

# New Hope Against a Highly Infectious, Life-Threatening Condition

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Analysis by [Dr. Karen Shaw Becker](#)

## STORY AT-A-GLANCE

- Canine parvovirus is a highly infectious, life-threatening condition that until recently could only be treated with supportive care
- Veterinary drug manufacturer Elanco recently received a conditional license from the USDA for its canine parvovirus monoclonal antibody (CPMA) therapy; veterinarians are now free to purchase it pending individual state approvals
- An 8-week-old puppy in California was diagnosed with parvo on a Friday, received the CPMA treatment the same day, was eating again by Saturday evening, and was released from the clinic Monday morning
- A study of fecal microbiota transplantation (FMT) to treat parvo in puppies concluded this procedure also significantly reduces mortality rates and recovery time; the study also showed that FMT is a safe procedure with no adverse effects
- Despite its effectiveness, safety, and low cost, FMT isn't yet a widely used veterinary procedure to treat parvo or other GI-related conditions

If you have a canine family member, you probably know that parvovirus is a very serious disease seen primarily in unvaccinated puppies and immunocompromised dogs. It is highly contagious and can be fatal. A parvo infection causes hemorrhagic gastroenteritis, which is characterized by vomiting and bloody diarrhea.

The disease is easily transmissible from one dog to another through contact with infected feces. It can also be spread by direct dog-to-dog contact and contact with contaminated environments or people. Parvo can infect kennels, food and water bowls, collars and leashes, and the hands and clothing of people who handle sick dogs. The virus is highly environmentally stable and can remain infectious in soil for at least a year.

Parvo causes similar symptoms in all infected puppies and dogs. In addition to vomiting and severe, often bloody diarrhea, there is also lethargy, fever, and loss of appetite. Dehydration is a constant concern and can occur very quickly as a result of the vomiting and diarrhea. This is especially dangerous in very young puppies.

Most deaths from parvo occur within 48 to 72 hours after the onset of symptoms, which is why it's critical that dogs be seen by a veterinarian immediately if they show any signs of the infection. The mortality rate for this disease is as high as 91% if left untreated and an estimated 900 cases are diagnosed a day in the U.S., totaling 330,000 cases annually.<sup>1</sup>

Historically, the goal in treating parvovirus has been to support a dog's organs and body systems until his or her immune response can conquer the infection. Treatment has consisted of replacing fluids and electrolytes, controlling vomiting and diarrhea, and preventing secondary infections. Since the disease is so contagious, affected dogs are isolated to minimize spread of infection.

## Elanco Announces First Monoclonal Antibody Therapy for Parvo

In May 2023, Elanco Animal Health announced that the U.S. Department of Agriculture (USDA) had granted the company a conditional license for the first monoclonal antibody therapy to treat canine parvovirus.<sup>2</sup> According to a Reuters news release, the therapy will be available to veterinarians for purchase through Elanco pending individual state approvals. No price for the therapy was disclosed in the news release.

The goal of the treatment, says Jeff Simmons, Elanco CEO, is "to create added value to the pet owner by less hospital time, less added treatments of non-therapeutic options, and mostly less hospitalization time and vet costs." The therapy is a one-shot intravenous (IV) treatment that can be given to dogs 8 weeks or older with parvo.

Per veterinary journal Clinician's Brief, Canine Parvovirus Monoclonal Antibody (CPMA) targets parvovirus directly and works by selectively binding and blocking parvovirus from entering and destroying enterocytes. One IV dose can shorten the disease course and improve patient outcomes. Further, CPMA carries a high safety profile and has been shown to be well-tolerated in patients as young as 6 weeks of age.<sup>3</sup>

## 8-Week-Old Pitbull Mix Receives CPMA

According to a news item in USA TODAY,<sup>4</sup> 8-week-old **Cookie**, a Pitbull mix puppy, started showing classic symptoms of parvo: lethargy, lack of appetite, vomiting, and diarrhea. Her owners rushed her to The Fix Project, a nonprofit clinic specializing in parvovirus as part of Fix Long Beach Pets' facility in Long Beach, California. A test confirmed everyone's worst fears: parvovirus.

Little Cookie was immediately admitted to the clinic, which was one of the first to use Elanco's CPMA. Veterinarian Dr. Andrew Cabrera, clinic medical director, believes the treatment has had a positive impact not only on the puppies and their owners, but also the teams caring for them.

*"Lately, especially during COVID, treating these puppies was tough," Cabrera told USA TODAY. "I was giving out bills of \$5,000 for three to four days of hospitalization. I don't mind giving a big bill like that if we're saving the pet but when we're losing them and it's not the first day, not the second day, it's usually three days into treatment, of holding onto them and caring for them ... that sucks."*<sup>5</sup>

According to Cabrera, incorporating the CPMA into their parvo ICU protocol resulted in a higher treatment success rate, especially in smaller and more vulnerable patients like Cookie.

*"It made a big difference," he said. "And we've also noticed that they're getting out of our treatment ward faster and they're spending less time in."*

This is hugely positive not only for the patients and their owners, but also for the mental health of the veterinary staff, who are now involved in more positive outcomes and spend less time consumed by intensive care that may or may not work. The clinic has been able to cut treatment time in half.

*"Once we see that parvo test, that positive, we use (the medicine) immediately," said Cabrera. "With our original treatment protocol, we were probably getting these dogs out at seven, six days, around that timeframe. And now, we're getting them out around the four-to-five-day mark. So, we've saved some time off the back end and increased our success rate."*

Cookie was admitted to the clinic on a Friday and **received the monoclonal antibody treatment** the same day. On Saturday, her energy began to return and by that evening, she was **eating again**. On Monday morning she was retested, was parvo free, and went home with her family.

## **This 'Unheard Of' Parvo Treatment Is Also Effective**

If you're a regular reader here, you probably know there's another treatment for parvovirus that is also highly effective. Unfortunately, it won't receive the kind of fanfare the monoclonal antibody treatment discussed above has received, because it isn't a veterinary pharma product.

It's a procedure known as a fecal transplant, also called microbiome restorative therapy or **fecal microbiota transplantation** (FMT). I've personally used FMT for many patients dealing with severe gastrointestinal (GI) infections and chronic gut conditions over the last several years, with great success.

FMT is an ancient practice many cultures around the world have used to effectively treat outbreaks of potentially life-threatening GI infections. Simply stated, it replaces unhealthy or infected microbiomes in diseased humans with healthy ones.

The procedure is also being used in top human hospitals around the world to help people recover from C. Diff infections and other potentially devastating intestinal disorders, with impressive results.<sup>6</sup> Thankfully, more and more veterinarians are turning to FMTs to help with chronic diarrhea, dysbiosis, and inflammatory conditions.

## **Study: FMT Saves Puppies With Parvo**

Researchers at two veterinary teaching hospitals in Brazil conducted a year-long study to evaluate the safety and effectiveness of FMT in a group of 66 puppies diagnosed with parvovirus.<sup>7</sup> The pups were under one year of age and suffering from acute hemorrhagic diarrhea syndrome (profuse bloody diarrhea).

Upon admittance to the hospital, the researchers performed bloodwork, fecal exams, and parvo testing on all the puppies, and each pup received a physical exam daily while hospitalized. Half the patients received standard supportive treatment for parvo, including IV fluids, antimicrobials, and anti-nausea and gastric protectant medications. The other 33 puppies received the standard supportive treatment protocol plus FMT.

The feces donor was a healthy adult American pit bull terrier whose poop was collected daily for 2 weeks and frozen. The transplantation dose for each pup was 10 grams of feces blended with 10 milliliters of dilute saline. The doses were given in the rectum using a syringe and catheter, and the pups had to remain lying on their left side with their pelvis elevated for 2 minutes following administration.

The puppies who received FMT weren't restrained, sedated, or anesthetized for the procedure, which was performed 6 to 12 hours after hospital admission, and then every 48 hours until the diarrhea resolved, or they had undergone five transplantations. The study results were extremely encouraging:

- Puppies who received FMT had a lower death rate (21.2% vs. 36.5% in the group that received only standard supportive care)
- Diarrhea resolved within 48 hours in 61.5% of puppies who received FMT vs. only 4.8% of pups who received the standard treatment
- Average hospitalization time was much shorter for puppies who received FMT (3.3 days vs. 6 days)

The study authors concluded that FMT is a safe procedure with no adverse effects, and that it decreases the mortality rate and recovery time in puppies with parvo.

If your puppy or dog is diagnosed with parvo, I encourage you to ask your veterinarian about fecal transplants. You might also try contacting an integrative or holistic veterinarian in your area. FMT isn't a widely used treatment yet, though it's proving effective for a wide range of GI and other health issues in pets, and there isn't much research for vets to refer to, but fortunately there are a few practitioners out there blazing a trail for other veterinarians interested in giving this natural, common sense, nearly free therapy the attention it deserves.

## Protecting Your Dog From Parvo Through Vaccination

Since many puppies and dogs who develop parvo don't survive the infection, it's important to do everything possible to prevent it. This disease is nothing to fool around with. It's very much alive and thriving in our environment, and it frequently ends the lives of dogs who become infected.

Over-vaccination is an ongoing problem in the veterinary community, but in my professional opinion, providing baseline protection (usually two well-timed puppy vaccines) against parvo provides your dog with lifetime immunity — and provides you with peace of mind. I have seen far too many puppies acquire parvo unnecessarily in my career to not recommend this basic, highly effective strategy against a potentially fatal virus.

The protocol I follow in vaccinating puppies against parvo (the vaccine protects against all strains) is a parvo/distemper shot before 12 weeks of age (ideally at nine weeks), and a booster between 15 and 16 weeks. Two weeks after the second round, I perform a vaccine antibody titer test to ensure the dog has been **immunized and not just vaccinated**. This is a core vaccine protocol that provides the basic minimum number of vaccines to protect against life-threatening illnesses, without over vaccinating.

Since the job of vaccines is to stimulate antibody production, if a puppy is exposed to parvo (or another virus for which he's been vaccinated), he has some level of circulating protection. Vaccines stimulate antibody production, but it takes 10 to 14 days after the vaccination for adequate protection to occur.

A small percentage of dogs known as "non-responders" will not develop immunity and will remain susceptible to parvo for a lifetime. This is very important information for pet parents to have, which is another reason I titer after the second round of shots — I want to ensure the animal is protected, or if not, that the owners are informed their pet is a non-responder.

In addition, some puppies retain a level of immunity from their mother's milk that interferes with the effectiveness of vaccines. Titering gives us the information we need to be confident the pup has been immunized effectively, or if he hasn't, to determine why, and what further action should be taken.

## Sources and References

<sup>1,4,5</sup> [USA TODAY, September 23, 2023](#)

<sup>2</sup> [Reuters, May 2, 2023](#)

<sup>3</sup> [Clinician's Brief, Canine Parvovirus Infection & Outpatient Monoclonal Antibody Therapy, November 2023](#)

<sup>6</sup> [Time, November 28, 2017](#)

<sup>7</sup> [Journal of Internal Veterinary Medicine, February 20, 2018](#)

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