



# Vet Call

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## Adverse drug reactions

*Although most of the time when we administer a treatment, vaccine or other product to cattle we expect a positive outcome, occasionally cattle will have an adverse drug reaction. Adverse reactions can occur following the use of injectable antibiotics, dewormers, vaccines, insecticides, vitamin preparations and anti-inflammatory preparations, as well as skin ointments and other classes of drugs.*

### Unintended responses

An adverse drug reaction is defined as any unintended and undesirable response to a drug and can be somewhat grouped as to being “human error” or “random.” Human error is often suspected if a high percentage of a group of cattle has an adverse drug reaction. The error can be due to an improper dose, route of administration or combination of drugs.

Improper dose can occur when a dose that is safe for another species results in an unsafe dose for cattle. Also, certain diseases such as liver or kidney disease or old age can cause a normally safe dose to cause problems in some individuals.

The label of any veterinary product will include instructions on the preferred and alternate routes of administration. The route can be by mouth (oral), applied to the skin (topical), or injected into a muscle [intramuscular (IM)], under the skin [subcutaneous (Sub-Q)], or into a blood vessel [intravenous (IV)].

If a drug or product is labeled for one route of administration but given by another route, dangerously high doses of the active ingredient or other components of the product can result. It is important to understand that a veterinary product contains more than the active ingredient. It will also contain ingredients to keep the product stable over time and over a range of temperatures and other factors; and some nonactive ingredients can be toxic at high doses.

### A dangerous mix

Drug interactions can occur when one or more drugs antagonize another drug,

making it either ineffective or dangerous. This can occur when drugs that were not intended to be mixed are mixed together in a bottle or syringe. The active drugs or the additives may cause the antagonism.

Drug interactions can occur even if antagonistic drugs are not mixed before injection. When products are injected into the same animal, they can interact within the animal to cause adverse reactions.

You can reduce the risk of human error causing adverse drug reactions by only using drugs that you are very familiar with and that you have been trained to use by your veterinarian. Never mix drugs together in a bottle

or syringe unless directed by the label. Avoid giving multiple drugs at the same time unless your veterinarian advises you that it is safe.

### Random factors

Adverse drug reactions can also be caused by random, unknown factors. These types of reactions usually affect only one or a few members of a herd or group, but they can cause a cluster of affected animals due to genetic factors. These types of reactions are unrelated to the dose or normal effects of the drug, and they are probably impossible to prevent. The active ingredient or carriers and other additives may cause random effects such as allergic reactions.

Allergic drug reactions in cattle most commonly occur following an injection and result in fluid buildup in the lungs. The animals have sudden and severe respiratory problems, making it difficult for them to breathe. This type of reaction is called an

anaphylactic response and often results in death. Rapid treatment with epinephrine and supportive care may help some affected cattle to survive.

Because the risk of adverse drug reactions is always small but present, cattle should be observed after being treated with any veterinary product and not allowed to immediately leave the sight and care of the producer or veterinarian. Careful and appropriate use of veterinary products and attention following treatment are necessary to minimize the risk and cost of adverse drug reactions.

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