure 1). Pull the skin away from

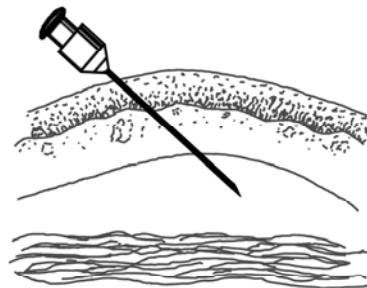


Figure 2. SubQ site

the neck to create a gap between the skin and

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muscle. Insert the needle through the skin and into the gap (figure 2). Make sure the needle does not go into muscle.

Carefully inject the drug, making sure the tip of the needle remains in the gap created by tenting. When finished, slowly remove the needle.

Giving an intramuscular injection requires a different technique. The drug is intended to be injected into a muscle (figure 3). Place your hand on the animal and move the skin slightly to one side. Insert the needle through the skin and into the muscle. Carefully inject the drug. When complete, remove the needle then move your hand. By moving the skin slightly, there is less chance of the drug leaking through the injection site.

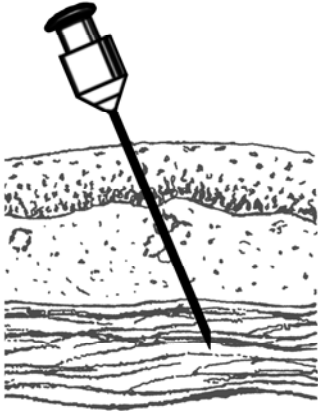


Figure 3. IM site

Choose best location for the injection. The best location for an injection is not necessarily the most convenient one to get to. It is the site where the product will be most beneficial without damaging expensive cuts of meat. Keep all injections in front of the shoulder. NEVER INJECT INTO THE TOP

BUTT OR TOP OF THE RUMP. For both vaccines and antibiotics, the triangular mass of neck muscle is the only acceptable site for both IM and SubQ injections. Never inject more than 10 ml (cc) into one site. When making multiple injections, keep injection sites at least 5 inches apart, being careful not to reuse injection sites. To minimize the risk of injection site lesion, avoid injecting in wet or manure-covered areas.

Choose the correct needle. The correct needle size and length is important to ensure that the entire dose of the drug gets into the animal properly, with the least amount of tissue damage. Selecting the proper needle size (table 1) will also reduce the chances of needle breakage. Use only 18- or 16- gauge needles, 1/2" or 5/8" long to administer a subcutaneous injection (under the skin). Use only 18- or 16- gauge needles, 3/4" to 1" long to administer intramuscular injections (in the muscle). A 14-gauge needle is NOT recommended. It is twice the diameter of a 16-gauge needle, increasing the risk of tissue damage and leakage from the injection site.

Table 1. Recommended Needle Sizes

Weight, lbs	Injection method			
	Subcutaneous (SubQ)		Intramuscular(IM)	
	Gauge	Length, in	Gauge	Length, in
Less than 300	18-20	1/2-5/8	18	3/4-1
300 to 700	16-18	1/2-5/8	16-18	3/4-1
Over 700	16-18	1/2-5/8	16	3/4-1

If a product such as modified live vaccines needs to be reconstituted, use a transfer needle to help make the process easier and more sanitary. To use a transfer needle, stick one end into the sterile liquid or diluent. The other end of the transfer needle goes into the freeze dried cake of bacterin or vaccine. There should be a vacuum to pull the liquid immediately into the vial containing the bacterin. If this vacuum does not exist, discard the vaccine because it may be contaminated.

Practice good sanitation. Good sanitation is essential in minimizing the risk of spreading infection, contaminating vaccines or causing injection site reactions. Separate needles should be used for filling the syringes and injecting the animals. Change needle frequently. Needles should be changed with each syringe full (when using multi-dose syringes), or every 10 to 15 injections. Replace burred or bent needles immediately. A burred or bent needle will cause greater tissue damage when entering the animal, increasing the risk for the entrance of foreign matter. Disposable syringes are recommended over multi-dose syringes. Sterilize syringes and needles properly. Use only boiling water or an autoclave to clean syringes to be used for modified live virus vaccines. Even a trace of disinfectant can inactivate a modified live vaccine. **NOTE:** DO NOT use a disinfectant with syringes and needles used to administer a modified live vaccine. Make sure the injection site is clean and free of mud and manure. Also try to avoid injecting into damp or wet cattle.

Handling drugs correctly. To handle drugs correctly, read and follow the directions on the label and/or package insert. Incorrect use will reduce or eliminate the effectiveness of the drug.

Use different syringes for live vaccines and bacterins, or killed products. Mark the modified live syringes and keep separate. If traces of bacterin are left in a syringe that is later used for a modified live product, the bacterin could destroy the modified live vaccine.

Mixing two different vaccines will not produce one that will protect against both diseases. Mixing unlike products can destroy the effectiveness of both products. If the combination you want is not available, give separate injections at least 5 inches apart.

After filling the syringe, pump it enough to move the vaccine up to the needle tip. This will ensure there is no air trapped in the syringe. Air trapped in a syringe can be injected with the vaccine, causing the wrong dosage to be administered or the vaccine to leak from the injection site.

Before using vaccines, especially large dose bottles, mix the vaccine thoroughly. Periodically stop and shake the bottle to prevent the vaccine from settling out, causing inconsistent amounts of antigen in each injection. A modified live vaccine, once mixed, begins to lose potency. Mix just enough vaccine for about 30 minutes. Keep the vaccine cool and out of sunlight.

Properly restrain animals. Proper restraint is essential to minimize the risk of human injury. Also, work cattle in a manner that will minimize the possibility of damage to the animal and reduce the risk of injections-site reactions.

Summary. Selecting the best route of administration, choosing the correct needle, choosing the correct injection site, practicing good sanitation, handling drugs correctly and proper restraint will insure proper action of the drug, and will reduce or eliminate injection site lesions and violative drug residues.