

## 9 REASONS WHY ANITIBOTICS FAIL

1. **Pickup-itis** – after purchase, the antibiotic remained in the pickup. It was never given to the sick animal.
2. **Windowsill-itis** – the bottle of antibiotic was set down on a barn windowsill. Exposure to strong sunlight and heat destroyed much of the antibiotic's potency. [For example, LA200, Oxytet100, Tetradure300, Draxxin, Naxcel, Polyflex] Alternatively, the product is labeled, "Do Not Freeze" and it requires thawing before it can be used. [ For example, Excenel, Excede, Tetradure300] It is no longer strong enough to slow pathogen growth in an animal.
3. **Too-much-water-itis** – The directions for reconstituting: Add 79 ml water to the powder. However, if I add 105 ml, then the bottle will treat an extra animal! Yes, this procedure will create more volume. Nevertheless, if I use the original dose, then the medication may not work. Each injection carries too little of the active drug to do the job. That is, the minimum inhibitory concentration (MIC) of the drug in the blood will not be reached with the overly dilute product.
4. **Store-the-syringe-in-the-bottle-itis** – We always use the injectable antibiotic and a syringe at the same time. So, just stab the contaminated needle back into the bottle. That sends dirt into the antibiotic. Then, when the syringe tips to one side, the needle no longer fits tightly in the bottle stopper allowing more dirt to creep into the antibiotic, as well. This source of contamination is one reason we often keep open bottles of antibiotics refrigerated. Also, remember that contaminated needles potentially spread leukosis.
5. **Under-dosing-itis** – Doc recommended 20 ml daily. This is pretty expensive stuff. Maybe 10 ml would do the job. But, all antibiotics depend on a minimum level of concentration in the animal's tissues to work effectively. The technical term is "minimum inhibitory concentration."

If the correct dose per day is not used, it is better not to give any drug at all. Less than recommended doses might actually build resistance to the

drug. The next time this animal is treated, the drug will be even less effective.

6. **Frequency-of-dose-itis** - Doc recommended daily treatment but we decided to just double the dose and give it every other day. Unfortunately, there is a great deal of variation among drugs and the vehicles in which they are suspended. Some drugs are metabolized rapidly and require twice a day injection in order to maintain MIC (e.g., Polyflex). Other drugs are formulated for one, two, three and seven day treatment frequency.
7. **Quit-treating-too-soon-itis** – Doc recommended treating for 5 days. After three days she is “looking better” so I can quit treating her and save money. Not good.

All antibiotics depend on a minimum length of contact with the pathogen. First, the “minimum inhibitory concentration” must be reached. Then, it has to be sustained long enough to allow the animal’s immune system to kill off the remaining pathogens.

The treatment recommendations on common bovine antibiotics most frequently mention five to eight days. Field experience with veterinarians suggest that the guideline, "After she is looking better, continue treating for two more days," is common.

8. **One-drug-fits-all-itis** – This antibiotic worked to cure (fill in illness). Maybe it will work on (fill in different illness). Wrong! It is true; some antibiotics will effectively inhibit the growth of more than one pathogen. But there are many different kinds of pathogens.

Matching the antibiotic and the pathogen is the best insurance for effectiveness. Sometimes, laboratory analyses have to be used. They help determine which antibiotic is likely to be effective against the pathogens on a specific farm. Monitoring recovery rates when uniform treatment protocols are followed provides invaluable evidence about which drugs are most effective.

The best course of action? Get professional advice to match the drug to the pathogen. The most expensive antibiotic is the one that doesn't work!

- 9. Virus-itis** – Illnesses caused by viruses often have symptoms similar to those caused by bacteria or parasites. Administering antibiotics for illnesses caused by viruses is certain to be ineffective in treating the infection (assuming that only the virus causes the animal's illness).

Among calves, it is very important to monitor very closely any animal with a virus infection. The immunocompetence of sick calves is always compromised leaving them open to possible secondary bacterial infections. That is when antibiotics may be prescribed by your veterinarian.

Just as in humans, using antibiotics to treat viral illnesses can be a problem. Inappropriate use of antibiotics tends to select for more resistant strains of the bacteria. Then, future use of the same antibiotic for a bacterial infection will be less effective.

Note: The use of trade names of products in this article does not constitute an endorsement of the products. All names are owned by the manufacturer and are included here only as a means of illustrating the message of the article.