BEEF CATTLE PRACTICE

Veterinary Consulting Opportunities Using the Beef PEP Approach

The beef cow/calf industry of the United States has a very low level of profitability. Standardized Performance Analyses (SPA) completed from 1991 to 2001 on 384 beef herds in the Southwest revealed that they had a 0.29 percent average annual return on assets (ROA). A similar study using SPA conducted from 1991 to 1999 showed that 148 cow-calf enterprises in the Northern Great Plains had an average annual ROA of 3.10 percent. Within these two groups, however, there were high-profit herds with ROAs that would be respected in any industry. The challenge for us as veterinary practitioners is: What can we do to help our clients develop their herds into highly profitable beef cow/calf operations?

The Texas Beef Partnership in Extension Program is a partnership between the Texas A&M University College of Veterinary Medicine, Texas Cooperative Extension, Pfizer Animal Health, Texas veterinary practitioners, and Texas beef cow/calf producers. The purpose of Beef PEP is to improve the profitability and sustainability of beef cow/calf operations in Texas by increasing the knowledge base of profitable ranch management practices for veterinarians and county Extension agents, the two main advisors of beef ranchers. The project also fosters cooperation between veterinarians, county Extension agents and Extension beef cattle specialists. Funding for Beef PEP is provided by the College of Veterinary Medicine.

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Beef PEP approach to successful beef herd consultation:

1. Select a herd with high potential to improve profits.
2. Identify opportunities for changes in ranch management practices that will result in improved profitability.
3. Develop a ranch management plan.
4. Implement the ranch management plan.
5. Monitor production and economic outcomes.

There are five steps to the Beef PEP approach to successful beef herd consultation:

1) Select a herd with high potential to improve profits.

Only herds with moderate to great potential to improve profits should be selected for beef herd consultation and the owner must be committed to improving profits. A rancher’s commitment can be evaluated through questionnaires that explore priorities and through personal interviews. Our experience indicates that the most success occurs in herds whose owners are solely or largely dependent on herd profits for their livelihoods.

SPA will indicate where the herd is on the profitability scale, comparing it to others in its state or region in terms of production and profit. This helps determine the potential for improving net income per cow. The larger the herd, the less improvement in net income per cow is needed to yield a substantial improvement in herd profitability. The potential increase in herd profit must be enough to give the owner an adequate return on investment for consultation fees.

2) Identify opportunities for changes in ranch management practices that will result in improved profitability.

Beef PEP identifies changes in ranch management practices that could improve profits by looking at the SPA of a herd and evaluating baseline management practices. Key production measures in the SPA report card are pregnancy rate, calf crop percentage, average weaning weight, and pounds weaned per exposed female. Key economic measures in the SPA report card are capital investment per cow, grazing cost per cow, raised and purchased feed cost per cow, annual cow cost, cost of producing a hundred pounds of calf, net income per cow, and return on investment. These production and economic measures point to areas that need improvement so that a consulting team can evaluate the management practices that influence them. For example, if the annual cow cost is excessive, details of expenditures and depreciation must be evaluated and an attempt made to identify excessive expenses. If a herd is in the bottom quartile in pregnancy rate, management practices that affect the known risk factors for low pregnancy rates, such as cow body condition, bull fertility, reproductive pathogens and mineral status, must be carefully examined.

The animal husbandry and veterinary literature contain recommendations for ranch management practices that have been shown to be associated with favorable health, productivity and profitability in beef cow/calf operations. The degree to which a rancher is using these profitable practices should be evaluated at the onset to document baseline levels of management and to identify changes in management that will increase profits. Information on ranch management practices can be gleaned from observations during herd visits and by having the owner complete a questionnaire similar to the Texas A&M University Ranch Management Questionnaire.

3) Develop a ranch management plan.

The ranch management plan provides written details of management changes recommended to increase profits. Much of the plan is communicated verbally by the agent/veterinarian teams and specialists during ranch visits in the implementation phase.

4) Implement the ranch management plan.

In the Beef PEP study herds, teams tried to visit herds at key times in the production cycle (onset of calving, onset of breeding, midsummer, and at pregnancy examinations) to help implement the ranch management plan. At each visit, the team recorded health and production parameters and body condition scores of the cows and discussed progress in making changes recommended earlier. Herd visit report sheets (made in triplicate) recorded body condition scores of cows, pasture conditions, nutrition practices,
reproduction practices, disease losses, ranch activities since the last visit, and recommendations for management practices to be carried out in the next 3 months. The owner got a copy before the team left the ranch so he would know how things were going and should go in the future. These reports were used in some, but not all, Beef PEP study herds. At herd visits, teams also collected samples of pasture or hay for nutrient analysis and collected blood or fecal samples for evaluation of mineral status and level of internal parasitism.

5) Monitor production and economic outcomes.

The annual SPA report is the primary way of measuring improvements in production and economic measures. The team should meet with the herd owner after completing the SPA each year. Herd progress can be monitored with quarterly herd visits and herd visit reports. The management practices used can be scored annually to document improvements.

Conclusions

The five-step approach to beef herd consultation was very successful. Over 3 years, the six study herds increased annual net income per cow an average of $32.30 due to the project. Many owners of herds with low profitability, and even their veterinarians, do not believe that profits could be increased enough to pay for consultation services. There are many factors that bear on that question. The top three of the six herds that participated in Beef PEP had improvements in profits far greater than the private sector would have charged them for consultative services.

Standardized Performance Analysis was the foundation of the project. It measured the baselines in production and profits in the study herds and recorded the changes that resulted from project activities. Wiltbank has stated that the main reason beef cow/calf producers use new technology to a low degree is that they are unsure of its economic outcome. SPA data showed the owners of the herds in this project the positive economic impact of using multiple new management practices. It also allowed the improvements in profits due to Beef PEP activities to be separated from other causes of changes in profitability in the study herds. The report card that the herd owners received, comparing their production and economic outcomes to other herds in the Southwest, was a tremendous motivator for improvement.

The veterinary practitioner is the logical leader of a consultation team for beef cow/calf operations. These activities could result in increased income for rural veterinarians. Reductions in Cooperative Extension funding have resulted in limited support for this type of project, but Beef PEP’s partnership with a pharmaceutical company has overcome that obstacle and could serve as an educational model, in other beef cattle states, for ensuring the sustainability of cow/calf operations and their veterinarians.

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References


New Beef Cattle Fact Sheets on Managing Health Problems and Improving Profitability

Several new electronic publications are available from the Texas Cooperative Extension Bookstore (http://tcebookstore.org).

E-348, Recognizing and Managing Common Health Problems of Beef Cattle, by F.C. Faries, Jr., describes how producers can successfully manage many health problems in beef cattle if they detect them and take steps early. Common problems in beef cattle, their probable causes, and suggested corrective and preventive measures are explained.
Symptoms
Rapidly growing swine are at highest risk for gastric ulceration, but animals of any age (usually after weaning—4 weeks or older and 20 pounds or more) are susceptible, including breeding age gilts, sows and boars. Sudden to gradual onset of partial to complete anorexia and vomiting, dehydration with little or no feces (feces may be dark, if seen at all) and lethargy are typically observed in affected swine. If untreated, the disease may last a week or more with subsequent ulcer perforation followed by severe peritonitis and pleuritis; or, the affected pig may be suddenly found dead due to internal gastric hemorrhage. Swine with light-colored skin that have gastric bleeding may appear pale, especially in the mucous membranes of the eye, mouth or vulva; the term "Bleach Out" syndrome is used to describe such pigs.

Diagnosis
Gastric ulceration should be suspected as a primary or secondary disease in swine displaying typical symptoms. For example, a show pig that is coughing and has had a poor appetite for several days has pneumonia and is at high risk for developing secondary gastric ulceration. In a suspected case of a bleeding ulcer, a quick PCV can demonstrate whether the affected pig is anemic (PCV may be as low as 7 percent, with a properly treated pig still having a poor to fair chance of recovery). A positive response to proper treatment helps confirm the diagnosis; however, relapses are common and re-treatment may be required. Sudden death can occur in some affected pigs that seem to be convalescing well. Perform a necropsy on any pig that dies from a suspected gastric ulceration; the presence of multiple small ulcerated areas in the pars esophagus plus black, digested blood in the stomach lumen or the massive inflammation seen in the abdominal and chest cavity with a perforating ulcer provide a quick and obvious diagnosis.

Treatment
If the pig is able to hold down food, oral omeprazole (GastroGard®, Merial; Prilosec OTC™, AstraZeneca) at 40 mg/pig/day for up to a week or more (as long as 4 weeks) or another extra-label drug in this class is paramount to successful treatment. Extra-label cimetidine (Tagamet®, S-K Beecham or generic) may be injected (2.3 to 4.5 mg/pound IM every 8 hours up to 600 mg total daily dose [alternatively, may give cimetidine in two equal daily doses, 12 hours apart]) until vomiting subsides, then change to oral therapy. Antibiotics such as ceftiofur (Excede®, Zoetis) or Naxcel®, 2mg/lb/day IM for 3 days minimum) should also be administered. Drugs that may possibly worsen a gastric ulcer, such as aspirin or more potent NASIDs (flunixin) or corticosteroids, should not be used. It is prudent to recommend a 30-day withholding period due to the possible combination of extra-label drugs that may be used in ulcer therapy. When in doubt about the withdrawal time of any extra-

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**SWINE PRACTICE**

**Be Alert for Gastric Ulcers, Especially in the Fall**

**Causes**
Gastric ulceration is associated with the stress of rapid growth and gastric hyperacidity; feed that is too finely ground; a sudden change in feed consistency (from pelleted or crumbles to ground feed or vice versa); vitamin E/selenium deficiency; excess whey feeding; copper toxicity [possibly caused by too much copper sulfate [more than 250 ppm] used as a growth promotant in pigs up to 100 pounds; and roundworm intestinal parasitism. *Helicobacter pylori*-like bacteria, commonly found in the mucous lining of the stomach, have been suggested as an infectious cause of gastric ulceration. Gastric ulceration is an extremely common secondary complication for any disease or condition that causes swine to partially or completely go off feed for several days or more. This condition seems to occur more frequently in the early fall, when cooler temperatures are associated with increased feed consumption and possible mechanical irritation to initiate ulceration or aggravate pre-existing, subclinical ulceration of the pars esophagea (non-glandular cardia area of stomach that communicates with distal esophagus).

**Symptoms**
Rapidly growing swine are at highest risk for gastric ulceration, but animals of any age (usually after weaning—4 weeks or older and 20 pounds or more) are susceptible, including breeding age gilts, sows and boars. Sudden to gradual onset of partial to complete anorexia and vomiting, dehydration with little or no feces (feces may be dark, if seen at all) and lethargy are typically observed in affected swine. If untreated, the disease may last a week or more with subsequent ulcer perforation followed by severe peritonitis and pleuritis; or, the affected pig may be suddenly found dead due to internal gastric hemorrhage. Swine with light-colored skin that have gastric bleeding may appear pale, especially in the mucous membranes of the eye, mouth or vulva; the term "Bleach Out" syndrome is used to describe such pigs.

**Diagnosis**
Gastric ulceration should be suspected as a primary or secondary disease in swine displaying typical symptoms. For example, a show pig that is coughing and has had a poor appetite for several days has pneumonia and is at high risk for developing secondary gastric ulceration. In a suspected case of a bleeding ulcer, a quick PCV can demonstrate whether the affected pig is anemic (PCV may be as low as 7 percent, with a properly treated pig still having a poor to fair chance of recovery). A positive response to proper treatment helps confirm the diagnosis; however, relapses are common and re-treatment may be required. Sudden death can occur in some affected pigs that seem to be convalescing well. Perform a necropsy on any pig that dies from a suspected gastric ulceration; the presence of multiple small ulcerated areas in the pars esophagus plus black, digested blood in the stomach lumen or the massive inflammation seen in the abdominal and chest cavity with a perforating ulcer provide a quick and obvious diagnosis.

**Treatment**
If the pig is able to hold down food, oral omeprazole (GastroGard®, Merial; Prilosec OTC™, AstraZeneca) at 40 mg/pig/day for up to a week or more (as long as 4 weeks) or another extra-label drug in this class is paramount to successful treatment. Extra-label cimetidine (Tagamet®, S-K Beecham or generic) may be injected (2.3 to 4.5 mg/pound IM every 8 hours up to 600 mg total daily dose [alternatively, may give cimetidine in two equal daily doses, 12 hours apart]) until vomiting subsides, then change to oral therapy. Antibiotics such as ceftiofur (Excede®, Zoetis) or Naxcel®, 2mg/lb/day IM for 3 days minimum) should also be administered. Drugs that may possibly worsen a gastric ulcer, such as aspirin or more potent NASIDs (flunixin) or corticosteroids, should not be used. It is prudent to recommend a 30-day withholding period due to the possible combination of extra-label drugs that may be used in ulcer therapy. When in doubt about the withdrawal time of any extra-
label drug, contact the Food Animal Residue Avoidance Databank at http://farad.org, 888-USAFARAD (888-873-2723), or FARAD@ncsu.edu or FARAD@ucdavis.edu. Affected swine are usually off feed but still drinking. A slurry-type feed with ingredients such as oatmeal, fruit, melons, yogurt, etc. is used to attempt re-establish food intake while maintaining hydration. Blood transfusion to correct anemia is usually not practical.

**Prevention**

Correcting any of the possible conditions that may cause primary or secondary gastric ulceration is important for the convalescing pig, as well as any other swine subject to the same management factors. Attempt to immediately re-establish feed intake with the slurry-type feed on any show swine that go off feed for any reason; when they start eating again, gradually switch back to the original diet. The extremely rapid growth rate of today’s show swine and free-choice feed intake seem to be very important predisposing factors for gastric ulceration. Since the average daily gain is controlled by genetics and the total amount of feed intake, limiting daily intake to a nutritionally adequate ration could be helpful in preventing gastric ulceration.

From Bruce Lawhorn, DVM, MS, Visiting Professor, Swine Practice, Food Animal Section, Department of Large Animal Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, The Texas A&M University System, College Station, Texas 77843-4475.

The Only Commercial, Inactivated PRRS Vaccine (PRRomiSe, Intervet, Inc.) No Longer Available

It is very disappointing that the important, inactivated vaccine PRRomiSe (Intervet, Inc.), used to minimize losses from porcine reproductive and respiratory syndrome (PRRS), has recently been discontinued and is no longer available. Although the approved label directions were to vaccinate pregnant females twice, once at 6 weeks of gestation and 4 weeks later, PRRomiSe was recommended by veterinarians for extra-label use in swine as young as 4 weeks of age for the first dose and 3 to 4 weeks later for the second. For more information on the discontinuance of PRRomiSe vaccine, contact Dr. Warren Wilson, Intervet, Inc., (717) 805-0342.

Alternative vaccination programs in breeding swine and young, growing swine are as follows:

**Breeding swine.** Consider vaccinating against PRRS if this virus infection has been diagnosed as a cause of reproductive disease in any of your client's breeding herds. A modified-live, commercial PRRS vaccine, Ingelvac PRRS MLV (Boehringer Ingelheim Vetmedica), and a custom-made (autogenous), inactivated PRRS vaccine (Novartis) are available to prevent or minimize disease caused by PRRS infection. I have avoided knowingly introducing a live PRRS virus of any kind (i.e., carrier breeding animal, contaminated semen, MLV PRRS vaccine virus) into a breeding herd that is negative, positive or of unknown status for PRRS virus. PRRS RNA virus has a nasty habit of mutating to possibly produce a more virulent strain. Generally, the more live PRRS virus strains in a herd, the more likely a mutated strain will emerge and produce significant clinical disease.

Inactivated, autogenous vaccine is generally preferred because it is safer (modified-live PRRS virus vaccine is not approved for administration to pregnant gilts or sows, or to boars). However, a veterinarian must submit sera and/or tissues from clinically ill swine for the attempted isolation of the PRRS virus within a herd before an inactivated, autogenous vaccine can be produced; this may be impractical and/or too expensive for small herds. If used, inactivated autogenous PRRS vaccine is administered according to the schedule set up between the veterinarian and the herd owner. It is usually administered twice to gilts selected for the breeding herd—at 6 months of age and 3 to 4 weeks later, for the first and second doses, respectively; then at 6 weeks after breeding for the first dose and 4 weeks later for the second dose during each pregnancy. Unless AI is used exclusively, the veterinarian may also recommend vaccination of breeding boars twice, 4 weeks apart, followed by boosters every 6 months.

**Young, growing pigs.** Consider vaccinating pigs to prevent pneumonia caused by PRRS if this is a known herd problem or a potential problem in purchased pigs. Using an inactivated, autogenous PRRS vaccine may be impractical and/or too expensive for small herds or groups of pigs. However, if inactivated, autogenous PRRS vaccination is used, give the first dose as early as 4 weeks of age, or the first week of arrival for purchased pigs (usually 8 weeks of age or older and 40 pounds or more), and the second dose 3 to 4 weeks later. Modified-live PRRS vaccine may be used once in 8-week-old or older purchased barrows or gilts that are destined for terminal shows and/or slaughter and that will not have contact with current or potential breeding swine or become breeding stock (gilts kept for breeding). An example of a modified-live PRRS vaccine is Ingelvac PRRS MLV (BI Vetmedica). In many situations it may not be practical to vaccinate young and growing pigs with either a modified-live or inactivated, autogenous PRRS vaccine.

Vaccinate only healthy pigs. If a pig is sick, wait until it is completely well before vaccinating. If healthy, growing pigs are vaccinated as described but not kept for breeding stock, they will not require any booster vaccinations before slaughter (at around 5 1/2 to 6 1/2 months old).
All of the vaccines discussed have 21-day withdrawal times. Carefully read the instructions on vaccine labels and follow recommended withdrawal times.

From Bruce Lawhorn, DVM, MS, Visiting Professor, Swine Practice, Food Animal Section, Department of Large Animal Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, The Texas A&M University System, College Station, Texas, 77843-4475.

“Flu Shot” Recommended for Swine Farm Workers

The Pork Checkoff recommends that all swine farm workers get a flu shot in anticipation of the flu season, which runs from October to May.

Dr. Liz Wagstrom, assistant vice president of science and technology for the Pork Checkoff, said, “Producers and swine farm workers can reduce the risk of bringing the flu to the farm and infecting pigs they care for by getting a flu shot.”

Influenza viruses can be classified as type A, B and C. Type A influenza can be passed between people and pigs. “The flu shot contains two type A viruses that we want to prevent from spreading,” Wagstrom said. “The vaccine also has a type B virus in the mix, but this type of virus is not of concern to the health of our pigs. Humans will develop antibodies against the flu virus 2 weeks after taking the flu shot.”

Wagstrom recommends other practices to prevent infecting pigs with human influenza viruses, such as adopting a sick leave policy that encourages workers to stay away from the farm if they are suffering from acute respiratory infections. “Virus shedding is at its peak when the clinical illness is most severe, but can last as long as the symptoms do and that is 3 to 7 days.”

Good building ventilation and good hygiene also will reduce the transmission of flu viruses. Wagstrom said, “To protect pigs and humans from other species’ influenza viruses, producers also should look at bird-proofing their buildings, protecting the water if there is a chance of bird fecal material, protecting feed from birds and enforcing biosecurity practices such as the use of farm-specific clothing and footwear.”

According to the Centers for Disease Control and Prevention (CDC), all people can get a flu shot beginning October 24. Priority groups [including people older than 65, children younger than 23 months, pregnant women, people suffering from chronic illness or people who care for infants] can get the flu shot or an alternative vaccine before this date.

For more information, see “Influenza: Pigs, People and Public Health,” available from the Pork Checkoff. Call 800-456-PORK or visit the porkboard.org Web site and look under Hot Topics and Producer/Public Health.

From an October 12, 2005, news release, “Pork Checkoff Recommends ‘Flu Shot’ for Swine Farm Workers,” Pork Checkoff, The Official Website of the National Pork Board funded by the Pork Checkoff. For more information, contact Cindy Cunningham, (515) 223-2600, cindy.Cunningham@porkboard.org.

EQUINE PRACTICE

First Licensed DNA Vaccine for Protecting Horses Against West Nile Virus

On July 8, 2005, the U.S. Department of Agriculture issued a license to Fort Dodge Laboratories, Inc., a division of Wyeth, for a vaccine to protect horses from viremia caused by the West Nile virus (WNV). The horse vaccine, which was developed through a collaboration of the Centers for Disease Control (CDC) and Fort Dodge, is the first fully licensed DNA vaccine for animals in the U.S. The vaccine contains genes for two WNV proteins and, therefore, does not contain any whole WNV, live or killed. Once the horse’s cells begin making proteins from the virus, a protective immune response is triggered.

In granting full licensure, USDA’s Center for Veterinary Biologics determined that the vaccine’s safety and efficacy have been satisfactorily demonstrated. Once licensed by USDA, a product of this nature can be marketed to the public, which will likely be in early 2006. Researchers are determining the period of immunity provided by the vaccine. The label cautions that vaccinated horses may not be eligible for export because tests may not be able to differentiate between horses that have received this vaccine, a conventional vaccine, or been exposed to the actual virus.

This technology represents a new generation of vaccines and could be the basis for developing human vaccines in the future. “This is truly an exciting innovation and an incredible scientific breakthrough that has potential benefits far beyond preventing West Nile virus in horses,” said CDC Director Dr. Julie Gerberding. “This science will allow for the development of safer and more effective human and animal vaccines more quickly.”

The scientific approach used in DNA vaccines differs in a number of important ways from traditional vaccine development. Traditional vaccines, such as those used to protect people from yellow fever, polio, measles or hepatitis, use a virus that has been weakened or killed so that it can not cause the illness but does cause the body to develop immunity against the disease. In contrast, DNA vaccines use carefully selected small pieces of the virus’s genetic material on plasmids that are injected, enter the cells of the recipient’s body, and stimulate those cells to produce viral proteins that then stimulate the recipient’s body to develop protective immunity. DNA vaccines have several advantages over traditional vaccines.

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They have a quick turnaround time during emerging epidemics. Once a vaccine model is developed, it can be adapted relatively easily for similar organisms. Unlike traditional vaccines, which must be transported and stored within a small temperature range, DNA vaccines are less vulnerable to changes in temperature. This a major asset in the developing world. Also, several different viral DNA snippets could be combined in a single DNA vaccination, so that one vaccination could protect against several viral diseases.

West Nile virus is transmitted through the bite of an infected mosquito to humans, horses and other animals. Since 1999, when the virus was introduced into the U.S., more than 16,000 cases of West Nile virus in humans have been reported and more than 650 people have died. In that same period, more than 21,000 cases of West Nile in horses have been reported. Currently, the only strategies for combating WNV in humans are nationwide active surveillance in conjunction with mosquito control and individual protection with insect repellents.

Work on the newly licensed horse vaccine began about 5 years ago as part of CDC’s West Nile virus research efforts in Fort Collins, Colorado. CDC scientists used DNA vaccine technology originally developed for other mosquito-borne viruses (e.g., dengue and Japanese encephalitis) to develop an experimental vaccine. “This new vaccine is a perfect example of how CDC works to bring science into action,” said Gerberding. The National Institutes of Health is using the DNA technology used to develop the WNV vaccine in a small human West Nile virus vaccine trial.


CANINE PRACTICE

Influenza Emerges as a New Clinical Disease in Dogs

Canine influenza is being described as a new and possibly significant disease in dogs that mimics kennel cough but is more serious. The transcript of a national Media Briefing on Canine Influenza held September 26, 2005, is recorded at http://www.cdc.gov/od/oc/media/transcripts/1050926.htm and is extremely informative. Infectious disease experts from the CDC and veterinarians from the University of Florida College of Veterinary Medicine and Cornell Veterinary Diagnostic Center participated in this briefing. Other excellent information sources are “Canine Influenza—Background for Professionals” and “Canine Influenza—Talking Points for Staff” by the American Animal Hospital Association found at http://www.aahanet.org/ and “Canine Influenza Virus (Canine Flu)” at http://doacs.state.fl.us.

According to these sources, this new canine influenza virus (CIV) is most similar to the classic H3N8 influenza virus of horses. The H3N8 equine virus has been known for 40 years and has not been documented to be zoonotic. CIV is not known to be zoonotic either and, because it is very similar to equine virus, may not readily mutate to become zoonotic. However, that is unknown at this time.

CIV is highly infectious and will affect any dog exposed to it. The entire dog population of the U.S is susceptible. Transmission is thought to be through aerosol droplets from sneezing and through contaminated objects, clothing and footwear. The incubation period is 2 to 5 days. Most dogs have a mild form of “flu,” but some develop acute pneumonia with high fever (104 to 106 degrees F) and rapid, difficult breathing. Eighty percent of affected dogs will have clinical signs (20 percent will be infected, show no clinical signs, shed the virus and silently spread infection). The most common clinical sign in the mild form is a cough that persists for 10 to 21 days despite all therapy. Most dogs have a soft, moist cough while others have a dry cough similar to that caused by the kennel cough agents. The mortality rate is 1 to 8 percent. Infected dogs may shed virus for 7 to 10 days from the start of clinical signs. Suspected patients should be isolated within a veterinary hospital or at home to prevent spread of the disease. A 10% bleach solution will most likely destroy this enveloped virus (bleach is already used for canine parvovirus disinfection in many veterinary clinics, kennels and pet shops).

No rapid, real-time diagnostic test is available for acute infection. Detection of antibodies to CIV that are present as early as 7 days after onset of clinical signs is the main diagnostic method used. Paired acute and convalescent serum samples are necessary for diagnosis of recent infection (with the convalescent sample collected 2 weeks after the acute sample). If collecting an acute sample is not feasible, testing a convalescent sample is still of value because a positive will indicate whether a dog was infected some time in the past and alert the veterinarian that CIV infection is circulating in the community dog population.

Fresh lung and tracheal tissues (no formalin-fixed or frozen tissue) from dogs that die from pneumonia may be submitted for CIV culture.
and PCR (always call the receiving veterinary diagnostic laboratory to ensure that the correct samples are sent for possible CIV diagnosis).

Treatment with antiviral agents early in infection may be effective, but this is unknown at present. Antibiotics for secondary infections, as manifested by a nasal discharge, should help shorten the course of the disease. Cough suppressants may be helpful. Maintaining hydration is also very important. No vaccine is available, but researchers are working toward this goal. Parainfluenza virus contained in kennel cough vaccines gives no cross protection against CIV infection.

The CIV infection has been confirmed in Florida (in shelters, boarding facilities and veterinary clinics), New York and possibly Massachusetts. Cases have been reported but not confirmed throughout the U.S. and Canada.

For more information contact Dr. Cynda Crawford, Department of Small Animal Clinical Sciences, University of Florida College of Veterinary Medicine, (352) 392-4700 ext. 5731; (352) 392-6125 (fax); or Crawford@mail.vetmed.ufl.edu

FELINE PRACTICE

Prevalence of Heart Murmurs in Apparently Healthy Cats

A recent research paper indicates that apparently healthy cats [prospective blood donor cats 1 to 9 years old and at least 9 pounds] from the northeastern U.S. commonly have heart murmurs. The 21 percent heart murmur prevalence [22/103] in this study is much higher than the 4.6 percent [18/388] prevalence reported in an earlier study.

In this study, all murmurs detected were systolic, had an intensity range of 1/6 to 4/6, and were loudest on the left side. Generally, the murmur intensity was not dependent on the heart rate. Cats with and without heart murmurs had a median heart rate of 182/minute (144 to 240/minute range) and 178/minute (140 to 260/minute range), respectively.

The cause of most of these murmurs was structural heart disease, especially hypertrophic cardiomyopathy, which may be more common in apparently healthy cats than previously thought. These findings re-emphasize the need for thorough auscultation before routine anesthesia and surgical procedures.


WILDLIFE AND EXOTIC PRACTICE

Virus Neutralizing Antibody Response to West Nile Virus Vaccination in Alpacas and Llamas

In a recent study, alpacas and llamas were given an inactivated West Nile virus [WNV] vaccine [West Nile Innovator, Ft. Dodge Animal Health] three times at 3-week intervals. Three weeks after the third vaccination, all the alpacas (28) and 97 percent of the llamas (28/29) had neutralizing antibody titers [geometric mean titer [GMT]] that were similar to GMT measured 4 weeks after horses [16] were vaccinated twice, 4 weeks apart. Also, 93 percent of alpacas [26/28], 81 percent of llamas [21/29] and 69 percent of horses [9/13] were seropositive at 22, 27 and 24 weeks from the first vaccination, and their GMTs were generally similar.

Although no local or systemic adverse reactions occurred in any of the camelids or horses after any vaccination, inoculations were administered IM in this study [1 ml vaccine administered through a 22-gauge needle in the rear leg]. This may explain why no adverse reactions occurred as compared to other studies in which SC administration was used and injection site reactions were reported (redness, firm swelling and SC nodules). The lack of systemic reactions might be explained by the presumed negative WNV status of all animals at the start of this study. Camelids and equines that reside in WNV-endemic areas, and that may have high virus-neutralizing antibody titers against WNV because of vaccine or natural exposure, are most susceptible to anaphylactic reaction. It is important to know the virus-neutralizing titer before vaccination or revaccination to help prevent adverse reactions. (Note: There is no evidence that there is a danger in vaccinating WNV-immune animals. When revaccination is considered, booster vaccine should be administered IM within 3 to 6 weeks of peak mosquito exposure.)

This study suggests that vaccination with this specific inactivated WNV vaccine is safe in alpacas and llamas. Even though the GMT after three vaccinations 3 weeks apart is similar to the GMT in horses vaccinated twice 4 weeks apart, this does not prove that the vaccine used as described in these camelids is protective against WNV infection.

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