Mechanics of Medical Treatment of Poultry
By Rich Barczewski (May, 2020)

Going to the world-wide-web for health advice for our birds is kind of like going to the casino, especially if you are using typical sites like Facebook. You may win, but then again you may lose and for bird keepers those losses are hard to take. I thought that it might be good to go over a few things about medicating and health that are often overlooked, and misunderstood by the average person.

First, let's talk about vaccines. Vaccines are biologicals. Biologicals include tissue and substances from live animals (whole blood, serum, harvested organs, etc). Biologicals also include vaccines, bacterins, toxoids, etc. created in the lab from bacteria and viruses. All must be kept cool or frozen to avoid decay. Vaccines can be killed or modified live. That means that they take the bacteria or virus and alter it with heat or chemicals so that it is no longer pathogenic (able to cause full blown disease). But what is not altered is the part of the bacteria or virus that is going to be recognized by the immune system to allow the animal/bird to make antibodies against the offending pathogen.

So, what happens when you administer the vaccine? Basically, antibodies are formed, the antibodies fight that specific virus or bacteria. In the process, the vaccinated bird may get a mild fever as a natural response to their immune system. They are not necessarily "getting the disease" but their immune system reacts as if they are. If you repeat the vaccine annually, or as directed by the manufacturer, this boosts the immune response.

Generally, modified live vaccines elicit a stronger response from the immune system than the killed vaccines, however they may have more side effects. For practical purposes, you need not fret over which to use: most vaccines come in one form or the other. You do not have a choice.

A stressed animal with an unhealthy immune system that is vaccinated will still not actually succumb to the disease, but it will not produce the proper amount of antibodies that would be produced by a healthy animal. This is where you can get a vaccine failure. The decision that most poultry keepers have to make is how much risks dictates when to vaccinate? Which diseases should you vaccinate for? The decision should be based on the prevalence of the disease, the likelihood that your birds will be exposed to the organism, and the value of your birds compared to the cost of the vaccine. You can obviously vaccinate for more diseases than would be practical, but the decision on which vaccines to use is up to the individual poultry keeper unless your state dictates a particular vaccination regime.

One key thing to remember about vaccines is that it matters how they are stored, shipped and handled. It is critical that you follow the label instructions on these vaccines and if you order them from a mail order supplier, be sure to request that they be shipped early in the week so you can be sure they do not sit in a post office over the weekend. All vaccines are biologicals and have to be shipped with ice packs as they must be kept in a critical temperature range if they are going to remain effective.

Always follow the label directions on any biological regarding storage, and use. The ones that need to be reconstituted (require a mixing of a liquid diluent, with a freeze-dried wafer), often have a very short useful life once mixed so make sure you know what you are doing and are set up prior to mixing any of these types of vaccines. Unused vaccines in this case must be discarded as they will not be effective if used beyond the labeled time frame.

That brings me to other medications, specifically antibiotics. Like in humans, antibiotics are effective drugs against bacteria. They do not work against viral diseases, however sometimes in certain situations, they may be used to treat or prevent secondary infections that impact the birds who are experiencing a viral disease. Like with most drugs, antibiotics can come in many forms, injectables, soluble powders, pills, etc. When treating individual birds, it is often easier to use a pill or injectable because that way you are sure that the treated bird was given the correct dose at the correct time.

Commercially, most farms treat their flocks by dissolving a soluble antibiotic in the water system and treating the entire flock at one time. This can also be done if you have to treat a large group of birds and one advantage of putting an antibiotic in the water is that birds will often drink when they are sick even though they will sometimes not eat.

With injectables, it is critical that you know what the proper dose of the antibiotic is that you are using. Most injectable antibiotics come in different formulations and it is critical that you understand a couple of specific things about them. For example, if an antibiotic is identified as containing 50 mg/ml, that means that there is 50 mg (milligrams) of the drug in each 1 ml of the injectable. If the formulation is 200 mg/ml then there is 200 mg of the drug in each 1 ml. That means the 200 mg formulation is four times

stronger than the 50 mg formulation. But all of this is totally irrelevant until you know what the proper dose is, and that can further complicate the equation.

Most doses of drugs are reported on a milligram/pound (mg/lb) basis, and occasionally, you may see one listed as milligrams/kilogram (mg/kg). One kilogram is equal to 2.2 pounds so you need to know the weight of your birds in order to calculate the proper dosage to give. The best way to do this is to actually weigh your birds but we all realize that very few poultry keepers have scales. One option may be to use the APA/ABA standards for the approved weights of Cocks, Hens, Cockerels and Pullets as an estimate.

So, if you have a large fowl cock bird that weighs 10 pounds and you need to medicate that bird, and the dose to medicate is 5 mg/lb you would need to inject 10 X 5 or 50 mg of drug into the bird. If the medication you have is 50 mg/ml, then you would have to give 1 ml of the drug to the bird to properly dose it. One ml is essentially the same as 1 cubic centimeter (cc) which is the typical numbering on a syringe. It is important not to underdose when treating as repeated underdosing can result in resistant bacteria. Likewise, overdosing may have negative impacts as well as some drugs can be toxic at high levels.

Another important thing to consider is safety when using any medication. Be sure to read and follow the label directions before using any medication. It's always a good idea to consult with your veterinarian when possible about any treatment plans but I realize that many vets do not specialize in poultry and finding a poultry vet is often difficult. One other consideration when using any medical treatment has to do with the withdrawal periods. If you intend to sell the birds through an auction or privately, and the bird might be used for food, you want to make sure you adhere to any withdrawal periods on the label of the medication. The withdrawal period is the time required for the drug to be completely metabolized by the bird so that no residue remains in the carcass.

To determine the proper way to administer a medicinal into the bird refer back to the label. Most injectable drugs are given IM or intra-muscular. That means they need to be injected directly into the muscle. For poultry, the easiest place to inject a bird into the muscle is into the breast meat. You could also consider injecting into the thigh muscle as well. To do this properly, you'll want to choose the right size needle and syringe.

Some medications are thicker than others but I would suspect that the largest needed you should be using on poultry would be 25 gauge. (with needles, the larger the number, the smaller the diameter of the needle). Additionally, needles come in different lengths. A ½ inch 25-gauge needle would be my first choice to inject poultry IM. When injecting, you may want to pull the skin of the bird slightly forward or back, inject the medicine and then allow the skin to return to its original position. This will help to prevent any flow-back of the medicinal out of the injection site.

Considering syringes, I would use the smallest syringe available that will hold the dose required to be injected. Syringes for consideration would be 1 cc or 3 cc. Like needles, these come in varying sizes as well.

Finally, I would be remiss if I did not mention off-label drug use in our hobby. Off-label means using a drug in a manner which is inconsistent with its labeling. For the most part, this is a gray area. Pharmaceutical companies do not have the money to test all products on all species. This has become a problem for both veterinarians and animal keepers. In 2004, the Minor Use, Minor Species Animal Health Act was passed (MUMS). This act gave veterinarians guidelines to allow the use of drugs that were already on the market and approved for the use in some species, on other species for which the drug was not approved. It allowed, them to use their professional discretion in using an off-label drug when no other effective drug was available, provided they provided the animal owner with proper protocols for use and a withdrawal period for both meat and milk. This deals mainly with food animals, however if we sell surplus birds through auctions or swap meets, we need to be aware that those birds may enter the food chain. For the most part, this is not a big issue if your birds are never going to enter the food chain, however, if you routinely or even occasionally sell birds through any auction channels, and the birds have an illegal residue in their system that is detected you could be liable. Personally, I would be very careful recommending that someone else use an off-label drug to treat any disease especially in a public forum.