

# Parvovirus in Dogs

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## BASIC INFORMATION

### Description

Canine parvovirus (CPV) is very contagious and causes primarily a gastrointestinal (GI) disease. The disease can be prevented by vaccination.

### Cause

CPV is highly concentrated in the feces of infected animals. It persists in the environment under a variety of conditions and is resistant to many common disinfectants. CPV is inactivated by sodium hypochlorite (a 1:20 dilution of common household bleach) after 10 minutes of contact time. All organic material must be removed first, so that the bleach can reach the virus. Because parvovirus is so resilient, the virus can be carried on inanimate objects (fomites) such as shoes, clothing, and other materials that touch infected substances. Transmission commonly occurs by swallowing the virus.

### Clinical Signs

The primary signs are GI and include diminished appetite, vomiting, lethargy, and diarrhea. Vomiting is often severe, and diarrhea may be profuse and bloody. Fever may be present, and animals can become severely dehydrated very quickly. Affected dogs are often very weak, and shock may develop in some dogs from the dramatic loss of body fluids. Rarely, the heart is affected, which can cause sudden death.

### Diagnostic Tests

Because CPV causes many infected dogs to become seriously ill, a number of tests may be recommended to assess its effects on various organs and to confirm the presence of the virus:

- A complete blood count may show low numbers of certain white blood cells and platelets (needed for blood clotting). Anemia may be detected and is sometimes severe.
- A serum biochemistry panel may show low blood protein levels and electrolyte imbalances (such as low potassium) from the vomiting and diarrhea.
- X-rays of the abdomen help rule out other causes of GI signs.
- Specific tests for parvovirus are done on fecal samples. These tests are rapid, may be done in the veterinary clinic, and are very reliable. However, false-positive tests are possible 5-12 days after vaccination for parvovirus, because noninfective virus is shed in the feces after vaccination. False-negative tests are also possible.
- Tests may also be done for antibodies to the virus in the blood but may not be needed.
- Changes typical of CPV may be seen in biopsies of the GI tract. Biopsy is not commonly done to diagnose the disease in

a living animal, but it may be useful to determine the cause of death in dogs that do not survive.

## TREATMENT AND FOLLOW-UP

### Treatment Options

Dogs with suspected CPV infection should be isolated from other animals because of the highly contagious nature of the virus. Special precautions are needed to prevent transmission to other dogs. Hospitalized animals are commonly quarantined in an isolation ward. To decrease spread of the disease, owners may not be allowed to visit animals that are in isolation.

Treatment of CPV is largely supportive, with intravenous fluids, sometimes plasma transfusions, antiemetic medications, and possibly medications to decrease stomach acid production (to protect the stomach). If anemia is severe, blood transfusions may be administered. Antibiotics may be given for secondary bacterial infections.

Severely ill dogs may develop sepsis, a widespread bacterial infection that occurs when bacteria normally confined to the GI tract are released into the bloodstream as a result of severe damage caused by CPV. When sepsis occurs, it can adversely affect many other organs and usually requires intensive therapy.

Food and water are commonly withheld until no vomiting has occurred for 12-24 hours. Then small amounts of water or ice chips may be offered, and if that is tolerated well, bland food is reintroduced very slowly. Small portions are fed every 2-4 hours initially, after which the amount of food is gradually increased and the time between feedings is gradually lengthened.

Dogs with parvovirus infection may also be treated with deworming medications, because the animals most susceptible to CPV (especially young puppies) are also the ones most susceptible to intestinal parasites. The heart disease caused by CPV often progresses very rapidly, so treatment is not often possible.

### Follow-up Care

Dogs that recover from parvovirus disease usually have long-lasting protection from reinfection. Regular vaccination is recommended to maintain good immunity, however.

### Prognosis

Dogs that survive the first 2-4 days of treatment are most likely to recover fully. Prognosis is guarded (uncertain) for dogs with prolonged illness. Prognosis is poor for dogs with sepsis. Dogs with CPV-related heart disease often die from the condition.