

## Battling Parvovirus

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o many people, the word “parvo” conjures up images of dilapidated animal-housing facilities overcrowded with sick puppies and dogs crammed in filthy cages. That image is only partially correct. Although poor sanitation and disease-control policies greatly increase the likelihood that parvo will spread in a shelter, all shelters are at risk.

Another misconception is that parvo originates in the shelter environment. In fact, dogs and puppies cared for in the shelter come from outside the shelter, which means that parvo found in the shelter indicates a community problem that has become a shelter problem. Nevertheless, the following “shelter” factors can increase the chances of animals contracting parvo and make recovery more difficult:

- group housing or crowded kennels
- environmental “stress”
- malnutrition or other health problems
- poor vaccination histories of admitted dogs

*Unsanitary, crowded conditions serve as a breeding ground for parvovirus. Stopping parvovirus calls for revamping your shelter's disinfection program, improving the way you house animals, and starting a vaccination program.*



© Bonnie Smith

Sound familiar? One or all of these can be and usually are present at any animal-housing facility, making pet stores, animal shelters, and breeding facilities high on the list of parvo's favorite sites.

### A Stubborn Disease

If you work in a shelter, you may already be familiar with the signs of canine parvovirus: loss of appetite, vomiting, dehydration, lethargy, depression, bloody diarrhea, and odd-smelling, discolored feces. But what exactly is parvo?

Parvo is a virus that typically attacks the canine intestinal tract. The virus can also attack the heart, but that form of parvo is extremely rare. (However, puppies infected at less than two weeks of age can develop myocarditis, inflammation of the heart muscles, usually leading to heart failure—and death—at six to eight weeks of age.) Although parovirus can attack dogs and puppies of any age, it is most commonly found in dogs under one



year old. Humans cannot get the disease.

Parvo is transmitted through the feces and vomit of infected dogs and puppies. It is a highly resistant virus able to withstand heat, cold, and most common disinfectants. In fact, the virus is so resistant that it can live in feces for about two weeks and can exist in the environment (such as floors and caging) for many months. It is easily transmitted by “fomites,” such as hands, clothing, and shoes of anyone who comes in contact with the virus.

### What to Do if Parvo Strikes

The Lake County Dog Shelter in Painesville, Ohio, learned two years ago just how stubborn parvo is and how quickly it can spread. So bad was the outbreak that the shelter shut down twice to contain it. The physical plant was old and poorly designed, making it difficult to disinfect the shelter. But improved disinfection procedures and a new vaccination protocol are helping, says Lake County Dog Warden Rodney Shelton.

Parvo in the shelter can be a disaster, and the Lake County Dog Shelter treated it like one. Whether your shelter is currently experiencing parvo problems or just wants to be prepared for them, you too need a “parvo disaster plan.” Here are some actions you can take to get things under control:

- **Educate your staff.** All staff should understand what parvo is, how it is transmitted, and how to fight it. Misinformation could lead to incorrect precautions or simply wasted time and effort. (For example, because parvo is so easily transmitted, some people mistakenly assume it is an airborne disease and use the wrong methods to combat it.)
- **Do not stop taking in animals.** While this could reduce the spread of the virus in the shelter, it may increase it in the community. Then, when you do take in animals again, the problem could revive itself. Consider too the fate of the animals you turn away. The resulting suffering may be far worse than the risk of parvo.
- **Isolate incoming and potentially-exposed animals.** If you have adequate facilities to do so, keep new animals in a specified area (an isolation area or even the kennels at the end of the room) for a few days to be monitored. Create an area to isolate and observe stray animals who may have been exposed.
- **Vaccinate against parvo.** A comprehensive vaccination program is a must for any facility accepting animals, especially those with unknown health histories. If you don't already vaccinate incoming puppies and dogs

*Ordinances that require dogs to be kept on leashes help reduce the spread of diseases like parvo.*



© Myra McGovern

against parvo, create a vaccination program as part of your intake procedures. (See sidebar on page 9.)

■ **Watch for symptoms.** Evaluate your current population. Are any other puppies showing signs of the virus? How about adult dogs? Any animal with symptoms should be removed from the general population immediately, quarantined, and evaluated. (For more information, see “How to Tell if a Cat or Dog May Need Veterinary Care” on page 21 of the March-April issue of ASM.)

■ **Follow sensible kennel-management procedures.** Separate healthy animals from sick ones, and puppies from adult dogs. (Because many dogs carrying parvovirus do not show symptoms, it's important to keep them away from puppies.) Also, do not switch dogs from run to run: Each animal should be kept in the same run for as long as possible during his stay at the shelter. Leave any disinfected kennel that may have had parvovirus in it empty for at least 24 hours.

■ **Get serious about cleaning.** Look at your current disinfection protocol. Are you using a disinfectant that kills parvovirus? Are kennels and common areas cleaned at least once daily? Are cages and flooring in your animal control vehicles routinely disinfected? Make sure that your procedures or products aren't compromising your effort. (See the sidebar below.)

■ **Reduce fomite transmission.** Employees

and visitors should wash their hands after handling each animal. Also, they should be careful to change any clothing that may be contaminated. Require staff to step in footbaths (shallow pans of bleach mixture or disinfectant) before and after visiting the isolation area.

■ **Consult a veterinarian to serve as an advisor.** This individual can help you determine the many steps needed to ensure the continued good health of the shelter population.

■ **Implement responsible adoption policies.** Never place for adoption any dog or puppy who has been exposed to parvovirus. If your shelter doesn't have the room and resources to isolate exposed animals until the incubation period is over, it may be more responsible to euthanize them. Otherwise, you risk subjecting more puppies to parvovirus, causing adopters heartache, and facing a backlash from the community.

■ **Provide new adopters with information about parvo.** Each new adoptive parent of a dog or puppy should

## DISINFECTING: Stopping Parvo at the Front Door

Your kennels may look clean, but will they stand up against the dreaded parvovirus? Unless you're disinfecting all surfaces—floors, walls, and cages—with a product proven effective against common bacterial and viral diseases, then your hard work isn't getting the job done. Use a product such as a quaternary ammonia compound or a mixture of one part bleach and 32 parts water. (Using more bleach will not provide greater protection against disease and will only leave a stronger odor. It can also be irritating to animals, potentially making them more vulnerable to illness.) Make sure the kennel is first cleaned of any soap or other products that may neutralize the power of the bleach.

To fight parvo in your shelter's kennel area, adopt the following daily cleaning regimen:

1. Remove the animals, bedding, and all food and water containers from the kennel. Be sure to wash bedding with a disinfecting agent.
2. Remove all solid waste (such as feces and hair).
3. Rinse away urine with water. (Avoid splashing any feces or vomit from one kennel into another or into a common area. This is especially a concern for shelters where kennels share a drainage trough.)
4. Using a stiff-bristled scrub brush and a solution of disinfectant, scrub all surfaces, including gates.
5. Allow solution to stand at least 20 minutes (or time recommended by the manufacturer).
6. Thoroughly rinse all surfaces.
7. Dry the run as completely as possible before returning the animal to it.
8. Avoid using high-pressure or steam cleaners to clean kennels. Although parvo isn't “naturally” airborne, it can become airborne when these systems break up feces into particles that can be inhaled.
9. Thoroughly disinfect all cleaning tools.

The kennel structure that best prevents disease transmission is one that incorporates solid walls topped with fencing between the kennels. These walls should be at least four feet high and should prevent water and waste materials from flowing from kennel to kennel.



To combat parvo, it's best to have kennels set up for ease of cleaning.

HSUS/Bevan

be educated about parvo and its symptoms. Stress the importance of keeping any new pet away from currently-owned animals. Explain that you've found cases of parvo in the shelter and community, but to the best of your knowledge the animal being adopted has not been exposed to the virus. Express concern, not alarm: You want to make them aware, not send them into a panic or feed the dangerous stereotype that shelter animals are sickly.

■ **Follow up on all adoptions.** Call all recent adopters and ask them how their dog or puppy is doing. Counsel them on the importance of regular vaccinations and simple, everyday precautions they can take to reduce the risk to their pet. Tell them what symptoms to watch for and to consult their veterinarian immediately if they see any.

■ **Make sure leash laws are enforced.** Ordinances that forbid owners from letting their dogs roam and that require owners to collect their pets' feces provide a safe community for people and animals and are critical to preventing and controlling parvo in the community.

### When Good Isn't Good Enough

If, after following all these steps, you still have parvo recurring in the shelter and receive calls from the community, take stronger steps:

■ **Close off animal-housing areas.** Quarantine and evaluate the puppies and dogs; watch carefully for symptoms. If more cases occur, it may be best to euthanize

## What You Need to Know About Vaccinating Puppies

Vaccinating adult dogs against parvo is relatively simple. Vaccinating young puppies against the virus, however, is a bit more complicated. Your vaccination program must take into consideration puppies' delicate and developing immune systems.

When puppies are nursing, they are often protected against disease through "maternal immunity," which means they are protected through their mother's milk against any disease to which their mother has developed immunity (either through vaccination or previous exposure). As the puppy gets older this maternal immunity wanes and he starts down the road to building his own immune system.

It can be a slow process: Puppies go through a two to four week period called the "window of susceptibility." When puppies in this period are given a vaccine, they may still carry enough maternal antibodies to destroy the vaccine's effectiveness but not enough to kill the virus.

Depending on how strong the mother's immunity is, her puppies may enter this "window of susceptibility" as early as 4 to 6 weeks of age or as late as 12 weeks of age. Because a puppy's level of immunity is difficult to determine, vaccinations are begun around six weeks of age. Vaccines are usually given as a series of injections 3 to 4 weeks apart until the puppies are 18 to 20 weeks old. This vaccination schedule protects the puppy while he is no longer sufficiently protected under maternal immunity and hasn't yet built up his own system.

Several vaccine manufacturers recently introduced "high-titer" vaccines that overcome maternal antibodies at a younger age, shortening the "window of susceptibility," and protecting puppies faster and earlier. Work with your shelter veterinarian or cooperating local veterinarian to find a vaccine and schedule appropriate for your shelter.

*Vaccinating puppies against parvo is critical to your shelter's overall parvo-prevention program.*



Courtesy of Wood Green Animal Shelters/England

# When the Animal Dies

Even with the best screening, isolation, and vaccination procedures, there's still the chance an adopted dog or puppy will get parvo and have to be euthanized. When this happens, shelter staff need to put on their "grief counselor" hats and, in some situations, their "lawyer" hats when dealing with traumatized adopters.

## Counseling Grief-Stricken Adopters

To fill the void left by their lost pet, some adopters may want to quickly replace the animal with another. This must be discouraged. Because the parvo virus is so hearty, it can live in the environment long after the animal dies. Your shelter should therefore require a 30-day waiting period for these adopters before letting them adopt a new shelter dog or puppy into their home. Let them know you understand and empathize with their grief, but that a waiting period is in the best interests of their family and new puppy. Recommend that they use the waiting period to disinfect their home, using products proven effective against parvovirus.

## Avoiding a Backlash

In their grief, some owners may angrily blame the shelter. Their reaction may range from quiet resentment to a lawsuit. The fact that your shelter isn't to blame for their grief isn't enough to protect you from this backlash. That's why you must make sure your organization has a detailed liability waiver, written and approved by your legal counsel and signed by the adopter.

Consider a recent case in which a pet owner demanded that a local shelter assume responsibility for her dog's illness: A puppy adopted from the shelter came into contact with a neighbor's dog. The following week the puppy from the shelter became ill and was taken to the veterinarian, who diagnosed him with parvo and euthanized him. When the neighbor's dog became sick a few days later he was taken to the veterinarian, diagnosed with parvo, and successfully treated. The neighbor then demanded that the animal shelter pay her large veterinary bill, claiming it was the shelter's puppy who transmitted the virus to her dog. Fortunately, the shelter was able to verify that all other puppies in that litter were free of parvo. However, what protected the shelter the most was its strong liability waiver in its adoption agreement.

All shelters must protect themselves against cases like this. For more information on liability waivers, see the article "Protect the Legal Health of Your Organization, Too" on page 4 of the March-April issue of *ASM*.



© Summer W. Fowler

*Losing a new puppy to parvo is heartbreaking, but replacing the puppy too soon can be dangerous for the new pet. Because parvovirus is so hardy, it can live in the environment long after the animal is gone.*



© Renee Stockdale

*Although dogs can get parvo, puppies' developing immune systems make them especially susceptible to the disease.*

all exposed dogs and puppies. Although this may seem extreme, it is sometimes the only way to stop a serious outbreak and prevent countless incoming animals from contracting this deadly disease.

■ **Protect incoming animals.** When you're facing a serious parvo outbreak, it may be tempting to close the shelter to incoming animals. Don't give in to this temptation! It goes against your mandate to care for all needy animals and will *not* solve your parvo problem. Instead, keep incoming animals in a separate area while you disinfect. (If you don't have an isolation area, you can keep them in large portable crates in a separate area until you've finished disinfecting.)

■ **Disinfect the entire shelter.** Clean like you've never cleaned before. Scrub everything. Require staff to use footbaths not just in the isolation area, but after they clean each kennel.

■ **Alert your community's veterinarians to the situation.** Let them know you are taking proactive approaches to control the virus. Work together to stop it.

■ **Write a press release informing the public of the problem.** Include information on what symptoms dog owners should watch for. Discuss how your shelter is taking new steps to control the problem in your facility. List precautions everyone can take to minimize the risk. (For a sample news release, see page 13.)

■ **Remember that parvo is a community problem—it's not your fault.** Poor disinfection and crowded facilities certainly worsen a parvo problem, but parvo itself is not the shelter's fault. It's a *community* problem, because that's where the dogs in the shelter originate.

## Rebuilding in the Aftermath

You and your coworkers will no doubt be a bit shaken up after a parvo outbreak. After all, you just witnessed a viral disaster sweep through your facility and your community, harming animals and maybe even your shelter's reputation. What do you do afterward? For one thing, you need to take a close look at your organization's policies and procedures.

Two years ago, the Cherokee County Humane Society (CCHS) in Canton, Georgia, experienced an outbreak of parvo in its shelter. The shelter and its policies have since gone through some tremendous changes. Phillip Downing, who took over the position of General Manager several months ago, says the organization has made significant strides in the quality of care it's able to provide. The shelter now has a veterinarian on staff and an intake program that includes the vaccination of all dogs and puppies against parvo. CCHS has improved disinfection procedures, created an isolation area, and developed a responsible screening process for incoming animals. The shelter has also discontinued the policy of not accepting young puppies, which it had instituted as a desperate measure during the outbreak. "We don't turn away any animal," says Downing.

Taking a good look at how well you communicated with the public during the outbreak is also important. Did you keep people informed of the problem? Are there ways you could improve your relationship with the community?

After the outbreak of parvo at its shelter, the Humane Society of Cambria County (HSCC) developed a press release to curtail a backlash against the shelter and to educate the community. "We're interested in maintaining our reputation but we have to be frank about this and be open about it as well," says Julie Horowitz, president of HSCC's board of directors.

Use this opportunity to educate the community.



© Cris M. Kelly

*It is important to be sensitive when educating adopters of dogs about parvo. Warn them about parvo, explain the symptoms, and provide them with tips. But be careful not to perpetuate the stereotype that shelters are filled with unhealthy animals.*

Helping people understand what the disease is, how it is transmitted, and how it can be treated empowers people to help their own animals and understand that parvo doesn't necessarily start in a shelter environment. The public, new adopters especially, should be aware of ways they may be putting their animal at risk and how they can reduce that risk in very simple ways. ■

## Treating the Disease

**T**reating parvo can be time-consuming, risky, and expensive. That's why responsible shelters that care for all unwanted and stray animals in a community rarely are able to treat the dogs who came down with parvo in the shelter; most have to be euthanized.

However, dog owners often have the luxury of time and money to treat their parvo-infected animal. Because there are no "anti-viral" drugs, treatment generally centers around supporting the animal's normal body functions while the virus runs its course and includes the following steps:

- Hospitalize the animal.
- Keep the animal in a quiet, warm environment away from other animals.
- Replenish fluids intravenously.

- Control vomiting and diarrhea by withholding food and giving proper medication.

- Administer antibiotics to fight secondary bacterial infections.

Bonnie Yoffe-Sharp, DVM, Medical Chief of Staff at Peninsula Humane Society in San Mateo, California, cautions that such treatment promises only a "guarded prognosis." Unfortunately, the animal may still die or need to be euthanized to end suffering. Some animals can pull through, however. Once the dog makes it through three to four days of sickness, recovery is usually rapid. In addition, most dogs who recover from parvo are rewarded with immunity from the disease for several years and, sometimes, for life.

# PARVOVIRUS

## FACT SHEET

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### WHAT IS PARVOVIRUS?

Canine parvovirus, or “parvo” as it is commonly known, is a virus that usually attacks the canine intestinal tract (canine parvovirus enteritis) and, in rare cases, the heart (myocarditis). First identified in the late 1970s, the virus is one of the most resistant known; it is able to withstand heat, cold, and most common disinfectants.

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### HOW IS IT TRANSMITTED?

Parvo is transmitted through the feces and vomit of infected dogs and puppies. The virus can live in feces for about two weeks and can exist in the environment (such as on floors or cages) for many months. Because it is so difficult to kill, the virus is easily transmitted by “fomites” such as the hands, clothing, or shoes of anyone who comes in contact with it.

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### WHAT ARE THE SIGNS?

Signs appear after the disease's incubation period. The incubation period can last from 3 to 12 days after exposure but usually occurs within 5 to 7 days of exposure. The initial signs of parvo include loss of appetite, vomiting, dehydration, lethargy, fever, and depression. These are often accompanied by malodorous gray- or yellow-colored feces or diarrhea streaked with blood. Some dogs infected with the virus exhibit no symptoms and never become ill, while others show a few of these signs and recover quickly. Some, however, become severely ill, and succumb within 48-72 hours after first exhibiting symptoms.

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### WHICH DOGS GET IT?

Although the virus can attack dogs and puppies of any age, it is most commonly found in dogs under one year old. The highest incidence is seen in puppies 6 to 24 weeks old. Generally, puppies are protected through maternal immunity up to about 6 weeks. Many adult dogs are immune because they were either vaccinated or exposed to the illness when they were young. Several studies suggest that certain breeds, including Dobermans and Rottweilers, may be more susceptible to the disease than other breeds. Studies also indicate that unsterilized animals may be at greater risk than those who have been spayed or neutered. (Animals who have been spayed or neutered are more likely to have been vaccinated and are less likely to roam, thereby reducing their chances of coming in contact with the virus.)

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### HOW IS PARVO TREATED?

Treatment usually includes hospitalization, intravenous fluid replenishment, and medication (to control vomiting, diarrhea, and secondary infections).

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### HOW IS PARVO PREVENTED?

The best way to help prevent dogs from getting parvo is to vaccinate them against the virus and keep them under control; dogs allowed to roam are more likely to come into contact with the virus. Shelters can prevent an outbreak by instituting a vaccination program; ensuring that their kennels are disinfected with a product proven to kill viruses; carefully evaluating and monitoring all animals; minimizing “fomite” transmission; and educating staff and the public about the disease.

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## NEWS RELEASE

### FOR IMMEDIATE RELEASE

*[Insert date here]*

### FOR MORE INFORMATION

*[Insert contact name,  
organization name, and  
phone number here]*

### **CASES OF CANINE PARVOVIRUS REPORTED IN *[INSERT COUNTY OR CITY NAME]*. *[INSERT SHELTER NAME]* CALLS FOR COMMUNITY AWARENESS.**

*[INSERT COUNTY OR CITY NAME]*--*[Insert shelter name]* has learned of several cases of canine parvovirus ("parvo") affecting dogs and puppies in *[insert county or city name]*.

This potentially deadly but preventable disease, found in dogs and puppies, most commonly attacks the canine intestinal tract and is shed in feces and vomit. It is not transmissible to humans.

*[Insert shelter name]* is working to combat this disease within its animal shelter. The agency has consulted with local veterinarians and is ensuring that its health-monitoring system and disinfection procedures are preventing this community-wide problem from affecting animals at the shelter.

*[Insert shelter name]* urges dog owners to take the following steps to protect their dogs from this deadly disease:

- Make sure your dog or puppy is up to date on *all* vaccinations, including the vaccination for parvo.
- Keep your pet away from the feces of other dogs.
- Remove animal feces from your yard frequently.
- Keep food bowls and animal bedding clean.

*[Insert shelter name]* urges pet owners to watch their dogs carefully for symptoms of parvo. Symptoms include loss of appetite, vomiting, dehydration, fever, depression, lethargy, and diarrhea (grayish or yellowish or streaked with blood). Although this disease is often fatal, getting proper veterinary treatment soon after symptoms appear can save an infected dog's life.