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Managing Acute Diarrhea: Weigh Antibiotic Use Carefully and Consider Other Tools

Q How is the work of your university laboratory changing the understanding of how gastrointestinal (GI) conditions should be managed in veterinary patients?

A The sole mission of our not-for-profit laboratory is to improve the lives of cats and dogs that have GI, hepatic and pancreatic diseases and to address their unmet needs. One of our biggest areas of interest is to better understand the microbiome—how it functions in health and how changes might relate to certain health conditions. When the microbiome is in a state of imbalance, or dysbiosis, we're learning how intervention can return patients to a healthy state and how doing so benefits them. Therapies such as diet and probiotics often have the potential to be more benign than therapies that once were commonly used, such as antibiotics.

Q Acute diarrhea is one of the more common GI conditions seen by veterinarians. What best practices do you recommend when managing these patients?

A The first step is taking a **thorough patient history** to help uncover potential triggers. Pinpointing events that are out of the ordinary for the pet is key. Think how often we hear clients say things like, 'My dog got into the trash,' or 'My dog was fed a chicken leg,' or 'My cat came in with a mouse four days ago.'

The next step is to **rule out infectious causes** of the diarrhea, such as toxigenic bacteria, viruses, or parasites, as these cases can be very serious and progress quickly and may require hospitalization and supportive care. However, most of these patients do not come in febrile and we don't see negative changes in their blood work. More often than not, we do not identify a cause of diarrhea and it is termed "idiopathic diarrhea."

The next step is devising a **management plan**. An important component of recovery from diarrhea is feeding the patient a highly digestible diet to reduce the workload of the gut. When selecting a diet, practitioners should consider the added value of nutrients or ingredients that can help support the immune system such as prebiotic fibers or **colostrum**. These ingredients can help support the host intestinal microflora and prime the immune system. Finally, we can also give them a probiotic to help ameliorate diarrhea.

When I was in veterinary school, it was common to treat acute diarrhea with antibiotics. Now, we know that most animals don't need an antibiotic and that it potentially causes harm. Of course, there can be exceptions. If a patient has

signs of systemic illness, fever, abnormal blood work or vital parameters that are not responding to supportive care with fluids and other measures in the hospital, antibiotic use may be warranted.

Q Antibiotics are obviously indispensable in veterinary practice, but their use can adversely affect the health of an animal's microbiome. When antibiotic use is warranted to manage a patient with acute diarrhea, what steps can be taken to manage their adverse effects?

A I tell practitioners to make sure their approach is as targeted as possible. There's no reason to use a broad-spectrum antibiotic that's going to target both gram-negative and gram-positive aerobes and anaerobes if a culture or other diagnostic test suggests a gram-negative anaerobe is the culprit. Treat the infections as specifically as you can and in the case of a skin infection, consider topical rather than systemic treatment.

When antibiotic use is warranted, concurrent use of specific probiotics might help preserve or restore the microbiome or promote stool consistency. We need more studies, but the preliminary evidence is compelling. Another potential option is fecal microbial transplantation. Again, more investigation is needed, but early studies suggest this strategy can provide relief for dogs experiencing prolonged diarrhea after antibiotic usage, especially if they have dysbiosis.



Taking a thorough patient history is an important step in determining potential triggers for GI issues.

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Diet + Probiotics = One-Two Punch to Acute Diarrhea



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For many veterinarians, seeing dogs with acute diarrhea is a daily clinic occurrence. Whether the cause is dietary indiscretion, stress, parasitism or the side effect of an antibiotic, acute diarrhea in a dog adversely affects both patients and their owners. By the time clients call the veterinary hospital, they are usually highly motivated to seek a swift solution.

Probiotic research triggers paradigm shift

For many years, dispensing antibiotics to dogs with acute diarrhea was considered a rational and evidence-based management approach. Even when diarrhea has a noninfectious cause, such as stress or dietary indiscretion, the balance between “good” and “bad” bacteria is thrown off-kilter, leading the potentially “bad” bacteria to proliferate. A short course of certain antibiotics was believed to bring about a quick resolution of clinical signs.

The problem is that metronidazole administration can disrupt the gastrointestinal microbiome for days, weeks, months—or even longer.¹ Furthermore, diarrhea often recurs when the antibiotic is discontinued, leading veterinarians to extend the course of antibiotics and trigger further microbiome impairment. Meanwhile, a recent study demonstrated that antibiotics were not statistically different versus placebo at resolving diarrhea.²

Today, veterinary GI experts recommend a highly digestible diet for dogs with acute diarrhea because it facilitates optimal nutrient absorption and can provide prebiotic fibers to promote digestive health. However, for most patients with nonspecific acute diarrhea, a probiotic such as Purina® Pro Plan® Veterinary Supplements FortiFlora® Canine Probiotic Supplement in combination with a diet such as Purina® Pro Plan®

Veterinary Diets EN Gastroenteric® Canine Formula or EN Gastroenteric® Fiber Balance Canine Formula, may be a great first option for therapy. For clients who question this approach, I explain that probiotics and diet are likely more effective than antibiotics in their pet’s case and do not have harmful effects on the microbiome.

Prebiotics and probiotics can promote the presence of beneficial bacteria, which can decrease the opportunity for harmful bacteria to proliferate and result in diarrhea. Fortunately, today’s pet owners are much more familiar with the concept of microbiome health, thanks to its extensive coverage in the popular press. Clients are more likely to understand why this dietary approach can help manage their dog’s clinical signs, and they also likely recognize that a probiotic or a diet change can often be better for their dog’s overall health.

Can Probiotics Be Used Preemptively?

While some cases of acute diarrhea arise spontaneously, some episodes can be predicted—and potentially averted. Two of the more common causes of stress diarrhea are boarding and travel. I recommend that owners planning to board or travel with their pets begin administering a probiotic supplement to their dogs approximately one week prior to the trip and continue the supplement for several days beyond their return home.

Meanwhile, commonly used antibiotics such as amoxicillin-clavulanic acid are notorious for triggering GI upset and diarrhea. Dispensing a probiotic along with these antibiotics may help mitigate these effects and avoid unwanted disruption for both patients and owners.



A highly digestible diet plus a probiotic can provide relief for many dogs with acute diarrhea.

¹ Pilla R, Gaschen FP, Barr JW, Olson E, et al. Effects of metronidazole on the fecal microbiome and metabolome in healthy dogs. *J Vet Intern Med* 2020 Sep;34(5):1853-1866. doi: 10.1111/jvim.15871. Epub 2020 Aug 28. PMID: 32856349; PMCID: PMC7517498.

² Scahill K, Jessen LR, Prior C, et al. Efficacy of antimicrobial and nutraceutical treatment for canine acute diarrhoea: A systematic review and meta-analysis for European Network for Optimization of Antimicrobial Therapy (ENOVAT) guidelines. *The Veterinary Journal*. epub ahead of print. doi: 10.1016/j.tvjl.2023.106054

Offer Supplements with a Side of Client Education



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While most clients are receptive to giving supplements to their pets, I tell them to proceed with caution in the world of pet supplements. A company's marketing may be great, but their products may not be! I always stress the importance of using supplements from reputable brands that have a National Animal Supplement Council (NASC) seal on their packaging. I also believe it's important to equip clients with information and experience-based

Do Dogs with Acute Diarrhea Need Probiotics, Too?

Whether or not a dog with acute diarrhea requires a probiotic along with a probiotic supplement depends on several factors: (1) whether the dog has small-bowel or large-bowel diarrhea; and (2) which therapeutic diet is being fed along with the probiotic supplement. Dogs with large-bowel diarrhea benefit from a diet containing soluble and insoluble fiber, whereas dogs with small-bowel diarrhea require a diet focused more on soluble fiber. Depending on the severity and recurrence of the diarrhea, patients with small-bowel diarrhea may benefit from a probiotic supplement that also supplies prebiotic fiber.

recommendations that only we as veterinarians can provide.

Clearly communicate the role of supplements

I recommend supplements for patients for a variety of conditions and position them as part of a multimodal management program. I stress that supplements can't cure conditions but can help with their long-term management. Some examples:

- **Joint management.** If possible, I start supplementation early with a product that contains glucosamine, chondroitin sulfate and the omega-3 fatty acids EPA and DHA. I stress that the goal is to keep dogs mobile and maintain their joint range of motion.
- **Anxiety.** I tell clients about my own German Shepherd whom I rescued during veterinary school. He became very stressed when I had to leave him. I started him on Purina® Pro Plan® Veterinary Supplements Calming Care as soon as it came on the market and maintained him on it full-time. When he had to be boarded, I would also give him an antianxiety medication like trazodone to help him handle the additional stress.
- **Acute diarrhea.** In my experience, probiotic supplements like Purina® Pro Plan® Veterinary Supplements FortiFlora® are a fantastic first-line

option for managing these patients. The supplement can be used short-term or continuously if the dog is prone to frequent episodes.

Cut through the clutter with credible client education

For the client whose pet has been diagnosed with a new condition, it is simply not enough to give them a box of supplements or a bottle of medication. I strongly believe in sending patients home with discharge instructions so the owner can read about the condition and the treatment plan when they're in a calmer environment. I also use an app called Scribble AI that records what I tell them in the exam room, then creates a readable transcript I can send home. I also download resources from reputable websites and print them or text the client links.

I have my own Instagram handle (@thehonestvet) and have found social media to be a vital means of client education. The more we as veterinarians can offer our own recommendations, the better we can dissuade clients from information that isn't factual.

I tell people that client communication is the most common procedure I perform. The best treatment plan won't help a patient if the client doesn't understand the plan and what it will do for their pet.

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Key Takeaways

- Most animals with acute diarrhea do not need treatment with an antibiotic, which can potentially harm the microbiome. In cases where an antibiotic is warranted, the approach should treat infections as specifically as possible.
- For most patients with non-specific acute diarrhea, a probiotic in combination with a highly digestible diet may be a great first option for therapy.
- By providing good client education about dietary supplements for their pets, veterinarians can help pet owners navigate away from misleading information and claims they may find online.



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