

Veterinary Care

WITH ANY LUCK, YOU'LL BE ONE OF THOSE fortunate owners who only sees the veterinarian twice a year for vaccinations. Your horse will never get sick, never take a lame step, never have an accident.

But, if you're like most of us, sooner or later in your horse-owning career, your veterinarian will be on your phone's speed dial. Horses can be complicated, fragile, accident-prone creatures who seem to make a hobby out of finding new methods of hurting themselves or new ways of stumping your veterinarian.

The relationship you have with your veterinarian is an important one. You want to find an equine practitioner whose judgment you trust, who is educated and keeps current on new findings, and whose horse care philosophy matches your own. For new horse owners, it's especially important to find a veterinarian who is happy to answer your questions and further your own education—someone who lets you stick your hand in the horse's mouth to feel the sharp points on his teeth for yourself, or shows you how to find the digital pulses on his feet. Most veterinarians want educated horse owners for clients and are happy to answer your questions.

Many horse owners, as they gain confidence and experience, handle minor issues on their own—it's both economical and practical to deal with a small cut or scrape yourself. But educated horse owners are cognizant of the limits of their own knowledge, know enough to call the veterinarian when their methods aren't working, and know there are certain situations where a veterinarian is required immediately.

Although it's easy to focus on the scary emergency situations, it's also important to cover all the bases when it comes to preventive care. Vaccinations, dental care, and deworming play a huge part in keeping your horse healthy and happy. But most likely you'll also be faced with injuries and accidents, so you need to be prepared for those as well.

Vaccinations

When you consider the huge assortment of vaccines that are recommended for horses, the saying “healthy as a horse” might seem to be a misnomer. But horses are unique among companion animals in that they frequently travel to shows, trail rides, and lesson barns, where they come into contact with other, strange horses. This creates an atmosphere where diseases are easily transmitted.

Even the most robust vaccination schedule doesn't protect a horse against everything, but there are many diseases for which extremely effective vaccines exist, and widespread use has dramatically improved overall equine health.

There's no one-size-fits-all vaccine protocol for horses. Pregnant mares and breeding stallions receive vaccines that your typical riding horse does not. Horses who live in a closed herd—retirees who live in an owner's back field year-round—have less opportunity for exposure to some diseases and might receive fewer vaccines than horses who are kept at large barns with lots of traffic in and out, or those who travel frequently to shows.

Different parts of the country have different recommended vaccination regimens, depending on the local weather and the diseases that are endemic in that particular area. For example, the vaccines for mosquito-borne illnesses are generally administered just before mosquito season begins, which varies, depending on where you live. In the parts of the country where mosquitoes are present year-round, these vaccines might be given twice a year instead of just once.

Your veterinarian is your best resource for determining what vaccinations your horse needs. He knows which ailments are common in your area, what vaccination schedule works best, and your horse's lifestyle, including management system (box stall versus dry pasture versus irrigated pasture), and the diseases to which he might be exposed. Your veterinarian is also up to date on the latest research into vaccine protocols and the efficacy of new vaccines that have just come on the market.

This is a good time to mention the importance of obtaining a veterinary history on your horse when you first obtain her, if at all possible, and keeping that history, including vaccination records, current throughout her life.

Here is an overview of the most common diseases for which vaccines are available. Consult your veterinarian for more information on any of them.

Tetanus

Tetanus is a highly fatal disease caused by anaerobic bacteria commonly found in the soil and fecal material. If the bacteria get into the body via a puncture or other wound and begin to grow, they produce an extremely potent toxin. That toxin effects the nerve signals that tell muscles to relax, causing what used to be known as “lockjaw”—the horse exhibits a saw-

horse stance and seeming paralysis of the facial muscles, including the jaw. He eventually goes down, stiff-legged, and dies shortly thereafter.

Because horses are very susceptible to tetanus and live in an environment where it's quite prevalent, this vaccination is a standard in every equine health protocol. It's an extremely safe, extremely effective vaccine, generally administered once a year. (It's usually part of common combination vaccines.)⁴⁹

Rabies

Rabies is a fatal disease that can affect any mammal; about fifty horses die of rabies in the United States every year.

The virus is present in an infected animal's saliva and is usually transmitted by a bite, although it can also be transmitted if infected saliva comes in contact with an open wound or mucous membranes. The virus spreads through the central nervous system, eventually reaching the brain. Symptoms vary widely, but behavioral changes are considered one of the most common signs. Other symptoms might include depression, a mild fever, excessive salivation, difficulty swallowing, convulsions, and a lack of appetite. Symptoms progress very quickly, and an infected horse generally dies within five to seven days.⁵⁰

Rabies is seen in raccoons, skunks, foxes, coyotes, and bats, with all of whom horses may come in contact in their barns or pastures. The disease is endemic in every state but Hawaii, although some parts of the country see a much higher frequency of rabies than do others.

Eastern, Western, and Venezuelan Encephalomyelitis

Eastern equine encephalomyelitis (EEE), Western equine encephalomyelitis (WEE), and Venezuelan equine encephalomyelitis (VEE) are sometimes referred to as "sleeping sickness." EEE and WEE are a concern in the United States; VEE is generally a concern only in South America, but occasional cases have been reported in Mexico and southern Texas.

EEE, WEE, and VEE are viruses transmitted from birds and rodents, which are reservoirs for the disease, to horses by mosquitoes. (All three can also infect humans.) EEE is the most deadly of the three, with a fatality rate of 75 to 90 percent. The fatality rate for VEE is 40 to 80 percent, and for WEE, 20 to 50 percent.⁵¹ All affect the horse's nervous system and produce neurological signs. Horses who survive infection frequently suffer permanent neurological damage.

Vaccines exist for all three diseases, although only WEE and EEE are commonly vaccinated against in the majority of U.S. states. The vaccines are extremely effective and are often given combined in one injection.

West Nile Virus

West Nile virus (WNV) is another mosquito-borne disease, very similar to EEE, WEE, and VEE. A relative newcomer in the United States, it was first diagnosed in New York in 1999, but has now spread across the entire country. The virus infects the central nervous system, causing neurological symptoms. The fatality rate is about 30 percent.⁵²

Fortunately, a vaccine was quickly developed that has proven very safe and effective, leading to a marked downturn in the number of cases, even as the disease spread over a larger area of the country. There were more than fifteen thousand equine cases of WNV in 2002; that number dropped to less than five thousand in 2003 and to just over thirteen hundred in 2004.

Equine Herpesvirus

For most of the ailments we've discussed so far, vaccinations provide near-immunity. Unfortunately, not all vaccines are quite so effective. One disease for which this is the case is rhinopneumonitis, which is caused by the equine herpesvirus (EHV). There are several varieties of the virus, but the ones that cause serious illness are EHV-1 and EHV-4.

EHV is unique in that horses can be infected with the virus, but show no symptoms. It's estimated that about half the equine population are

latent carriers of the virus. If a latently infected horse is stressed, however, he can begin to shed the virus, subsequently infecting other horses. The virus is spread very easily from horse to horse and can even be carried from one barn to another on the clothes, shoes, or hands of humans. (Humans cannot be infected with the virus, however.)

EHV typically causes respiratory infection, and affected horses exhibit a snotty nose, cough, and fever. Infection with the virus can also lead to abortion in pregnant mares.

A mutant strain of EHV-1 causes neurological symptoms—lack of coordination, hind end weakness, and eventual paralysis. The fatality rate of the neurologic form is about 40 percent, and several high-profile outbreaks have been seen in recent years at show facilities, veterinary hospitals, and racetracks.⁵³

Unfortunately, the vaccination for EHV cannot protect against the neurologic form, only the form that causes respiratory illness and abortion. Vaccination does seem to lessen the severity of symptoms, however, if a vaccinated horse contracts the neurologic form of the virus.

Equine Influenza

Just like humans, horses are subject to infection from the influenza virus. It's not the same virus seen in humans, but the effects are similar: a respiratory infection that is only rarely fatal, but is highly contagious and makes victims feel completely miserable. Symptoms include fever, runny nose, cough, and loss of appetite, and it can take months for infected horses to recover, although most do recover fully.

The equine influenza vaccine offers good protection, although not full immunity. Vaccinated horses who do become infected generally experience milder symptoms.

Strangles

A bacterial infection caused by *Streptococcus equi*, strangles is a very common disease that has afflicted horses for centuries. It's highly

contagious, although not usually fatal. The bacteria cause a respiratory infection (usually accompanied by mucus in the nose) that leads to swelling of the lymph nodes in the head and neck.

The strangles vaccination does not offer full immunity, but it may lessen the symptoms if a horse does manage to become infected. It's available both as an intramuscular injection and an intranasal vaccine.

Potomac Horse Fever

First documented near the Potomac River in Maryland in 1979, but now found throughout the United States, Potomac horse fever (PHF) is caused by bacteria (*Neorickettsia risticii*) that are usually found in streams. Infection causes inflammation of the horse's intestinal tract and is usually accompanied by fever, diarrhea, and a generally depressed demeanor. The disease has a fatality rate of about 30 percent, but can be treated successfully with antibiotics.

The PHF vaccine does not offer full immunity, as it's only effective against one strain of the bacteria, and horses can be infected with different strains in different parts of the country. Vaccination does lessen the severity of symptoms.⁵⁴

Deworming

As long as there have been horses, parasites have preyed on them. The term "parasite" is broad and encompasses a number of different creatures that take up residence in or on the horse's body as uninvited guests.

Parasites wreak havoc in numerous ways. They can physically damage tissue within the body by migrating through it, obstruct arteries, suck blood, and usurp the nutrition from food the horse consumes. A horse infested with parasites looks unthrifty, with a dull, scruffy coat and a potbelly. He is likely to be underweight and have a difficult time putting weight back on. The existence and extent of parasite infestation can be confirmed with a fecal sample that is examined for parasite eggs. The higher the number of eggs, the worse the infection.

Deworming drugs, known as anthelmintics, first became available in the 1960s, finally providing horses some protection against parasites. Deworming programs have become quite robust since then and are credited with significantly increasing the life expectancy of the average horse. Although parasites are still ever-present, and horses always pick them up from their environment, a strict deworming program prevents them from ever building up to a significant level in the horse and causing real damage.

The primary parasites that affect adult horses are large and small strongyles, tapeworms, pinworms, and bots.

The Deworming Program

Horses pick up most parasites as larvae. Once inside the body, these larvae mature into adults and lay eggs, which are passed out with the horse's manure. The eggs hatch into larvae, which the horse ingests, starting the life cycle all over again.

The goal of a deworming program is to break this life cycle, usually by killing the adult worms before they can lay eggs. Deworming programs have evolved considerably in the last forty years. Today, there are two primary weapons in a deworming program, periodic and continuous dewormers.

Periodic dewormers are typically oral paste medications dispensed with a syringe, but they're also available as pelleted or powdered feed additives. Continuous dewormers are pelleted feed additives that are given in very small doses every day.

Most horse owners choose a periodic deworming program that relies on paste medications. Paste dewormers are readily available over the counter and are easy for the horse owner to administer. Most are "broad spectrum," meaning they kill a wide variety of parasites.

A periodic deworming program essentially purges the horse of any parasites picked up since the last treatment. The idea is that the periodic purges prevent the worm load from ever becoming so substantial that it causes harm to the horse.

A horse owner's other option is a continuous deworming program, in which a small amount of dewormer is fed to the horse daily, along with his grain. The goal here is to kill any larvae the horse has ingested on a daily basis, before they can mature. Because the active ingredient in daily dewormers is not effective against bots, manufacturers recommend that horses on these programs be paste wormed every six months with a medication effective against that particular parasite.

There are significant differences among deworming protocols, based on geographic area. Your equine practitioner should be involved in any deworming decisions you are considering.

Drugs and Resistance

When anthelmintics first became available, they were generally effective against only one kind of parasite (or maybe two), so veterinarians recommended rotating among the different classes of drugs to provide full protection. The thinking was that if your dewormer didn't kill tapeworms, for example, this time around, you'd get them eight weeks later when you used a different dewormer.

Today, most dewormers are broad spectrum and are effective against several different kinds of parasites, but not all dewormers are effective against *every* kind of parasite. In addition, certain drugs can have more of an impact if they're given when they have the greatest effectiveness. Because local environmental factors greatly affect when certain parasites are most prevalent, your veterinarian is the best source of help when designing a rotational worming program.

Rotation is also considered important to help prevent the emergence of parasites that are resistant to common drugs. Every dewormer lists its main active ingredient on the box; there are typically several different brand names that all use the same active ingredient. If you plan to rotate dewormers, don't just change brand names; make sure you are using a different drug each time.

Other Methods

Any deworming program typically focuses on the various anthelmintics used, but there are other aspects to parasite control as well. First and foremost is manure management. If manure is removed from stalls and paddocks frequently, there's less opportunity for horses to become infected with the parasite larvae that hatch from that manure.

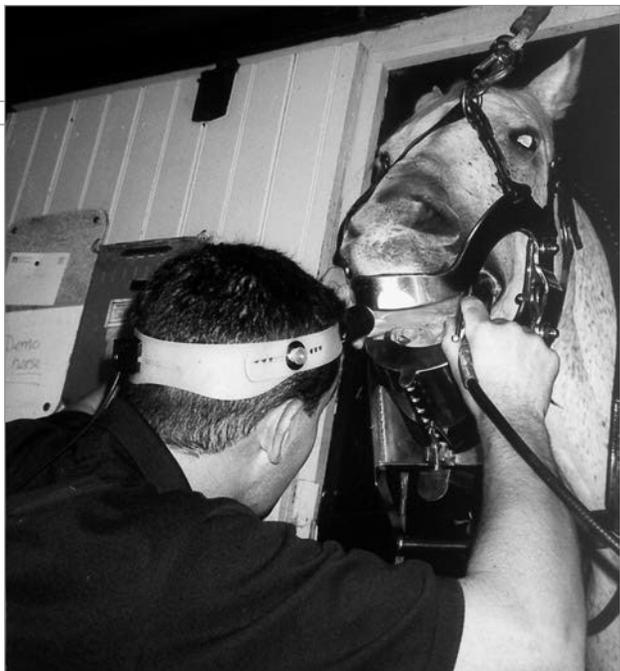
Horses are naturally inclined to defecate in certain portions of a pasture but graze in others, thereby naturally doing some manure management of their own. This only works if pastures are large and not overcrowded, however; if pastures are overgrazed and grass is rare, horses ignore their instincts in favor of getting some grass to eat.

Although manure is an excellent fertilizer and is commonly used on pastures, it should only be spread after it has been composted (which means it's been left to sit for a long period). The intense heat of that process kills any emerging parasite larvae. If *fresh* manure is spread on pastures, you're coating your pastures with parasite eggs and larvae as well as fertilizer.

Dental Care

You might consider the horse's mouth—and specifically his teeth—to be like a finely tuned grass/hay consumption machine. But like any machine, your horse's teeth need periodic maintenance to keep them operating as they should.

Horses' teeth continue growing throughout their lifetime, so their mouths are in a constant state of slow change. The teeth on their lower and upper jaws don't meet exactly—the upper jaw is slightly wider. The grinding action that a horse uses wears down the surface of his teeth but can also leave sharp “points” or “hooks” on the outer edge of the upper teeth and the inner edge of the lower teeth, because those edges don't come in contact with their opposing teeth.



Floating a horse's teeth can be done by a veterinarian or an equine dentist.

If those points and hooks are not attended to, they can become quite sharp and cause serious discomfort for the horse. A horse whose teeth need attention might seem to have difficulty chewing—dropping partially chewed pieces of hay or grass, or mouthfuls of grain—and has trouble maintaining his weight. He can become aversive to the bit while being ridden, perhaps flipping his head with discomfort or objecting to being haltered or bridled.

To prevent the hooks and points that occur naturally from becoming a problem, a horse's teeth should be checked routinely, either by a veterinarian who does dental work or a specialized equine dentist. In a process known as “floating,” the sharp parts of the tooth are filed down, usually with a motorized float, but sometimes by hand with a metal file.

Most horses only need to be floated once a year, but horses who crib or have conformation defects in their mouths—like a parrot mouth (overbite) or undershot jaw (underbite)—might need more frequent dental attention. It's a good habit to have your veterinarian check your horse's teeth twice a year, when he is administering spring and fall vaccinations.

Coggins Test

One final and simple, yet important, piece of your health maintenance plan should be a Coggins test. This simple blood test, which has been in use since the 1970s, screens for antibodies to equine infectious anemia (EIA), or swamp fever, a viral disease transmitted by mosquitoes. Horses can be EIA carriers and show no symptoms, so the Coggins test is important to prevent such horses from spreading the disease. About three hundred horses are discovered to be EIA-positive in the United States every year.

Drawing a Coggins every spring is a ritual for horse owners, as this paperwork is required to transport a horse out of state or to go to just about any kind of competition. Most boarding barns require a negative Coggins as well before they'll let your horse set foot on the property.

But even if your horse rarely leaves the farm, it's a good idea to make this inexpensive test an annual ritual. A Coggins can also be used as proof of ownership, since it includes your horse's identifying marks.

Becoming Familiar with "Normal"

As important as a veterinarian is to any horse's health and well-being, an educated owner is equally important. It's the observant owner who can notice that something's "not quite right," perhaps well before things become serious. It's the owner who can give a veterinarian the valuable information about a horse's daily habits, diet, and idiosyncrasies that can help make a diagnosis.

To detect subtle changes in your horse's habits and demeanor and to assist your veterinarian by providing that all-important information, you need to be intimately familiar with what constitutes "normal" for your horse, both his physical and his mental state. While small changes in your horse's usual behavior or subtle physical changes are not automatically cause for worry, they should be noticed and filed away. Often, subtle changes can point to a much larger problem,

and you're the one who notices and is able to connect the dots to address the problem most quickly.

Vital Signs

Whenever a veterinarian is assessing a horse who might be ill, the first thing she does is look at the horse's vital signs. As your horse's caretaker, you, too, should have this skill—first, to establish what your horse's normal vital signs are, and, second, to be able to check them in an emergency or when you suspect something is wrong.

To take your horse's vitals, you should be armed with a digital watch or one with a second hand. You want your horse to be relaxed and standing still, so the easiest place to do this might be in the crossties in the barn aisle or at a tie-ring in his stall. You don't want your horse to be eating or otherwise preoccupied. Ideally, he should be bored, half-asleep.

Let's start with the horse's temperature. You need a thermometer (either a glass one intended for use with horses, or a regular digital thermometer from the drugstore) and a jar of petroleum jelly, either brand-new, or one you have specially dedicated for this purpose. If you're using a glass thermometer, it should have a string tied to the end that you can hold onto. (You can also attach the string to a hair clip, and then clip it to the horse's tail.)

After washing your hands, dip a finger into the petroleum jelly and use a glob of it to lubricate the thermometer. With your watch at the ready and your horse either tied or being held, stand to the side of your horse's rump, facing his tail. Use one hand to lift the tail and move it to the side, and the other to slide the thermometer carefully and gently into the horse's anus. (Make sure that you're standing off to the side, but close to your horse, so he can't kick you.) If you're using a mercury thermometer, check your watch, or, if you're using a digital, hit the button. Hold both tail and thermometer, and when the appropriate amount of time has passed (per the thermometer's instructions: for glass, three minutes), gently remove the thermometer.⁵⁵ It is helpful at first to watch closely

as your veterinarian performs a temperature check, then repeat the procedure yourself under his watchful eye.

The normal temperature for a horse is considered to be 100.5 degrees, but as in humans, some variance above and below is to be expected. It's usually not cause for worry unless the temperature is over 102 or below 98. Your horse's temperature is also affected by the outside temperature and is slightly elevated after he's been ridden. To get a really accurate estimate of your horse's normal temperature, try taking it at different times of the day for several days.

An elevated temperature is the first warning sign of the onset of many illnesses, so if you are ever "on alert" for a possible outbreak of disease, you should make a habit of checking your horse's temperature twice daily. This way, you'll notice immediately any change and can take action.

Any horse owner easily notices if a horse's rate of respiration is extremely elevated, such as after strenuous exercise—the heaving flanks are hard to miss. But it's also important to be able to check a resting respiration rate. To do this your horse should be quiet, relaxed, and standing still. Have your watch ready and stand at your horse's shoulder, facing his flanks. You can also try putting a hand lightly on the flank, so you can feel your horse take a breath as well as see it.

Watch or feel for the inhale and exhale, and the rise and fall of your horse's flanks, for several breaths to become attuned to your horse's rhythm, then check your watch. If your horse will stand still long enough, you can count for a full sixty seconds to get the most accurate measurement. If not, try to count for as long as you think the horse will stand still—fifteen, twenty, or thirty seconds—and then multiply the number you get to determine the breaths per minute.

A normal respiration rate is considered to be between eight and sixteen breaths per minute. An elevated respiration rate, or one that does not quickly return to normal after exercise, is generally a sign of distress.

If you have trouble detecting your horse's breaths by watching or feeling his flanks, you can also try putting your hand in front of his nostrils, where you can feel him blow out. The problem with this method is that

horses usually try to sniff your hand instead of breathing normally. He's paying attention to *you* and might not stand still for very long. But if you leave your hand there for a few seconds while encouraging your horse to stand still (and ideally go back to sleep), you should eventually be able to get an accurate count.

To take your horse's pulse, stand to his side by his head. Put one hand on his nose or halter to hold his head still, and put the index and middle finger of your other hand along the bottom of his jaw, right near where his curved cheekbone begins and his lower jaw ends. (Don't use your thumb; your own pulse makes it impossible to feel your horse's.) Keep the pressure of your fingers relatively light and feel around for the gentle throbbing sensation of a pulse. It takes some practice to find. If you're unable to do it, have someone experienced help you find the spot.

Once you've found the pulse, keep your horse still and check your watch. Count for fifteen seconds, then multiply by four to get your horse's heartbeats per minute. Normal resting heart rate is about thirty to forty beats per minute. An elevated pulse in a horse at rest usually means he's in pain or distress.

Being able to take your horse's pulse is also handy if you're working on improving his fitness. You can jump off after finishing a trot or gallop set and take a quick pulse: as a horse gets fitter, his heart rate after exercise decreases.

Other Indicators of Distress

Whenever your horse seems slightly "off," these checks will help confirm or alleviate your fears and give you some more information to pass on to your veterinarian.

Capillary refill time (CRT) is a test of the horse's circulation. To check capillary refill, pull up your horse's upper lip and press on his gums, right above his upper teeth, with your thumb. Press down firmly for two seconds, then lift your thumb: you should see a white mark where your thumb was, and it should disappear in one to two seconds as

blood returns to the capillaries. If the white mark remains for longer than two seconds, it can indicate that the horse is going into shock.

Observing the color of the horse's mucous membranes (his gums and the linings of his nostrils and eyelids) can provide another indicator of distress. In a healthy horse, mucous membranes should be a pale pink. If the mucous membranes are much paler than normal, much redder than normal, grayish-blue, or yellow, call your veterinarian.

A quick listen to your horse's gut sounds helps to assess if there might be digestive trouble going on. Put your ear up against the lower half of his barrel near his flank (or use a stethoscope). Check both sides: if you hear gurgling and grumbling, all is well. If you don't hear anything, that's cause for concern.

Finally, there's a very simple test for dehydration that every horseman should know. With your thumb and index finger, pinch a "tent" of skin in the middle of your horse's neck. Let it go, and watch how quickly it snaps back into place. If the skin stays "tented" for more than one second, the horse is dehydrated. The longer the skin pinch remains, the more dehydrated the horse is.

Practice taking your horse's vitals and doing all of these quick tests. During your veterinarian's next routine visit, ask the expert to watch your technique. You not only will have added to your horsemanship skill set but you also will have valuable tools available with which to assess your horse's normal state.

Legs

With age and use, all horses start to accumulate what horse people call "jewelry"—little bumps, lumps, and swellings on their legs. The presence or lack of these little imperfections isn't as important as whether any of them has changed. A new bump or swelling might indicate a strain or other injury brewing. It's important to know every inch of your horse's legs and to check them daily for any changes.

You're probably already familiar with most of your horse's lumps and bumps, but make a point of really going over his legs and memorizing their topography. Do it both before and after the horse is ridden, and when the horse first walks out of the stall, since many horses stock up (accumulate fluid in the legs) when they have not been moving around. (If you don't know whether your horse is one of those, this is a good opportunity to find out!)

Look at both front legs in comparison to each other, and both hind legs. Are there any differences? Is one knee or hock larger than the other? Is there a windpuff (a small swelling on the fetlock) on one leg, but not on its opposite?

After doing a visual inspection, run your hands all over your horse's legs. Feel the joints and take note of any swelling, or "filling." (Don't forget the stifle joints, which you can feel best by standing directly behind the horse, if it's safe to do so.) Ideally, the knees, hocks, stifles, and fetlocks should all feel flat and firm, not "squishy."

Check the splint bones, which are on the sides of each leg, and take note of the location of any splints. Old splints are hard and cold; new ones are warm and painful. Horses can get splints on their hind legs, but they're most often found on the front ones, and generally on the inside, as opposed to the outside, of the leg.

Also run your hands down the back of your horse's legs to feel his tendons and ligaments. Familiarize yourself with any normal soft spots and swellings. For example, blood vessels right under the knee can sometimes be mistaken for a swelling along the tendon. Any injury to a tendon or ligament will be accompanied by heat and swelling, but it can be very slight if an injury is just starting to brew. By checking your horse's legs regularly, and especially if you ever feel like he's "not quite right," you might be able to detect a very small injury before it becomes a major one.

It's also a good idea to know how your horse normally moves. Watch him on the longe line or work him in a round pen occasionally so you're familiar with his normal way of going and can spot any changes.

Habits

In addition to all of the physical indicators, your horse's demeanor will tell you when something's not right. If he doesn't feel normal, he's not going to act normal. Train yourself to notice little things. If your horse doesn't greet you at the pasture gate as usual, but instead remains standing in the field with his head hanging low, check for other indicators that might show you something is wrong—an obvious wound, a damaged gate or other problem in the horse's environment, or an untouched meal in the feed tub. Calling to your horse might start him limping toward you, a clear indication of where the problem lies, or worse, disclose an unwillingness or inability to move.

It might be that your horse is in the middle of a nap; if so, you'll realize quickly that nothing is out of the ordinary. But the more attention you pay to small changes in behavior, the better you're able to notice when something goes wrong and spare yourself the reproach of not taking action sooner.

Note your horse's eating and drinking habits. Does he tend to leave some of his hay and go back to it later, or does he eat it all in one sitting? Does he just take occasional sips of water from the bucket in his stall, preferring to wait and guzzle from the trough once he's put out? Does he occasionally leave some of his grain uneaten, or is he a bucket-licker who gets every last kernel?

Be cognizant of your horse's stall habits. Some horses leave all their manure in one pile in a particular corner of the stall, while others defecate whenever the mood strikes, turning their stall into a manure pit. If your horse's normally neat and tidy stall is a mess in the morning, it should set off alarm bells instantly. He might have been in discomfort and pacing half the night. If there is no manure in the stall, an impaction colic may be brewing. This is a serious situation (see page 209).

Pasture behavior can tell you a lot, too. Does your horse immediately head for his favorite dirt spot and roll when you turn him out? If he suddenly stops that behavior, it could be an indicator that he's sore somewhere. Does he like to lie down during his daily nap? After the

heart-stopping experience of glimpsing your horse lying pancake flat and motionless, you will learn that this sleep pattern is normal for many horses.

If you keep your horse at home and handle his care yourself, familiarizing yourself with his routine is pretty effortless, but it's a little more work if you're at a boarding barn. If you have a responsible barn manager, he will take note of these things and should be able to alert you if there are any major changes. But you should learn your horse's routine yourself: go to the barn at different times of the day, make a point of being there during a farrier's visit, and ask questions of the barn staff when your path crosses theirs. That way you'll know what's "normal" for your guy if you ever take him off the property.

Major Medical Issues

Colic

Colic is a generic term for any sort of equine abdominal pain. It can be something very mild and almost unnoticeable that passes on its own or with minimal human intervention. It can also be a serious, life-threatening issue that requires risky and expensive surgery. And sometimes it can be fatal.

Every horse is susceptible to colic. Your feed and management choices can greatly reduce, but never eliminate, your horse's risk. It's important to be familiar with this ailment and learn the signs of trouble, especially since rapid veterinary intervention can prevent a mild colic from becoming much worse, and can greatly improve a horse's chances of survival when the case is serious.

Horses who are colicking generally act depressed and usually, although not always, will be off their feed. They may have slightly or significantly elevated vital signs, slow capillary refill time, and abnormal color in the mucous membranes. They also show several telltale signs that are typical of abdominal discomfort—kicking or biting at their bellies or turning to look at them; repeatedly lying down and getting up in an effort

to alleviate their discomfort; pawing; stretching as if to urinate; and rolling, sometimes violently.

If you think your horse might be colicking, remove the feed and water from his stall. Call your veterinarian and relay all the symptoms, your horse's general demeanor and vital signs, and any other important information. Don't administer any medication unless your veterinarian tells you to do so. While waiting for your veterinarian to arrive, hand-walking your horse might help the colic resolve itself and will keep your horse from rolling. It used to be thought that rolling could contribute to a twisted intestine, and while that's no longer the conventional thinking, you probably want to try to minimize rolling if you can do so safely, just so your horse doesn't injure himself by thrashing around.

There are many different types of colic, but the most common are impaction colic and gas colic.

Impaction colic is the result of a blockage somewhere in the horse's digestive tract, usually from partially digested food that is not moving through the system as it should. It can occur in either the small or large intestine, but most often happens in areas of the large intestine where the tract narrows and then widens again. The horse experiences pain when the muscles in the walls of the intestine contract strongly to attempt to move the impaction along.

Because food material moves through the digestive system rather slowly, impaction colic can take some time to make itself evident. Signs may be very subtle at first but become much more obvious as the horse's condition deteriorates and pain increases.

A horse suffering from an impaction colic shows signs of depression and abdominal pain, although her vital signs may still be within normal limits at first and gut sounds likely still evident (and may even be louder than usual). The horse may stop passing manure or produce abnormal manure that's very dry or coated in mucus.

Treatment often includes giving the horse intravenous fluids, not only to keep her hydrated but also to encourage increased secretion of water into the intestines, helping to soften and break up the blockage. Your

veterinarian is likely to administer pain-relieving medications that relax the smooth muscles of the intestines, also to help the impaction pass.⁵⁶

Gas colic occurs when a buildup of gas causes distention of a portion of the intestine. It can be caused by ingesting a large amount of rich food, like spring grass, which then ferments in the digestive tract, or by a sudden feed change. The horse shows the typical signs of colic, and his flanks may look slightly bloated, but usually gas colic is diagnosed because of an absence of indicators of the other types of colic, rather than an affirmative diagnosis.

Fortunately, gas colic can usually be resolved relatively easily. Your veterinarian will likely administer some pain medication, but otherwise, the treatment of choice is often simply walking the horse to encourage increased gut motility so the gas passes.

Most of the time, impaction and gas colics can be treated successfully on the farm. But some colic cases are extremely grave and require emergency surgery if the horse is to have any chance to survive.

The horse's intestines are not firmly anchored in his abdominal cavity and can sometimes move out of their normal positions. When this happens, it's possible for a portion of the intestine to twist, and if the twist is tight enough, blood flow to parts of the intestine is cut off, and the tissue starts to die. When the intestines are damaged, they leak toxins, making the horse gravely ill. Emergency surgery is required to resolve the twist—also known as a torsion—and perhaps remove damaged sections of the intestine.⁵⁷ Advances in surgery, anesthesia, and after care make surgery a reasonable option for many life-threatening types of colic.

Laminitis

Like avoiding colic, avoiding laminitis is often cited as the reason for following many “rules” of horse management. Laminitis is a disease that is still not well understood, is difficult to treat, and often does not have a very successful outcome. The Thoroughbred Barbaro, the 2006 Kentucky Derby winner who shattered his hind leg in the Preakness Stakes, recovered from his broken bones; however, the painful and incurable

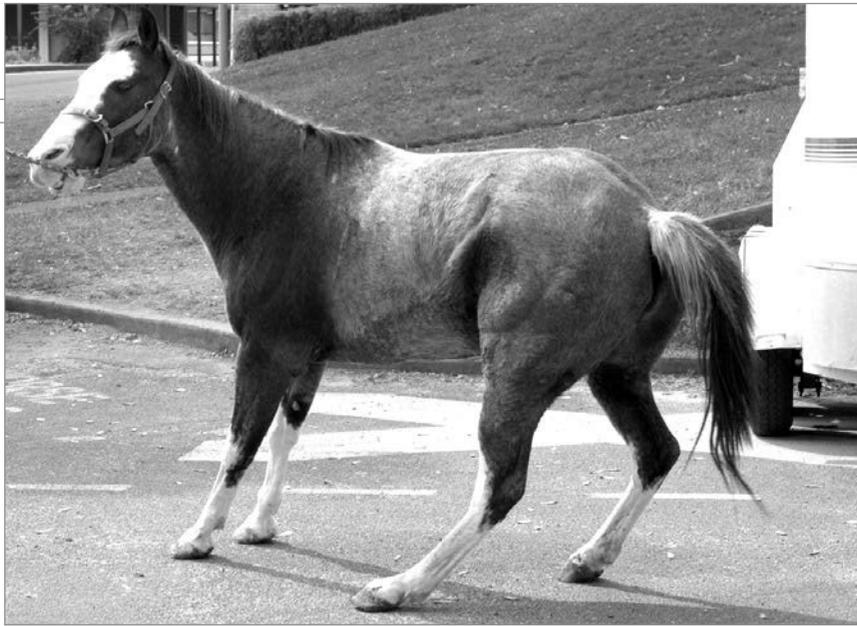
laminitis he developed months after the initial injury led to his being euthanized.

Laminitis is a disease of the sensitive laminae of the hoof. The laminae are living tissue that form a sort of suspension system in the hoof, attaching the bones of the foot to the wall of the hoof. When a horse has laminitis, the laminae begin to break down and may fail altogether. When the breakdown is severe, the bones of the foot can rotate and even pierce the sole of the hoof. This drastic occurrence is technically called “foundering,” a result of the laminitis so linked in the minds of most horsemen that founder and laminitis are often used interchangeably.⁵⁸

The disease exists in two forms, acute and chronic. Chronic laminitis is less severe and is usually seen in overweight ponies or stocky breeds of horses. Whenever such an animal gets too fat or has eaten too much rich grass, he has a bout of laminitis. These cases are usually milder, and the damage done inside the foot is not usually as severe as with acute laminitis, but the damage from repeated bouts can be cumulative. Horses with chronic laminitis may show rings or ridges on the walls of their hooves as the hooves grow, each ring revealing a different episode. Acute laminitis comes on very suddenly, can be extremely painful, and is much more serious.

Laminitis has many different causes. It can be traced to toxins released from the digestive tract during a bout of colic, or the result of a horse getting loose and gorging himself at the grain bin. It can be mechanical, caused by the excessive pounding of riding a horse on very hard ground (known as road founder) or an overweighting of one limb, such as when a horse is favoring the opposite leg due to an injury. Horses with insulin resistance or Cushing’s disease are much more prone to laminitis.

The exact nature of what happens within the foot during an episode of laminitis is, like much of the disease, not fully explained. But it’s believed that blood is routed away from the laminae, which then suffer tissue damage. Inflammation and increased blood flow occurs, which causes extreme pain because the foot is bound by the solid structure of the hoof wall.



COURTESY OF CHRIS POLLITT (AUSTRALIAN EQUINE LAMINITIS RESEARCH UNIT)

The classic founder stance, in which the horse is rocked backward to take his weight off his front feet.

Laminitis most often affects the front feet, but can be seen in all four feet as well. In the case of a horse compensating for an injury on the opposite limb, just one hoof may be affected.

A horse that is suffering from laminitis displays a typical “founder stance”: he rocks back onto his hindquarters, in an attempt to get weight off his aching front feet. His hooves are hot to the touch, and you may be able to feel a pounding pulse in the fetlock (known as the digital pulse). Laminitis is an emergency situation, and your veterinarian should be called immediately, since it’s thought that most of the damage occurs very quickly after the onset of symptoms.

The primary concern with laminitis is whether the supportive structure of the laminae stays intact. When the attachment provided by the laminae is weakened, the coffin bone, which is at the bottom of the bony column of the horse’s leg, is not held firmly in place. The tendons that attach to the coffin bone exert rotational forces on the bone, and the coffin bone can start to rotate within the hoof. Coffin bone rotation can be seen on radiographs. In very severe cases, the bone may rotate far enough that the point of the coffin bone pierces the sole of the horse’s hoof.

The blood supply to the dorsal hoof wall has been interrupted in this case of severe laminitis. As a result, normal hoof growth and attachment to the coffin bone are impossible.



Even more severe than coffin bone rotation is “sinking”: if the laminae fail completely, there’s nothing holding the horse’s hoof wall to the bones of the foot, and the entire bony column of the leg sinks. This typically is a life-threatening condition for which euthanasia is recommended.

Treatment for laminitis generally involves anti-inflammatories, and your veterinarian may recommend soaking your horse’s feet in cold water. Your farrier plays an important role in your horse’s treatment as well, as horses who have suffered laminitis, especially if there has been any rotation of the coffin bone, need corrective trimming and/or therapeutic shoes and pads. Cryotherapy (cold therapy), heat therapy, loading variation, vasodilatory drugs (which increase blood flow in the foot), anti-inflammatory medications, and diet/weight management are possible treatments.⁵⁹

Any horse who has foundered is at increased risk for doing so again and must be managed very carefully. Close attention must be paid to his diet, his weight, and especially to his access to lush grass.

Lamenesses

Just like humans, horses can have aches and pains, especially as they get older. In the case of equine athletes, they're putting a lot of stress on their bodies and are always at risk for acute injury or developing a chronic condition.

Exploring all of the myriad lamenesses horses can suffer in detail is beyond the scope of this book, but we do think it's important to understand some of the common causes of lameness and to recognize when your horse is lame, so you can consult with your veterinarian to obtain a diagnosis and a course of treatment.

The term "lameness" generally encompasses any injury that causes pain to the degree that it affects a horse's gait. Included are soft tissue injuries, such as a strain to a tendon or ligament, and permanent arthritic changes in the bones of a joint, such as the hock or the fetlock. Horses can even sustain small hairline fractures. The possibilities, unfortunately, are nearly endless.

Any horse in hard work is at increased risk for developing lamenesses, especially as he ages and accrues more mileage, but you also find lamenesses in horses who have led relatively easy lives as pleasure horses or pets. Often, what sets a sound horse apart from one with chronic lameness issues is a mystery.

One of the most important contributing factors to a horse's soundness (or lack thereof) is his conformation. The horse supports his half-ton of weight on his legs virtually his whole life. If his legs are not put together correctly, certain areas are stressed and are then at risk for injury.

For example, a horse with very straight pasterns tends to have a more jarring and concussive gait than a horse with sloping pasterns, which can lead to lamenesses such as navicular (a degenerative condition of one of the bones in the foot). A horse with overly sloping pasterns exerts more force on the tendons that support that leg, making him more likely to suffer a bowed tendon.

The way in which the horse is ridden contributes greatly to his soundness. It's wise to think of a horse as having a finite number of jumps,

barrels, spins, or pirouettes in his future. Unfortunately, we don't know exactly what that number is, but it's a reminder to use a horse gently. There's no reason to jump the same fence or run through the barrels a dozen times. You're only putting more "miles" on the horse and ushering him more quickly toward the end of his serviceable life span. It is often the case that a rider needs much more practice mastering a skill than does his horse—in such circumstances, rides on other horses can be his horse's best ally against injury caused by excessive use.

Footing also plays a great role in soundness. Very hard footing leads to more concussion on the feet and limbs; extremely soft and deep footing leads to more stress on the tendons and ligaments. A good rule of thumb is to avoid excessive hard work in footing that is either too deep or too hard.

And, finally, it's important to recognize the relationship between soundness and fitness. A stressed or tired horse is at much greater risk of injury than is a horse who operates well within his physical limits. An unfit horse needs to be brought back into work gradually, with slow increases in what you ask of him. Pulling a horse out of the pasture for the first time in three months and going for a trail ride with lots of hills and galloping is a surefire way to bring on an injury. But with an appropriate return to fitness, the same trail ride won't cause an issue.

Unfortunately, even horses with stellar conformation and the best of care can develop lamenesses. Recognizing lameness, both visually and by feel, is a skill that takes some time to develop. If you don't have much experience with lameness yourself, see if you can ride along with your veterinarian on a few calls one day or ask your trainer or barn manager to help you learn to see and feel the signs the next time the manager has a lame horse under her care. Recognizing a slight lameness early on will help to prevent further damage and give your horse a greater chance for full recovery.

Many lamenesses are accompanied by heat and swelling in the affected area. Here is where knowing the topography of your horse's legs is put to good use. If you suspect a lameness, run your hands along your horse's legs, especially the joints and the tendons and ligaments that run down

the back of each leg, comparing each leg to its counterpart on the opposite side. A warm or swollen spot that isn't usually there and doesn't exist on the opposite leg is a good indicator of an injury.

Watching the horse move is one of the best ways to assess lameness. A horse who is in pain attempts to relieve pressure on the affected limb by altering his gait. His length of stride with that leg is shorter, leading to an unevenness that can be very slight or quite pronounced. If you watch where each horse's foot falls as he walks or trots, you can sometimes see that he's stepping shorter with one leg—not reaching up under himself or forward as far with that leg as he is with the other.

You might also notice a slight bob of his head, one telltale sign of lameness. The horse jerks his head *up* slightly when the lame foot touches the ground because it causes pain. The “bob” you see is the horse relaxing back to his usual head position when the sound foot touches the ground. A head-bob might be noticeable at the walk but is usually more pronounced at the trot.

Watching a horse on the longe line is often the best way to detect lameness, because the small size of the circle forces the horse to bear more weight on his inside limbs. If he's lame on the right front leg, for example, he looks much more “off” being longed to the right than to the left.

As a rider, you're most likely to first notice a lameness by feel. You may swing up into the saddle and instantly notice something is wrong. During the course of a ride, you might have a nagging feeling that something seems “off.” Or you may just have fleeting moments where it feels as if your horse takes an uneven step.

If you're getting that “something's not quite right” feeling, try trotting your horse in a small circle in both directions. When there's a marked difference in the way the horse moves and feels in one direction, it's a good indication of lameness.

It's best to err on the side of caution. If you're riding and something *seems* off, but you're not sure, you're better off quitting for the day, performing a leg and hoof examination, and checking your tack. If the

horse is not sound the following day, or if any visible signs of injury or trauma emerge, it's time to call your veterinarian for an expert opinion.

Recognizing an Emergency

As you observe your veterinarian treat your horse for minor problems, you become pretty good at following his instructions on your own when similar problems present themselves. You learn to evaluate a cut, scrape, or minor swelling, monitor it for signs of trouble or healing, and become confident enough in your own basic knowledge that you can try a few things on your own for minor injuries, with the ever-present caveat that you'll be on the phone to the veterinarian posthaste if things get worse, or if there's no improvement in a day or two.

Certain situations have **CALL THE VET NOW** written all over them. Time is often of the essence; some minor dithering and amateur doctoring on



THE HSUS / ERIC DAVIS



THE HSUS / ERIC DAVIS

A bloody laceration like this one, at left (caused by a sharp edge on a broken partition of a horse trailer), requires veterinary attention; in this case, to remove damaged skin and stitch the wound. (The wound healed without significant scarring.)

your part can delay the treatment your horse *really* needs and might cost him his life (see page 229).

Every horseman sooner or later walks into the barn or pasture only to see a horse with a bloody laceration. Many times such wounds look much worse than they are, but all should be treated with an abundance of caution. In dealing with these injuries, the location is critical. The particular danger zones for lacerations/puncture wounds in the horse are:

- over any joint;
- on the back (palmar or plantar surface) of a leg—an injury to a flexor tendon is much more serious than to an extensor tendon;
- on the coronet (or coronary band) of the hoof; and
- on the middle third of the bearing surface of the hoof.

Large puncture wounds to the thorax and abdomen (such as those resulting from a metal T post) can enter these body cavities and be life



Recovery is possible, even from a devastating injury. After this mare fractured her skull, her veterinarian was able to put the pieces back together in time for her to celebrate her thirtieth birthday fully healed.

AMY KOLZOW

threatening. Wounds on the large muscle masses of the chest, rump, and neck can look horrible, but they heal quite easily and don't compromise survival or soundness. Though large amounts of blood can be lost with such injuries, horses have a lot of blood.

Assess whether the wound is still bleeding. If the wound is bleeding heavily or spurting blood, use anything you have handy that's clean—a towel, a big wad of first-aid cotton, a T-shirt—and put pressure on the wound to stop the bleeding with one hand while you call the veterinarian on your cell phone with the other. (Well-padded bandages stop nearly any bleeding. Tourniquets should not be used, however.) If the wound isn't bleeding anymore, but it looks as if the horse has lost lots of blood, call the veterinarian ASAP.

If the wound isn't actively bleeding, take quick stock of the horse's condition. You don't need to do a full run-through of his vital signs; just do a thirty-second version. Take a glance at his flanks and see if his breathing is heavy or shallow, slide a finger under his jaw to see if his pulse feels very fast or very slow, and flip up his lip and quickly check his capillary refill time and the color of his gums. If things seem relatively normal, you can take a bit more time to assess the situation; but if the horse seems to be in distress or going into shock, call the veterinarian before you go any further.

Assuming the horse is stable and calm, use a hose to gently wash away the dried blood and take a good look. A wound that's very deep, or one that has created a flap of skin that's hanging loose, requires stitches. Time is of the essence in these cases. Ideally a wound should be stitched within the first six hours after injury. If you're unsure whether the wound needs stitches, call your veterinarian and describe the cut, and let him decide.

Any wound that involves a joint or a tendon sheath should be seen by a veterinarian, regardless of other factors. Infection in either is very dangerous, so you want your veterinarian involved right away.

The most basic common emergency (for non-race horses) may be one of the most preventable: an injury caused by improper fencing or stabling.

Infected fetlock joints, severed flexor tendons, infected hocks, and fractured legs all can cause the horse severe pain and cost thousands of dollars in care, whether the horse is in the richest county or the poorest.

The other major heart-stopper for horse owners is colic. It can be very acute and very painful, with the horse thrashing around and in obvious pain, or it can be very silent and insidious, with the horse standing mostly quiet but in distress.

As we've indicated, some colics are quite minor and resolve quite easily with minimal intervention, but it's still best to place a call to your veterinarian once you are convinced something is wrong. Even if you're relatively sure the colic is just a mild tummy ache, and you don't want to "bother" the veterinarian with a false alarm, a brief phone consultation will alert you to what the veterinarian wants you to monitor. Don't wait until you're *sure* it's an emergency to discover your veterinarian is out of town or not immediately reachable.

Report what symptoms you noticed when and under what conditions, whether your horse is sweaty and agitated, or calm but in slight discomfort. Take his vitals, listen for gut sounds on both sides, and check his CRT and mucous membranes. Take note of the condition of his stall: is it messy, as if he's been walking around in circles? Does he have shavings in his tail, indicating that he's been down? Is there less manure than usual in the stall? Has he finished his last meal?

Pass all of these observations along to your veterinarian, who will use this information to assess the severity of the situation. If the colic seems very mild and the veterinarian is comfortable with your ability to manage it, she may give you some basic instructions and have you call back in an hour or two with a progress report. But if the veterinarian thinks it sounds worrisome, or the horse is particularly fragile (an elderly horse, for instance, or one who has had previous colic episodes), she may want to see the horse sooner rather than later.

Any colic, regardless of severity, warrants a call to the veterinarian, even if it's just a "heads up" that you might need help later. Colic is one of the leading killers of horses, and even a mild bout should be taken very, very seriously.

In addition to the big two—serious wounds and colic—there are other instances that merit an immediate veterinary call (see page 229).

Any veterinarian will tell you it's better to call when it isn't really necessary, than not to call until it's too late. Your veterinarian knows you don't want to spend the money on an emergency call if it's not necessary, but you should at least make initial contact, describe the situation, and listen to your veterinarian's counsel.

Make sure that you have all of your veterinarian's phone numbers conspicuously posted at your barn, as well as the numbers of a few backup practitioners, in the event that your primary veterinarian is already out on an emergency call or is otherwise unavailable. Program the numbers into your cell phone as well.

Being Prepared

To be prepared for minor injuries, every horse owner should have on hand a fully stocked first-aid kit with all the essentials (see page 223). Put everything in one spot, such as in a clear plastic bin, clearly labeled "First Aid," so others can find it in your absence. It's also helpful if the box is portable, so you can take it with you whenever you travel with your horse.

Check your kit periodically to see if it needs restocking, or if any of your medications has expired. If possible, keep the kit somewhere climate-controlled, so it isn't exposed to extreme heat or cold.

The longer you have horses, the more injuries you'll come across, and you'll soon amass a collection of your favorite products for all the minor cuts and scrapes your horse presents to you. Make sure that you always have whatever products and materials you prefer on hand and easily accessible so you're prepared for an emergency.

Disaster Planning

Most horse owners are good about preparing for everyday emergencies, since most horses can make minor emergencies seem like an almost-

Your First-Aid Kit

Your first aid kit should include

- an antiseptic (Chlorohexidine or Betadine solution)
- triple antibiotic ophthalmic (Neosporin) ointment
- a box of sterile rolled cotton or sleeves of sterile gauze pads (3 x 3 or 4 x 4) (to ensure that you always have something clean on hand with which to clean a wound)
- prepackaged EZ scrubs or an antiseptic soap (Chlorohexidine or Betadine)
- non-stick gauze pads
- bandaging materials (VetRap or elastic bandages, and a supply of sheet cotton)
- bandage scissors (blunt-ended and angled, making it easy to cut off a bandage that's already been applied)
- thermometer
- stethoscope
- commonly prescribed medications—Bute (the horse equivalent of Tylenol or Advil), Banamine, etc. (to be used only under instructions from your veterinarian)
- needles, needle syringes, oral dosing syringes (to be used only with instructions from your veterinarian)
- military compress bandage (or “war bandage”)—designed to stop significant bleeding and containing a large sterile bandage pad and two rolls of sterile gauze bandage
- flashlight (or headlamp)
- wire cutters
- clean towels
- duct tape
- examination or surgeon's gloves
- hydrogen peroxide (to remove blood from hair)

everyday event. While it's important to be prepared for the run-of-the-mill injuries, you also need to think about the unthinkable—hurricanes, wildfires, blizzards, terrorist attacks. Disasters, which can happen anywhere, include barn fires, hazardous-materials spills, propane line explosions, and train derailments, all of which may require evacuation. You should be prepared to move your horses to a safe area.

The risks you face will vary widely depending on where you live, but you can think about disasters as falling into one of two categories—situations where you need to evacuate, and situations where you're stuck on the farm with limited resources and need to get by.

If you are unprepared or wait until the last minute to evacuate, emergency personnel could tell you to leave your horses behind. Your horses could be unattended for days, without food or water.

In the event that you must evacuate, you will need transportation for your horses. If you have your own truck and trailer, keep them in good running order, to be used at a moment's notice. If you don't have your own rig, or if your rig can't take all of your horses in one trip, try to make arrangements with a friend who has extra spots in his trailer ahead of time, so you're not calling around frantically at the last minute.

Make sure your horses know how to load and load *well*. During an emergency, when everyone is rushed and frantic, the *last* thing you want to do is to try to calmly cajole an unwilling loader. If your horse hasn't learned how to load yet, make it a priority to teach him right away—don't put it off.

Take the time to put together a list of the things you'll need if you ever have to leave in a hurry (buckets, portable water jugs, halters with name tags, lead ropes, extra feed, medications, a first aid kit, cat carriers for the barn cats). Think about how you could easily and quickly collect these things, and then make sure you're prepared to do so. Keep a portable container handy that holds four or five days' worth of your horse's grain. You can fill the container quickly and won't have to drag along a whole fifty-pound bag.

Make copies of your horse's Coggins test, vaccination records, bill of sale, and other important paperwork, and keep them in a waterproof

envelope in your tack room or towing vehicle. Include photographs that you can use for identification or to prove ownership, if necessary. These should be shots taken from both sides of the horse and of his head, showing any identifying markings.

Finally, think about where you could go, if necessary. If you live in a hurricane-prone area, state or local authorities may have predesignated facilities inland (fairgrounds or racetracks with lots of stalls available) as evacuation destinations. (Your local animal care and control agency, agricultural extension agent, or local emergency management authorities can provide this information.) Make a list of these facilities, plot out several evacuation routes you can use to reach them, and keep those written directions and a good map in your towing vehicle. Alternatively, make arrangements with friends or family who have horse property at a safe distance from home to put you and your creatures up for a few days. Give yourself several options, so you can choose the best one for the situation at the time. Inform friends and neighbors of your evacuation plans. Post detailed instructions in several places (the barn office, horse trailer, barn entrances) to ensure they are accessible to emergency workers in case you are away from home and unable to evacuate your horses yourself.

There are times when evacuating is more dangerous than staying, or you may simply not have any advance warning. A tornado might knock out electricity, or a blizzard may leave you and your horses snowed in. For these scenarios, you need to be prepared to be self-sufficient for a few days, until help and resources can reach you, or until the situation resolves itself.

A primary concern for horse facilities during power outages is providing water for the horses. Keep large, clean containers that are specifically designated for emergency water reserves—plastic garbage cans or extra water troughs, for instance—and if you have any warning that a storm is approaching, fill up every spare container you own before it arrives. Consider buying a water storage tank that you can keep full just for this purpose for the disasters that come without warning. Consider

investing in a generator that can run your well pump if the power is out for any length of time.

Think about your property and whether horses would be safer inside or out in a storm. If your barn is old and not particularly sturdy, your horses might be better off in a pasture—you don't want them trapped if the barn collapses. If you're in a flood-prone area, you definitely *do not* want to leave horses locked in their stalls. Their natural instincts will help them find high ground in the event of a flood, but they'll drown in their stalls if locked inside.

If you do plan to leave your horses outdoors in certain situations, make sure you have spray paint and livestock markers, as well as break-away halters with indelible name tags, on hand. The tag should include your name and phone number, your horse's name, and the number for a friend or family member who lives outside the area. Since horses can lose their halters in a storm, physically paint a phone number on your horse's side with spray paint or a livestock marker.

Make sure you always have plenty of hay, grain, medication, and bedding—don't allow your supplies to run low. In the event of an unexpected emergency, you may have to make do with what you have for several days.

If you keep your horse at a boarding barn, these emergencies are mostly out of your control, but talk with your barn manager and ask about any emergency plan. If the manager doesn't have one, help him come up with one.

Emergencies are so varied and so unpredictable, it's almost impossible to imagine every scenario you might face. But if you take the time to think about the situations you might encounter, where you could go, and what your horse would need, then plan around those possibilities, you'll be in much better shape than if you leave everything up to chance.

"Disaster Preparedness for Horses" (available from The HSUS, 2100 L Street, NW, Washington, DC 20037) is a brochure that can be helpful in your planning process; the American Red Cross's website features "Barnyard Animal Rescue Plan," from the Animal Rescue Council; the American Association of Equine Practitioners posts relevant links on its

site; and the Maryland Horse Industry (www.marylandhorseindustry.org) offers some good information as well.

Patience Is a Virtue

If you are fortunate, you will never have to deal with a Category 5 hurricane or a wildfire roaring down a canyon during your horse-owning career. You will, however, face numerous instances in which your nursing skills are put to the test after the veterinarian has packed up his bag and left you and your horse alone. The veterinarian's post-visit instructions may mean days—even weeks—of soaking a foot, wrapping a leg, salving an eye, or irrigating a wound.

Your best ally will be your patience as you learn how to wrap, soak, salve, irrigate, inject, dose, hand walk, and/or mix medications. That patience will be put to the test if your horse's fear or pain causes him



The horse owner will need to monitor this taped and bandaged heel cast to make sure the tape stays in place.

AMY KOLZOW

A case of “rain rot” (caused by a bacteria getting into skin damaged by constantly being wet) responds to simple treatments, including coal tar shampoo or vinegar.



THE HSUS / ERIC DAVIS

to fight your nursing care, or if his initial cooperation turns to outright resistance to repeated unpleasant procedures.

A second set of hands is always helpful. If a helper isn't available, plan each treatment carefully to avoid an unproductive or dangerous battle with your patient. Remove all extraneous equipment from the treatment area and make sure extra towels, an adequate lighting source, and all medications are close at hand. Experiment with safe restraint methods—some horses are more comfortable in a stall than on crossties; others may respond best if you hold the lead rope in one hand and administer care with the other rather than tie them to a fixed object. Try to remain reassuring, methodical, and calm during the treatment. Be philosophical about collateral damage: a soaking bucket *will* overturn; bottled medication *will* spill or stain your clothing; VetRap *will* be wasted as you rewrap. Practice makes perfect eventually, and you will reap the added benefit of seeing your horse return to health with his trust in you intact.

Ten Symptoms Requiring Immediate Veterinary Attention

These situations indicate nonspecific but potentially serious problems. A list of possible causes of these symptoms is not included, because owners should call an experienced veterinarian when they are observed. These are emergency situations and are not a time for inexperienced diagnosis.

1. Horse unable to stand.

Like other prey species, horses normally stand when approached. Horses feel safest when they are in a position to escape if necessary. A horse who is unable or unwilling to do this may be injured, colicky, or suffering from neurological disease.

2. Horse unwilling to eat.

The digestive tract of the horse is designed to have feed passing through it more or less continuously. Horses may ignore palatable feed if distracted or frightened, but only for a short period. They are designed to eat continuously. Failure to take interest in food may indicate gastrointestinal discomfort, pain, or other serious conditions. (On the other hand, horses drink infrequently and only for a short period.)

3. Horse unable to bear weight on one leg.

Horses should stand with "a leg on each corner." Complete unwillingness to use one or more legs for support may indicate a fracture, severe tendon or ligament injury, or an infected joint. A simple sole abscess may cause a horse to be "non-weight bearing," but the alternatives are serious enough that a diagnosis should be made as soon as possible.

4. Horse exhibiting acute lethargy.

If a horse suddenly becomes uninterested in his surroundings and does not respond to stimuli normally, he is likely suffering from a painful, metabolic, inflammatory, or neurologic abnormality. A gentle horse, sleeping in the sun, can certainly look lethargic. However, a voice command, hand contact, or haltering should arouse his interest in his surroundings. (Obviously, this response is governed by the horse's normal personality.)

5. Horse exhibiting open mouth breathing.

Horses are "obligate nasal breathers." Even with extreme exercise, horses rarely breathe through their mouth unless they are in distress.

6. Evidence of sweating without exercise.

On a hot day, horses sweat moderately on their chest and shoulders. However, a horse that is "wringing wet" without a history of exercise should be examined for other signs of pain or colic.

7. Horse exhibiting flared nostrils and rapid respiration without exercise.

Horses flare (or widely open) their nostrils and breathe more rapidly than normal when exercising or when frightened. In the absence of these conditions, these responses are reason for alarm.

8. A laceration or other wound on joint or back surface of a leg.

Wounds over joints may have entered the joint capsule and contaminated the joint space. The success of treating joint infections is directly related to how soon therapy is started following the injury. Similarly, the flexor tendons on the back (palmar or plantar) surface of the front and rear limbs are encased in synovial sheaths, which are much like joint capsules. Injury to these areas also constitutes an emergency. (On the other hand, a very large cut into the muscles of the chest or rump, though nasty looking, is much less likely to have serious consequences.)

9. Horse rolling repeatedly.

Horses naturally roll and will lie down for short periods of time. This behavior should not be of concern. However, when a horse rolls, gets up, goes down and rolls again, and repeats this process several times, you should be concerned about abdominal pain.

10. Horse squinting.

Horse eyes are fragile and prone to serious injuries and disease, such as uveitis. While these conditions are not life threatening, evidence of eye pain should be taken seriously. Failure to do so can result in loss of vision.

N.B. Any acute lameness or joint swelling in a foal. Foals in the first few weeks of life are prone to severe bacterial infections, referred to as septicemia. As the bacteria that cause this condition usually localize in the foal's joints, the first symptom is often acute lameness. Unfortunately, owners frequently assume that this lameness is just "a sprain" or that "the mare stepped on the foal." In fact a mare very rarely injures her foal in any way. An acutely lame foal should be assumed to have an infection until proven otherwise. The cost of waiting is often the foal's life.