In this world, nothing can be said to be certain, except death and taxes.”

I will add another certainty to Benjamin Franklin’s observation, and that is change. Recently attending my 30-year veterinary school class reunion made that abundantly clear.

When I attended veterinary school, the board certified radiologists were learning how to use the newly acquired, latest imaging technology—the ultrasound machine. Pain management for horses primarily consisted of flunixin meglumine, phenylbutazone, and narcotics. The rapid, specific test called polymerase chain reaction was in vet’s vocabulary (yet).

People communicated via mail, telephone, or the radio in the veterinary practice vehicle. When having a meal with a friend or colleague, no one was interrupted by a text, cell phone call, or “bling” of an incoming email or social media post. Computers had disk operating systems (MS-DOS) and a basic personal computer cost $2,300 ($4,200 in today’s dollars).

Communication has always been important in the relationship between veterinarians, clients, and co-workers. However, at the 2015 American Veterinary Medical Association Convention, it was sobering to see the numerous lectures on cyberbullying and workplace bullying. Bullying isn’t limited to playgrounds anymore; it is in the workplace and online and is a serious issue. People now have the ability to “comment” about anyone, on anything, at any time via social media and internet sites. While this can be helpful when users rate a book, movie, new computer or phone app, baseless, vicious comments are rarely productive and may result in criminal or civil charges. Truthful complaints are best reserved for the local Better Business Bureau rather than anonymously online.

Yet some things have not changed and likely never will. Nothing will ever replace a thorough history and physical examination of an animal as the first steps in disease diagnosis. All the cutting-edge diagnostic testing, imaging and monitoring techniques must be interpreted in light of the behavior and clinical signs exhibited by the patient. As my anesthesiology professor pounded into us in veterinary school, “Look at your patient as well as the machines! The patient never lies!”

And while diagnosticians have an ever increasing arsenal of testing procedures for equine diseases, many challenges remain. Just because a horse has an antibody titer to a pathogen doesn’t necessarily mean it has the disease; it may simply mean the horse has been exposed to the pathogen and/or that it was vaccinated. How high is the titer, and what diagnostic method was used? What are the sensitivity and specificity of the test? All is dependent upon appropriate interpretation of the test result in conjunction with the patient history and physical examination.

Thirty years from now our current technology will be similarly outdated and likely viewed as archaic by a new generation. Death, taxes, and change will always be with us. One other axiom—by John Lubbock—is also timeless, “There is nothing so good for the inside of a man as the outside of a horse.”

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Third Quarter 2015

Equine herpesvirus-1 and -4 (EHV-1, -4) associated respiratory disease were confirmed in France; all but one occurrence was in unvaccinated horses.

Equine piroplasmosis was reported as endemic in France and South Korea confirmed outbreaks of contagious equine metritis. Germany recorded outbreaks involving 19 premises: two Thoroughbreds on four premises, one of which involved two stallions and six mares on an Islay-based breeding farm. Seventeen positive Thoroughbreds on 10 premises were identified in South Korea.

One case of colic syndrome (EHV-3 infection) was diagnosed in the USA. The USA also reported two cases of nonsuppurative placentalitis, both associated with Salmonella spp.

Salmonellosis was recorded in Germany (one case), Iceland (two cases), and the USA (several outbreaks involving Group B and C1 Salmonella spp). The USA diagnosed proliferative enteropathy due to Amycolatopsis spp. on two premises.

Bovine rhinotracheitis was reported by Argentina, France, the UK, and the USA. Thirty cases were confirmed in the USA. The vast majority of EEE cases were in unvaccinated horses.

West Nile virus infection was reported in France and the USA. Thirty cases were confirmed in France, all but one occurring in two geographic areas. The USA reported 56 cases, with the greatest numbers in Texas, Washington, and Colorado, mostly all in unvaccinated horses. Switzerland confirmed two cases of feline infectiousperitonitis.

A Greek virus outbreak was reported in Japan involving 25 Thoroughbreds on one premise. The majority of cases occurred in two year olds, 10 of which had not been vaccinated. Rhodococcus equi was reported as endemic in the USA, with numerous outbreaks in various states.

Single cases of the following diseases were reported during the third quarter of 2015: dermatitis and esophagitis (Switzerland); and anthrax, neorickettsiosis, and pythiosis (the USA).

The USA diagnosed proliferative enteropathy due to Amycolatopsis spp. in two premises based on clinical signs.

Equine herpesvirus-1 and -4 (EHV-1, -4) associated respiratory disease was diagnosed in Germany (isolated cases); despite single case, the US (single case) and Germany (isolated case), the USA (single case), the UK (single case, co-infected with stranglings), and Switzerland (three cases) had single cases reported. The UK recorded outbreaks associated with EEE associated disease in France, the UK, and the USA. Thirty cases were confirmed in the USA. Thirty cases were confirmed in the USA.

Thirty-six cases of Eastern equine encephalitis were reported in France. Outbreaks of EHV4 respiratory disease were confirmed in France (11 outbreaks) and Germany (Acute outbreaks).

Influenza was reported by France, the UK, and the USA. Two cases were involved in a single outbreak in France. The UK confirmed three outbreaks: single cases on two premises and several affected animals on a third premises. All cases involved unvaccinated horses or ponies. Argentina was reported as endemic in the USA with outbreaks confirmed in five states.

Equine encephalomyelitis was recorded in France. The USA confirmed two cases of tick-borne encephalitis. The USA also reported two cases of nonsuppurative placentalitis, both associated with Salmonella spp.

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Glanders, one of the oldest known zoonotic infectious diseases, is caused by the bacterium Burkholderia mallei. Infection with B. mallei may cause clinical signs in horses after an incubation time of three to five days or longer. The disease is widespread in several countries in South America, the Middle East, Asia, and Africa. During the last five years, cases were reported from Afghanistan, Bahrain, Germany, Kuwait, Lebanon, Brazil, Mongolia, Myanmar, Eritrea, India, Iran, Pakistan, and Romania. Notification to the World Organisation for Animal Health (OIE) is compulsory for OIE member states. Impacted countries face rigorous restrictions in international trade of equids and their products for at least six months.

In 2014, after 60 years of disease freedom, Germany identified a glanders positive horse. Glanders had been considered eradicated in Western Europe since the 1960s. This initiated an international discussion concerning adequate methods to confirm infection or disease.

A glanders case definition is not available from the OIE. Consequently, each country must implement its own regulations. For serological testing and confirmation of clinical suspicion, Germany relies on the OIE prescribed complement fixation test (CFT) in combination with the immunoblot technique. The CFT is prescribed for international trade by OIE. Unfortunately, the CFT results are influenced by many parameters, such as the bacterial strains used for antigen production—we use a certified CFT antigen (ccpro, Oberdorla, Germany); the complement and hemolytic systems (standardized components are advised to minimize intrinsic variation); and technical aspects, such as incubation time and temperature.

The highly specific immunoblot (IB) for glanders is used to exclude false positive CFT results. Validation data confirm that the IB test is only positive for infected animals. It must, however, be validated for different geographic regions. IB validation, following OIE recommendations, is an ongoing project not yet finalized at the glanders OIE reference laboratory in Germany. The 2014 case of glanders in Germany was identified by this test combination.

According to our experience, clinically normal but infected (i.e., IB positive) horses do not show disease clinical signs. Therefore, the detection of B. mallei in these horses is highly challenging. A necropsy, a thorough search for lesions especially in nasal cavity, skin, and internal organs is necessary, since they are often barely visible. All lesions and abscesses tissues must be sampled for further analysis. To investigate if a horse is infected with glanders, a combination of techniques is used. These include laboratory, histopathological characteristics (to detect B. mallei DNA); histology (to exclude other diseases); immunohistochemistry (IHC) to stain B. mallei antigens in tissue sections; and experimental infection of guinea pigs. Final detection of B. mallei may still fail in a significant number of cases, because few bacteria are present in glanders lesions. These laborious and time-consuming procedures require up to seven weeks to complete before final results are available.

In Germany, serologically positive CFT results for glanders must be immediately verified by IB at least twice. Horses that test CFT positive but IB negative must be re-tested at two- to three-week intervals. Horses that remain negative are considered satisfied. Seropositive and negative populations cannot be mixed in a lab, in order to preserve true seroconversion intervals. Horses that remain negative are considered satisfied. Seropositive and negative populations cannot be mixed in a lab, in order to preserve true seroconversion intervals. Horses that remain negative are considered satisfied. Positive CFT results that have been confirmed by IB are considered as proof for B. mallei infection, even in the absence of clinical disease or detection of B. mallei. Additionally, isolation, molecular identification and/or IHC identification of the agent in characteristic lesions constitutes unambiguous proof of B. mallei infection.

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Blister Beetles and Alfalfa: A Potentially Lethal Mix

Reducing the Potential for Blister Beetles in Hay

Tips for Hay Producers:
• Learn to recognize blister beetles and understand their behavior. An effective preventive program will reduce potential problems. There is no efficient way to inspect baled hay carefully enough to ensure that it is free of blister beetles or cantharidin.
• Blister beetles usually are not active when the first cutting of alfalfa hay is made; harvest at the late bud stage or when the first flowers open for high quality horse hay.
• Blister beetles are attracted to flowering alfalfa, or other blooming plants, and may be trapped and crushed in hay during harvest. Practice good broadleaf-weed management.
• Check hay fields for blister beetles before cutting hay from July through early September. They prefer blooming plants and tend to cluster in masses near field edges. Avoid harvesting areas where beetles are present.
• Avoid crimping hay during harvest. Straddle cut swaths to avoid crushing beetles with tractor tires.

Tips for Horse Owners:
• Reduce the risk of feeding blister beetles to horses by understanding blister beetle basics, and by taking the following precautions:
• If practical, grow your own alfalfa to ensure proper preventive management practices.
• Develop a relationship with your hay producer or broker so that you know their production practices and hay quality.

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Hand Protection

Human skin is the primary barrier against microbes, toxins, and physical injury. In equine veterinary care, gloves spare humans from exposure to harmful organisms, toxins, and pharmaceuticals such as progesterone analogs and other hormone products, topical nonsteroidal antiinflammatory drugs (NSAIDs), sedatives, and antimicrobial drugs like chloramphenicol.

In 1994, the Occupational Safety and Health Administration (OSHA) published personal protective equipment standards (29 Code of Federal Regulations) to regulate workplace protection with an emphasis on respiratory protection. Hand protection and workplace clothing have been the subjects of minimal regulation.
Disposable gloves are made of different materials with different levels of protection. The typical rectal palpation glove prevents skin contact with feces, but does not protect against substances such as bleach. A latex glove keeps hands clean when dealing with body fluids, but provides little skin protection against chemicals. Glove protection has several measures. Penetration refers to punctures or tears in the glove. Permeation describes the ability of a substance to pass through an intact glove without damaging the glove material. Permeation is measured by breakthrough time (BTT). Degradation indicates alteration of the physical properties of the glove material upon exposure to chemicals. Each glove manufacturer produces a selection chart to describe its products’ protection against specific compounds and solvents. Manufacturers of chemicals (including pharmaceuticals) have a Safety Data Sheet (previously known as Material Safety Data Sheet) that lists personal protective equipment (including recommended glove types) as well as other valuable information. However, for some chemicals, the gloves for hand protection are simply listed as “impervious” in which case, basic knowledge about glove types is critical.

Skin exposure occurs before there is a perception of leakage through a glove. Measures of permeation and degradation vary considerably between glove manufacturers. More importantly, the reported protection often does not reflect the true protection in the field. Wide variations in BTT occur due to variations between batches, effects of ambient temperature and humidity, and hand motion. Head motion alone has been reported to significantly affect BTT.

Disposable glove choices are generally limited to latex, nitrile, or vinyl. Each glove has its merits. Latex is a synthetic polymer so there is less allergic reaction and it is quite resistant. Tearing is a good indicator, it is not fatigue. Vinyl has good resistance to both chemicals and to microbes. Gloves are commonly used in the food industry and offer the least protection against many chemicals. The gloves are not affected by movement, but can cause an irritant. Nitrile and rubber gloves are recommended when using many disinfectants as these chemicals can be caustic and irritating to skin. No one glove material is resistant to all different chemicals. Disposable gloves are meant to be discarded and not reused. Read the package insert of any chemical, pharmaceutical, pesticide, or disinfectant for information on personal protective equipment, including specific glove recommendations.

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Equine Lymphosarcoma

Lymphocytes are an important component of the equine immune system. Like all cells within the body, lymphocytes have the potential to undergo neoplastic (cancerous) transformation that results in uncontrolled regulation and growth. Lymphosarcoma is the proliferation of neoplastic lymphocytes. Equine lymphosarcoma is relatively common, but the incidence is unknown. The majority of cases occur in horses aged 4-15 years, but cases have been described before and after all ages. Histologic studies suggest an apparent gender bias in breed predisposition. Many factors affect the cause of lymphosarcoma and are difficult to identify, but stress, immune, and environmental factors have been implicated in its development.

Four anatomic categories are frequently utilized for classification of lymphosarcoma. These categories include: multicentric (generalized or within multiple locations), thymic (mediastinal, within the chest cavity), alimentary (intestinal), or cutaneous (skin or extranodal).

Clinical signs may develop abruptly or over several months. Signs can develop due to organ dysfunction directly related to infiltration of lymphosarcoma. Physical obstructions caused by neoplastic masses is a frequent complication. Depression, weight loss, depression, anorexia, nausea, vomiting, coughing, depression, neurologic abnormalities, and pyrexia (fever) are the most commonly observed clinical signs.
but signs vary based on the affected organs. Multicentric, thymic, and cutaneous forms can cause respiratory or swallowing abnormalities. The intestinal form can result in colic, diarrhea, and weight loss. Cutaneous nodules may be observed in or under the skin; these masses can be influenced by hormones, thus they may wax and wane in size. Various paraneoplastic syndromes have been described in horses and include: hypercalcemia, pseudohyperparathyroidism, pruritus and alopecia (itching and hair loss), and immune-mediated hemolytic anemia and thrombocytopenia. Veterinarians may suspect a diagnosis of cancer after visualization of cutaneous nodules, transrectal palpation of abdominal masses, or detection of masses by radiology, ultrasonography, or surgery. Clinical differentiation of neoplasia from non-neoplastic lesions is difficult. A definitive diagnosis of lymphosarcoma is made by microscopic visualization of neoplastic lymphocytes in body fluids, fine needle aspirates, surgical biopsies, or necropsy samples. The majority of horses diagnosed with lymphosarcoma either or are humanely euthanized within months after developing clinical signs. Horses with the cutaneous form typically have longer survival times in comparison to those with other forms. Treatment is often poorly attempted, but surgery is the treatment of choice, and chemotherapy, radiation therapy, or treatment with hormones, chemotherapeutics, immunomodulators, and corticosteroids are usually used. The University of Kentucky Veterinary Diagnostic Laboratory diagnosed 57 cases of equine lymphosarcoma from September 2009 to September 2015. Diagnoses were made from 30 surgical biopsies, 23 necropsies, and four cytologic examinations. These cases represented 51 horses of seven different breeds. The age of affected animals ranged from a fetus at 300 days of gestation to a 27-year-old gelding; the mean was three years of age and included six foals. Cases were composed of 21 multicentric, 15 cutaneous, 13 lymphoid (lymph node, spleen, or thymus), and five alimentary lymphosarcomas. Additionally, one case was diagnosed from thoracic effusion (fluid) and two cases from abdominal effusion.

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Figure 1. U.S. geographic distribution of blister beetles.

Source: [http://www2.ca.uky.edu/entomology/entfacts/ef102.asp](http://www2.ca.uky.edu/entomology/entfacts/ef102.asp)