

TOP



CLINICAL DIFFERENCES BETWEEN CATS & DOGS

Cats are not small dogs. Cats may be similar in size, but they are unique.

1 Cats present differently when in shock. Although dogs in early shock typically present in the hyperdynamic phase with an elevated heart rate, cats usually present in the hypodynamic phase and are dull, hypothermic, and bradycardic. No single test will determine whether a patient is in shock; instead, shock should be considered based on history, assessment (eg, blood pressure, lactate), and results from the following physical examination perfusion parameters:

- Capillary refill time: Normal is <2 seconds; it may be prolonged or absent in a dog or cat that presents in shock.
- Extremity-core temperature gradient: Normal is 100 to 102.5° Fahrenheit.
- Heart rate: Normal in small, medium, and large dogs is 90 to 120 bpm, 70 to 110 bpm, and 60 to 90 bpm, respectively. The normal rate in cats is 180 to 220 bpm.
- Mentation: Both cats and dogs can present depressed, stuporous, obtunded, or coma-like.
- Mucous membrane color: Normal is pink or pale pink; in cats or dogs in shock, the color is typically white.
- Pulse quality: Normal is strong and steady, not pounding or weak.

2 Cats metabolize drugs differently. Some of the mechanisms through which drugs are metabolized by the liver are different or nonexistent in cats. Many drugs should initially be administered to cats in smaller doses. Interspecies variation and toxin risks must be considered when using the following and other commonly used medications:

- Acetaminophen: Cats are more sensitive to acetaminophen because their hemoglobin structure makes them more sensitive to red blood cell (RBC) injury.
- Azathioprine: This drug is used as an immunosuppressive in dogs but can destroy bone marrow in cats.
- Cisplatin: Dogs tolerate this drug, but it can cause pulmonary-related death in cats.¹
- Opioids: Cats are more sensitive than dogs to opioids (particularly pure μ -opioid agonists). Additionally, the

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- Cats require a lower IV fluid rate.
- Tachypnea in cats is typically stress-related.
- Cats have an increased incidence of Heinz body formation.

bioavailability of oral opioids is generally poor in dogs, but studies have shown that buprenorphine absorption can be achieved in cats through nonspecific placement of the drug either on or beneath the tongue or into the cheek pouch.²

- Prednisolone: Cats are prescribed prednisolone because their livers are less efficient at converting prednisone to the active form.

3 Cats require a lower IV fluid rate. Feline patients on IV fluids should be closely monitored for fluid overload. Their smaller blood volume (55 mL/kg, compared with ≈78mL/kg in dogs), lower metabolic rate, and higher occult cardiac disease incidence make them less tolerant of high fluid rates.

4 Tachypnea in cats is typically stress-related. Tachypnea (ie, polypnea) is an increased rate of breathing. Stress may cause some cats to open-mouth breathe on presentation; practices should decrease stress for cats by providing a separate, quiet waiting room or hospital ward away from barking dogs.

Tachypnea can result from the following disorders and diseases³:

- Abdominal disorders (eg, masses, enlarged organs, fluid, bloating)
- Bronchial diseases (eg, bronchitis, cancer, parasites)
- Compression of the upper airway



Read All About It

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structures from thoracic changes (eg, masses, lymph nodes)

- Disorders of the nostrils and sinuses (eg, infection, narrowing, inflammation, cancer)
- Heart disorders (eg, congestive heart failure, arrhythmias)
- Hematologic diseases (eg, anemia)
- Hernias
- Laryngeal disorders (eg, swelling, collapse, paralysis, spasm)
- Lung disorders (eg, fluid, pneumonia, bleeding, clots, parasites, cancer, lung lobe twisting)
- Masses, lymph nodes, or tumors in the chest cavity
- Metabolic or endocrine diseases (eg, diabetes, Cushing's disease)
- Miscellaneous disorders (eg, pain, fear, physical exertion, fever, heat, stress, obesity, drugs)
- Neuromuscular disorders (eg, trauma, cancer, inflammation)
- Pleural effusion (ie, fluid in the chest cavity)
- Pneumothorax (ie, air in the chest cavity)
- Soft palate disorders
- Tracheal (ie, windpipe) disorders (eg, tumors, collapse, foreign bodies).



Cats have an increased incidence of Heinz body (HzB) formation.

This type of anemia, caused by the destruction of RBCs, is more likely to occur in cats than dogs and is usually a reaction to certain medications or caused by hyperthyroidism, lymphoma, diabetes, or something the animal has ingested. Cats may present with a fever, sudden onset weakness, anorexia, and pale mucous membranes.⁴ Feline hemoglobin is uniquely susceptible to oxidative denaturation. Heinz bodies are aggregates of denatured, precipitated hemoglobin within RBCs. Hemoglobin (Hb) protein globin chains are denatured through oxidative damage by reactive oxygen species; this damage is ongoing because of the continuous generation of free oxygen radicals from cellular metabolic pathways. Cats have 8 reactive S-H Hb groups per Hb tetramer—twice as many as dogs.

Editor's note: Tracey Nowers has been a veterinary technician for 25 years and has always gravitated toward feline patients, even fractious ones.

See **References** on page 47. ▶

Caution
Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

Indications
SENTINEL[®] SPECTRUM[®] (milbemycin oxime/lufenuron/praziquantel) is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis*; for the prevention and control of flea populations (*Ctenocephalides felis*); and for the treatment and control of adult roundworm (*Toxocara canis*, *Toxascaris leonina*), adult hookworm (*Ancylostoma caninum*), adult whipworm (*Trichuris vulpis*), and adult tapeworm (*Taenia pisiformis*, *Echinococcus multilocularis* and *Echinococcus granulosus*) infections in dogs and puppies two pounds of body weight or greater and six weeks of age and older.

Dosage and Administration
SENTINEL SPECTRUM should be administered orally, once every month, at the minimum dosage of 0.23 mg/lb (0.5 mg/kg) milbemycin oxime, 4.55 mg/lb (10 mg/kg) lufenuron, and 2.28 mg/lb (5 mg/kg) praziquantel. For heartworm prevention, give once monthly for at least 6 months after exposure to mosquitoes.

Dosage Schedule

Body Weight	Milbemycin Oxime per chewable	Lufenuron per chewable	Praziquantel per chewable	Number of chewables
2 to 8 lbs.	2.3 mg	46 mg	22.8 mg	One
8.1 to 25 lbs.	5.75 mg	115 mg	57 mg	One
25.1 to 50 lbs.	11.5 mg	230 mg	114 mg	One
50.1 to 100 lbs.	23.0 mg	460 mg	228 mg	One
Over 100 lbs.	Administer the appropriate combination of chewables			

To ensure adequate absorption, always administer SENTINEL SPECTRUM to dogs immediately after or in conjunction with a normal meal.

SENTINEL SPECTRUM may be offered to the dog by hand or added to a small amount of dog food. The chewables should be administered in a manner that encourages the dog to chew, rather than to swallow without chewing. Chewables may be broken into pieces and fed to dogs that normally swallow treats whole. Care should be taken that the dog consumes the complete dose, and treated animals should be observed a few minutes after administration to ensure that no part of the dose is lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

Contraindications
There are no known contraindications to the use of SENTINEL SPECTRUM.

Warnings
Not for use in humans. Keep this and all drugs out of the reach of children.

Precautions
Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention.

Prior to administration of SENTINEL SPECTRUM, dogs should be tested for existing heartworm infections. At the discretion of the veterinarian, infected dogs should be treated to remove adult heartworms. SENTINEL SPECTRUM is not effective against adult *D. immitis*.

Mild, transient hypersensitivity reactions, such as labored breathing, vomiting, hypersalivation, and lethargy, have been noted in some dogs treated with milbemycin oxime carrying a high number of circulating microfilariae. These reactions are presumably caused by release of protein from dead or dying microfilariae.

Do not use in puppies less than six weeks of age.

Do not use in dogs or puppies less than two pounds of body weight.

The safety of SENTINEL SPECTRUM has not been evaluated in dogs used for breeding or in lactating females. Studies have been performed with milbemycin oxime and lufenuron alone.

Adverse Reactions
The following adverse reactions have been reported in dogs after administration of milbemycin oxime, lufenuron, or praziquantel: vomiting, depression/lethargy, pruritus, urticaria, diarrhea, anorexia, skin congestion, ataxia, convulsions, salivation, and weakness.

To report suspected adverse drug events, contact Virbac at 1-800-338-3659 or the FDA at 1-888-FDA-VETS.

Information for Owner or Person Treating Animal

Echinococcus multilocularis and *Echinococcus granulosus* are tapeworms found in wild canids and domestic dogs. *E. multilocularis* and *E. granulosus* can infect humans and cause serious disease (alveolar hydatid disease and hydatid disease, respectively). Owners of dogs living in areas where *E. multilocularis* or *E. granulosus* are endemic should be instructed on how to minimize their risk of exposure to these parasites, as well as their dog's risk of exposure. Although SENTINEL SPECTRUM was 100% effective in laboratory studies in dogs against *E. multilocularis* and *E. granulosus*, no studies have been conducted to show that the use of this product will decrease the incidence of alveolar hydatid disease or hydatid disease in humans. Because the prepatent period for *E. multilocularis* may be as short as 26 days, dogs treated at the labeled monthly intervals may become reinfected and shed eggs between treatments.

Manufactured for: Virbac AH, Inc.
P.O. Box 162059, Ft. Worth, TX 76161

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02/15

ACTing Up

One goal of veterinary education is to produce successful graduates. Salary is often a combination of base added to percentage of production, so introducing veterinary students to this payment concept could be illuminating. In this study, students rotating through community practice at University of Georgia reviewed client communication skills and then embarked on their appointments with detailed estimate discussions and client follow-up. The average client transaction (ACT) was calculated at the end of the rotation. The authors hypothesized that certain factors (eg, class rank, species-specific track, gender, prior rotation) would affect the scores, but in the final analysis none of the suspected influences on revenue had any significant effect. Excluded from this study was the average appointment time and owner satisfaction and compliance; however, future work may take this into account. Being cognizant of how wages are made is an essential exercise for veterinary students.



COMMENTARY

Implementing activities that emphasize production is an important part of veterinary students' learning experience. Graduating veterinarians must be able to produce money immediately upon entering practice; in fact, many are hired with the expectation that they will produce nearly the same amount as an experienced veterinarian. The reality is that it can take months to develop a rapport with other team members and years to develop relationships with clients. That rapport and those relationships often drive ACTs for a veterinarian, but graduates who immediately and fully use their veterinary technicians will overcome this hurdle quickly.

This study indicated that communication styles, which warrant further investigation, were not evaluated. However, nonverbal communication accounts for 55% of a delivered message and is a large part of relationship development. Paraverbal skills (eg, tone of voice, enunciation) account for 38%, and the words chosen to deliver a message for 7%.¹ It is imperative that new graduates learn and implement successful communication styles, in addition to ACT awareness.—Heather Prendergast, RVT, CVPM

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◀ *References continued from page 21*

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