

**COOL, CALM, AND COLLECTED**

Veterinary nurses are on the frontlines in communicating with a client who is worried about a pet's seizure event.

**MEET THE AUTHOR**

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Seizing the Moment

When a client calls the clinic or hospital and says, “My pet is having a seizure—what should I do?” it’s common for many veterinary professionals answering the phone to become frozen, unable to immediately respond to the crisis. But it is critical that the veterinary team member taking the call asks the right questions quickly, methodically, and with a calm, assertive presence. The entire team will benefit from this calm presence, allowing them to understand the nature of the event the animal is experiencing and to obtain the best and most appropriate level of care as soon as possible.

For more than 20 years, Julie Ann has been on the staff at North Carolina State University College of Veterinary Medicine. She earned her AAS in Animal Health Technology at the University of Minnesota, Waseca, and a BA degree in Journalism with a minor in Natural Science at the University of Wisconsin-Madison. She holds a Certificate in Nonprofit Management from the Duke Center for Nonprofits. She currently supports clinical research in neurology and nutrition, teaches, and conducts outreach. She has presented locally, nationally, and internationally, and has authored numerous articles on veterinary nursing.

This article will focus on the questions to ask when faced with uncertain seizure events in pets, as well as tips for keeping the pet owner calm and helping them to maintain a safe environment for their pet. It will also outline the best procedure for bringing a pet to the clinic safely and how to communicate that procedure to a stressed and anxious pet owner.

ASK ABOUT THE FIRST PHASE OF A SEIZURE

If one has never seen a dog having a seizure, it can be a frightening experience. If the client's pet is truly having a seizure, they will go through 3 notable phases: aura (pre-ictal), seizure, and recovery (post-ictal). Each phase has typical symptoms that are easily noticeable.

The first phase, the pre-ictal (aura), has signs. Ask the client if the patient exhibited any of the following signs:

- Appeared scared, dazed, nervous, or stressed
- Sought support from the owner
- Hid in a quiet, dark environment
- Paced, salivated, vocalized, or whined

Record any observations or signs the owner reports.

WHILE THE PET IS SEIZING

During a seizure, the pet is experiencing an abnormal, uncontrolled burst of electrical activity in the brain. It will usually last for 30 seconds to 2 minutes, although it may seem longer if the pet is being watched by the owner or on the phone with the veterinary practice. It will help calm everyone involved by encouraging the owner to breathe deeply. Communicate the following to the owner:¹

- Time the episode
- Keep clear of the pet's mouth to remain safe
- Keep the pet's head slightly lower than the body to avoid aspiration
- Lower the intensity and energy in the room by turning off ceiling fans, fluorescent lights, and televisions
- Talk soothingly to the pet during a seizure, and touch the patient safely, unless they have fallen into a dangerous area like water
- Keep the pet away from any areas where they may injure themselves or others
- Remove all other pets from the area

If the pet is in a safe place, ask the owner if he or she can videotape the pet. Oftentimes these events,

seizures, syncope, etc., are transient, and by the time the patient arrives at your practice the animal may be perfectly normal. It is valuable to view what the owners are describing to determine how to most appropriately manage the pet.

ASK ABOUT THE CLINICAL SIGNS OF A SEIZURE

If the pet's seizure has stopped prior to the call, ask the owner if the animal did any of the following:

- Fell to their side and became rigid
- Chomped its jaws
- Thrashed its limbs or front-leg paddling
- Salivated
- Howled or vocalized
- Urinated and defecated

In addition to recording the signs and symptoms that the owner reports, take note of other characteristics that might not fit the above (**BOX 1**). While each seizure has its own individual traits, there are other medical conditions that may mimic some of the signs and symptoms described by an owner. These could be manifestations of other medical concerns or conditions.

Be aware that although seizures are the most common neurological concern seen in animals—dogs especially—it is not the only reason that unexplained events take place in companion animals. Other events may be called seizures; however, they could be due to other medical concerns that happen spontaneously.

ASK ABOUT THE RECOVERY PHASE

A companion animal experiencing seizures may immediately recover from the event, or it may take hours to improve. Ask the client if the pet showed any of these signs during the recovery phase:

- Wandered aimlessly, paced, or turned in circles
- Appeared disoriented, dazed, confused, or acted as if blind
- Was hungry and/or thirsty

Record any post-ictal events the owner reports.

DISTINGUISH BETWEEN SEIZURES AND FAINTING SPELLS

Some signs of seizures are also symptoms of other conditions. One of the most commonly mistaken symptoms is syncope. With syncope, a dog's blood



pressure quickly drops, causing the pet to lose consciousness temporarily. In this case, fainting is not a symptom of a seizure, but could be caused by other problems or disorders, such as anemia or respiratory problems. Other differences include the following:

- The eyes will not dilate with syncope; during a seizure, the eyes will dilate.
- Heart rate and temperature will be normal with syncope, but will elevate during a seizure.
- With syncope, the mouth or tongue will turn blue because oxygen is cut off; this typically will not happen during a seizure.

DISTINGUISH BETWEEN SEIZURES AND BAD DREAMS

Pet owners may also notice a dog that starts barking during sleep and fear the pet is having a seizure. To distinguish between a seizure and bad dream, have the owner try to wake the dog. If it's a dream, the dog will wake, but the owner won't be able to rouse the pet if it is having a seizure.

When talking to the client, ask if the pet showed any of these signs:

- Urination and defecation
- Thrashing about
- “Clingy” behavior upon awakening

These are all signs of seizure, not a bad dream, and should be recorded if the pet owner has observed them.

TRANSPORTING THE PATIENT TO THE CLINIC

If an owner notices a single seizure, they will likely call to obtain an examination appointment. Typically, single seizure events are not emergencies as long as the seizure has ceased and there are no known signs of toxins, trauma, infections, or other concerns. The pet should be evaluated; you can schedule an appointment as a routine status and instruct the owner that should the pet have additional episodes, to contact you as soon as possible or to take the pet to the nearest emergency clinic.

However, if the pet is having repeated sustained seizures (status epilepticus) that don't stop, emergency treatment is required. Any seizure that lasts longer than 5 minutes can be life threatening. If the pet owner notices a pet experiencing a sustained seizure, instruct them to immediately take the pet to an emergency veterinary clinic for treatment.

To help the client safely transport this type of patient into the clinic, follow these steps:

1. Calmly ask the pet owner if they have another person to help them transport. Ask how far away they are from the clinic, and alert personnel to the status of the incoming emergency.
2. Tell the owners to carefully lay the patient on a blanket, and to carry the pet in a sling-type fashion and place it in the vehicle. Ideally, they will have assistance, so that one person can monitor the patient and another can drive. Instruct the owner that if at any point the animal begins to regurgitate, to hold the head lower than the body to prevent aspiration.
3. If the patient has been seizing for several minutes, instruct the owner to place cool towels around the pads of the pet's feet. Ensure that they do not try to administer anything orally during this time.

BOX 1

Ask the Right Questions

Once an event becomes categorized as a seizure, information gathered during the initial call gets placed into communications and medical documentation. It is critically important that veterinary personnel communicate, listen, and ask the questions to discern whether the event is a seizure caused by the “misfiring” in the brain or whether it is another type of medical event that may be characterized by abnormal episodes. These are some medical concerns and conditions that can sometimes be categorized incorrectly as a seizure, including:

- Atlantoaxial subluxation
- Breed and drug-induced dyskinesia/movement disorders
- Cataplexy, narcolepsy, rapid eye movement (REM) sleep disorder
- Cervical muscle spasm
- Chiari malformation/syringomyelia-associated episodes
- Encephalitis
- Episodes of neuromuscular disease
- Exercise-induced collapse
- Extreme agitation
- Head bobbing/tremor syndromes
- Intermittent decerebrate/decerebellate rigidity
- Metabolic/toxic event
- Myoclonus
- Syncope
- Vestibular episode

4. Make sure they know the most efficient route to the closest emergency clinic. Reassure the owner that you are available via phone while they are transporting their pet.
5. Ensure that the pet owner understands that these nonstop seizures can kill a pet if not treated promptly. It's essential that you help the owner to remain calm, while at the same time conveying this is an emergency situation.

In the event of a mild seizure occurrence, the patient will still require a medical examination. When the patient and owner arrive, thoroughly check the pet. Gather a detailed medical history, particularly crucial details that were not asked during the initial phone query, including questions about past head injuries, ear infections, teeth problems, or exposure to toxic substances. Vaccination status and proof of vaccination can help to protect not only the patient, but the entire veterinary team in these settings.

Fortunately, most seizure activity is not that severe in the early stages of the disorder process. Your examination should:

Determine the likelihood of primary and secondary epilepsy.² Advanced diagnostics are needed to distinguish between primary and secondary epilepsy. If the concerns related to the diagnoses with your patient is secondary epilepsy, this means a neurological condition (such as a stroke, infection, or brain tumor) is causing the seizures and needs to be treated. However, if the patient is diagnosed with primary epilepsy, which is a genetic disorder that can start while the patient is young, treatment is started typically when seizures happen more than once a month. Each seizure could potentially cause brain damage, increasing the severity and number of seizures. There are several treatment options (e.g., antiepileptic medications) available that will typically have to be given to the patient for their whole lives.

Distinguish between generalized and focal seizures.² Generalized seizures may cause dogs to have convulsions and lose consciousness. Focal seizures aren't as dramatic as generalized seizures. The only sign may be staring off into the distance, snapping at imaginary things, or other signs such as a single limb twitching or facial movements localized to only one side of the body. Generalized seizures are more typical of canine epilepsy and have specific stages of the seizure process.



It's essential that you help the owner to remain calm, while at the same time conveying this is an emergency situation.

ANTIEPILEPTIC MEDICATIONS

The veterinary nurse will assist the veterinarian with diagnostics leading to a treatment plan established by the veterinarian. The veterinary nurse can then help support the client in teaching them how to medicate, monitor, and support their pet and in being sure they understand the prescribed dosage and schedule. Common treatment options include:³

Phenobarbital: This drug suppresses seizure activity in the brain and is one of the most common treatment options for epilepsy as it is an effective treatment and still a relatively economical option for many pets. Monitor the dog's diet because they may be hungrier or thirstier while on this medication. It is important to monitor chemistry panels and evaluate liver enzymes, as it can affect liver function.

Levetiracetam: This anticonvulsant is one of the newer anticonvulsants, and is metabolized by the kidneys. It is also a product that is available in an extended-release formulation, allowing it to be administered twice daily in dogs instead of three times daily. It has a wide margin of safety, and is often tolerated well.³

Potassium Bromide: If a dog has liver problems while taking phenobarbital, potassium bromide is another option to consider. It also decreases seizure activity in the brain.

Zonisamide: Zonisamide is an anticonvulsant medication that is unrelated to the other anticonvulsants routinely used for treating dogs. It can be used alone or in combination with phenobarbital and/or potassium bromide for treating seizures.

Diazepam or Midazolam: These drugs have anticonvulsant effects but are also a sedative and rather short-acting. Often administered intranasally, rectally, or intramuscularly, they are used if a dog is experiencing nonstop seizures or cluster seizures.

Heartgard® (ivermectin/pyrantel) Plus

CHEWABLES

CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATIONS: For use in dogs to prevent canine heartworm disease by eliminating the tissue stage of heartworm larvae (*Dirofilaria immitis*) for a month (30 days) after infection and for the treatment and control of ascarids (*Toxocara canis*, *Toxascaris leonina*) and hookworms (*Ancylostoma caninum*, *Uncinaria stenocephala*, *Ancylostoma braziliense*).

DOSAGE: HEARTGARD® Plus (ivermectin/pyrantel) should be administered orally at monthly intervals at the recommended minimum dose level of 6 mcg of ivermectin per kilogram (2.72 mcg/lb) and 5 mg of pyrantel (as pamoate salt) per kg (2.27 mg/lb) of body weight. The recommended dosing schedule for prevention of canine heartworm disease and for the treatment and control of ascarids and hookworms is as follows:

Dog Weight	Chewables Per Month	Ivermectin Content	Pyrantel Content	Color Coding On Foil Backing and Carton
Up to 25 lb	1	68 mcg	57 mg	Blue
26 to 50 lb	1	136 mcg	114 mg	Green
51 to 100 lb	1	272 mcg	227 mg	Brown

HEARTGARD Plus is recommended for dogs 6 weeks of age and older.

For dogs over 100 lb use the appropriate combination of these chewables.

ADMINISTRATION: Remove only one chewable at a time from the foil-backed blister card. Return the card with the remaining chewables to its box to protect the product from light. Because most dogs find HEARTGARD Plus palatable, the product can be offered to the dog by hand. Alternatively, it may be added intact to a small amount of dog food. The chewable 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 for a few minutes after administration to ensure that part of the dose is not lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

HEARTGARD Plus should be given at monthly intervals during the period of the year when mosquitoes (vectors), potentially carrying infective heartworm larvae, are active. The initial dose must be given within a month (30 days) after the dog's first exposure to mosquitoes. The final dose must be given within a month (30 days) after the dog's last exposure to mosquitoes.

When replacing another heartworm preventive product in a heartworm disease preventive program, the first dose of HEARTGARD Plus must be given within a month (30 days) of the last dose of the former medication.

If the interval between doses exceeds a month (30 days), the efficacy of ivermectin can be reduced. Therefore, for optimal performance, the chewable must be given once a month on or about the same day of the month. If treatment is delayed, whether by a few days or many, immediate treatment with HEARTGARD Plus and resumption of the recommended dosing regimen will minimize the opportunity for the development of adult heartworms.

Monthly treatment with HEARTGARD Plus also provides effective treatment and control of ascarids (*T. canis*, *T. leonina*) and hookworms (*A. caninum*, *U. stenocephala*, *A. braziliense*). Clients should be advised of measures to be taken to prevent reinfection with intestinal parasites.

EFFICACY: HEARTGARD Plus Chewables, given orally using the recommended dose and regimen, are effective against the tissue larval stage of *D. immitis* for a month (30 days) after infection and, as a result, prevent the development of the adult stage. HEARTGARD Plus Chewables are also effective against canine ascarids (*T. canis*, *T. leonina*) and hookworms (*A. caninum*, *U. stenocephala*, *A. braziliense*).

ACCEPTABILITY: In acceptability and field trials, HEARTGARD Plus was shown to be an acceptable oral dosage form that was consumed at first offering by the majority of dogs.

PRECAUTIONS: All dogs should be tested for existing heartworm infection before starting treatment with HEARTGARD Plus which is not effective against adult *D. immitis*. Infected dogs must be treated to remove adult heartworms and microfilariae before initiating a program with HEARTGARD Plus.

While some microfilariae may be killed by the ivermectin in HEARTGARD Plus at the recommended dose level, HEARTGARD Plus is not effective for microfilariae clearance. A mild hypersensitivity-type reaction, presumably due to dead or dying microfilariae and particularly involving a transient diarrhea, has been observed in clinical trials with ivermectin alone after treatment of some dogs that have circulating microfilariae.

Keep this and all drugs out of the reach of children.

In case of ingestion by humans, clients should be advised to contact a physician immediately. Physicians may contact a Poison Control Center for advice concerning cases of ingestion by humans.

Store between 68°F - 77°F (20°C - 25°C). Excursions between 59°F - 86°F (15°C - 30°C) are permitted. Protect product from light.

ADVERSE REACTIONS: In clinical field trials with HEARTGARD Plus, vomiting or diarrhea within 24 hours of dosing was rarely observed (1.1% of administered doses). The following adverse reactions have been reported following the use of HEARTGARD: Depression/lethargy, vomiting, anorexia, diarrhea, mydriasis, ataxia, staggering, convulsions and hypersalivation.

SAFETY: HEARTGARD Plus has been shown to be bioequivalent to HEARTGARD, with respect to the bioavailability of ivermectin. The dose regimens of HEARTGARD Plus and HEARTGARD are the same with regard to ivermectin (6 mcg/kg). Studies with ivermectin indicate that certain dogs of the Collie breed are more sensitive to the effects of ivermectin administered at elevated dose levels (more than 16 times the target use level) than dogs of other breeds. At elevated doses, sensitive dogs showed adverse reactions which included mydriasis, depression, ataxia, tremors, drooling, paresis, recumbency, excitability, stupor, coma and death. HEARTGARD demonstrated no signs of toxicity at 10 times the recommended dose (60 mcg/kg) in sensitive Collies. Results of these trials and bioequivalency studies, support the safety of HEARTGARD products in dogs, including Collies, when used as recommended.

HEARTGARD Plus has shown a wide margin of safety at the recommended dose level in dogs, including pregnant or breeding bitches, stud dogs and puppies aged 6 or more weeks. In clinical trials, many commonly used flea collars, dips, shampoos, anthelmintics, antibiotics, vaccines and steroid preparations have been administered with HEARTGARD Plus in a heartworm disease prevention program.

In one trial, where some pups had parvovirus, there was a marginal reduction in efficacy against intestinal nematodes, possibly due to a change in intestinal transit time.

HOW SUPPLIED: HEARTGARD Plus is available in three dosage strengths (See DOSAGE section) for dogs of different weights. Each strength comes in convenient cartons of 6 and 12 chewables.

For customer service, please contact Merial at 1-888-637-4251.



Other items to consider would be diets high in medium-chain triglycerides, which have shown promising results in some epileptic pets.⁴ Alternative therapies such as acupuncture have also demonstrated benefits in some animals experiencing seizures.¹

AFTER THE DIAGNOSIS

Veterinary professionals are on the frontline of communications to help the client monitor a pet over the short- and long-term. Ask the pet owner to observe and record the patient's eating, drinking, urination, and defecation while on medication. Advise them about the side effects of medication, which can range from mild (occasional vomiting, increased eating and drinking, sedation) to severe (liver damage, pancreatitis). Explain to the client that the pet will most likely experience some side effects, but that without treatment the epilepsy will progress and cause serious problems. Follow-up care by the entire team is critical to the successful management of epileptic pets. Schedule follow-up calls and visits to check the patient's overall health, which is especially important if drugs are combined to keep the patient as seizure-free as possible. Finally, share resources so that the pet owner can access support networks and resources. This support makes a huge difference for the client when caring for a pet facing long-term care needs. **TVN**

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Suggested Readings

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