The Dao of Vaccination

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I'm often asked about vaccination by horse owners who want to take as natural an approach to their horse's care as possible. The basic question usually is this: which vaccines do you recommend?

The simple answer is that it's not that simple. It all depends on the individual horse—his risk for exposure to the specific diseases for which we have vaccines; his susceptibility to disease; the implications of the particular disease in this horse; the effectiveness of the particular vaccine weighed against its potential for causing harm; and the likelihood that any vaccine will incite an unwanted immune response in this horse (which can range from a few hours or days of vague malaise or muscle pain, to severe systemic reactions, and even to more insidious immune-mediated diseases).

In other words, *risk vs. reward for the individual horse* is always the deciding factor.

Basing decisions on risk vs. reward

To put all that into plain terms, for every vaccine we could use I consider the following questions:

1. how likely is it that this horse will come across this particular disease-causing organism?
2. how susceptible to this organism is this horse?
3. how nasty is this disease?
4. how effective is this vaccine against this disease?
5. how likely is it that, in the process, this vaccine will cause unwanted side effects?
6. how sensitive is this horse's immune system to foreign substances?

I consider vaccination against tetanus a *must* for every horse. Let's go down that list of criteria and I'll explain why:

1. the organisms that cause tetanus (a bacterium called *Clostridium tetani)* are everywhere in the horse's environment; these bacteria can flourish even in relatively minor wounds if the oxygen supply to those tissues is low; and wounds are common in horses, and they may go unnoticed for days
2. horses as a species are highly sensitive to the toxins formed by *C. tetani*, much moreso than humans and many other animal species
3. tetanus in horses is a very nasty disease; it's a terrible way to die, and despite all of the advances in veterinary medicine in the past few decades, the mortality rate for tetanus in horses is still well over 50% (in fact, it's more like 75–80% in some studies); tetanus is, however, not a contagious disease, so horse-to-horse transmission is not an issue
4. tetanus toxoid (the actual vaccine) is highly effective in preventing tetanus in horses, provided it is handled and administered correctly; in fact, tetanus toxoid is so effective that it probably does not need to be given annually once the initial vaccine series is completed (More on this below.)
5. as vaccines go, tetanus toxoid has a very low incidence of causing unwanted side effects when handled and administered correctly

6. this one is always a wild card, but tetanus toxoid appears to be fairly well tolerated even by horses who are extremely sensitive to various foreign substances

In this part of the country (Pacific northwest), where eastern equine encephalitis (EEE) is not a problem, I consider all other vaccines to be *optional,* based on the criteria I've outlined. For example, I may recommend vaccination against influenza ("flu") in horses who frequently travel to shows and other events, who live in large boarding barns, or who otherwise mix with lots of strange horses. I may recommend vaccination against strangles (*Streptococcus equi)* if this disease has been a persistent problem on a particular property. I may recommend vaccination against rabies if the horse lives in or near a heavily wooded area and rabies has been documented in wildlife in that area. Or I may recommend no more vaccines in a horse who is highly sensitive to vaccination or who otherwise seems to have an overly sensitive and overactive immune system.

The Dao of vaccination

If you're at all interested in this subject, you're probably already aware of the vaccination debate that is ongoing in certain quarters, particularly with small animals (dogs, cats) and children. At one extreme are those who take the "can't hurt, may help" approach and recommend vaccinating every patient with pretty much every vaccine we have available. At the other extreme are those who believe that all vaccines cause disease and so they advocate never vaccinating any body for anything. Personally, I try to follow the Dao of vaccination—the middle road—in terms of which vaccines to use and how often to use them in a particular horse.

As I said, my bottom line is that vaccination against tetanus is a must for every horse. It's such an awful disease in horses, and the vaccine is so effective and carries such a low risk of doing harm that, for me, tetanus definitely falls under the heading of "Better Prevented than Treated." However, I don't believe that a tetanus booster must be given every year, which is the frequency recommended by the vaccine manufacturers and by the American Association of Equine Practitioners (AAEP). For horse owners who endeavor to minimize the amount of foreign substances that go into their horses, I have no problem with boostering every 2 years, with two important provisos...

Not a lot of clinical research has been published on the duration of immunity following tetanus vaccination in horses, but from the bits and pieces that are available, it seems that most horses probably are protected for at least 2 years after the initial vaccination series (two shots, 3–6 weeks apart, followed by a booster 6–12 months later). Even the official AAEP vaccination guidelines say that immunity may persist for up to 5 years. An equine immunologist I know once told me that the duration of immunity in most horses probably is 5–6 years, and in some individuals it is even longer.

However, there have been documented cases of tetanus that developed in horses who had been properly vaccinated and boostered within the preceding 2 years. Typically in these cases, tetanus developed as a result of a wound that went unnoticed and thus untreated for a few days, and it occurred more than 12 months after the last tetanus booster (i.e. between the 12 month and 2 year points). So, my provisos for those who want to extend the tetanus booster interval to 2 or more years are these:

First, keep good medical records on your horse, and develop some sort of simple and effective reminder system so that you don't forget when you need to booster next. For example, write a note in the December section of your calendar that your horse is due for a tetanus shot the following year, and as soon as you get your new calendar, write a note in the appropriate month to schedule an appointment for a tetanus booster. And if you ever have to sell or lease out your horse, then you must remember to provide the new caregiver with the horse's tetanus vaccination history.

Second, have your horse boostered against tetanus right away if she gets a wound that is deeper than it is wide, and it's been more than 12 months since her last tetanus shot. You're *probably* OK to stick with your original plan as to the booster interval, but the penalty for playing the odds and losing with this disease can be huge, and it's your horse who pays.

In closing, remember that the best defense against any infectious disease is a healthy, happy horse. It's not the vaccine which protects your horse, it's his competent immune system. At the same time as you're devising a vaccination program that is appropriate for your horse, consider all of the elements that go into keeping a horse healthy and happy: healthy diet, daily activity, companionship, and the other things we've covered here in recent months.

Happy Spring!

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