MANAGEMENT OF PARVOVIRUS IN ANIMAL SHELTERS

Staci Cannon, DVM
A HISTORY LESSON...

- Feline Panleukopenia identified in 1962
- Canine Parvovirus emerged in 1970s
  - CPV-2c first detected in Italy in 2000
- Expectations are higher than ever
- Rescue transport programs
THE CULPRIT...

- Non-enveloped DNA virus, persistent in environment
- Antigenically stable, vaccines are reliable
- Can infect any naïve, unvaccinated animal
  - Irrespective of age or breed
- Clinical signs
  - Gastrointestinal (vomiting, diarrhea, anorexia)
  - Lethargy, fever, sudden death
  - Leukopenia
- Subclinical or mild signs possible with partial protection (may see in littermates)
• Incubation: 3-14 days, usually 4-6 days
• Shed 2-3 days before clinical signs and up to 14 days after recovery
• No “carrier state” in dogs
MULTIPLE METHODS OF PREVENTION

- Sanitation
- Monitoring/Housing
- Vaccination
- Decrease Length of Stay

Minimize Risk
PREVENTION – VACCINATION

- AAHA and AAFP published guidelines contain shelter specific recommendations
- Vaccinate juveniles every 2 weeks until 20 weeks
- Vaccinate adults once at intake and again in 2 weeks if resources permit
- Vaccinate at or before intake
# TABLE 2

## 2011 Canine Vaccination Guidelines for Shelter-Housed Dogs

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Initial Vaccination</th>
<th>Revaccination (if Indicated)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDV + CAV2 + CPV2</td>
<td><strong>Note:</strong> Use of a combination CDV vaccine + CAV-2 + CPV-2 vaccine with or without MLV CPV is recommended. Killed (inactivated) virus vaccines are not recommended. Administer SQ or IM.</td>
<td>Puppies (&lt;18 wk of age): Revaccination every 2 wk is recommended until 18–20 wk of age. Dogs (&lt;18–20 wk of age): Revaccinate at 1 year of age then revaccinate at 3 or more year intervals as for pet animals as long as the dog remains in the facility.</td>
<td><strong>Core</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Administer a single dose immediately before or at the time of admission to all dogs unless there are veterinary records showing the dog has been vaccinated at 18–20 wk of age or older with these core vaccines. Alternatively, if the dog is 18–20 wk of age or older and tested positive for antibody to CDV and CPV-2, it would not be necessary to vaccinate. Minimum age: It is recommended that vaccine not be administered to shelter dogs &lt;4 wk of age.</strong></td>
<td><strong>Core</strong> When feasible, puppies should be housed separately from adult dogs, regardless of their vaccination status. All MLV-CPV-2 vaccines available today are expected to provide immunity from disease caused by any field variant recognized today (CPV-2a, -2b, and -2c). All current CDV vaccines are expected to provide immunity from disease caused by any of the current variants of CDV viruses. **MDA, if present, can interfere with immunization up to 16–18 wk of age. When distemper risk is high, inoculation with the rCDV and measles/distemper vaccines have been shown to protect puppies with MDA 2 wk earlier than the MLV CDV vaccines. The MLV or rCDV vaccine should be used when dogs are 16–18 wk or older, as both are highly effective in the absence of MDA. Because it is often difficult to know the exact age of puppies and because MDA are often higher in shelter puppies, they may still be sufficient to block immunization at 14–16 wk in a small percentage of puppies. Therefore, when feasible, shelter puppies should receive a final vaccine when estimated to be 18–20 wk of age. Once the vaccine has been reconstituted and kept at room temperature, the dose should be administered within 1 hr to avoid inactivation of the vaccine virus, especially MLV CDV vaccine. <strong>Core</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Intranasal Bb + CPV. Use of a combination (bivalent) IN MLV (avirulent) Bb + MLV CPV, vaccine is recommended, with or without CAV-2. Administer IN only. Do not administer SQ or IM.</strong></td>
<td><strong>Core</strong> Administration of MLV (avirulent) IN Bb by the SQ or IM route can lead to severe reactions, including death. Onset of protective immunity after initial IN vaccination occurs within 72 hr; vaccines can reduce the severity of disease but will not entirely prevent canine respiratory disease complex. Use of a trivalent IN vaccine that also contains MLV CAV-2 should be considered in shelter-housed dogs when the 2-way IN fails to provide acceptable protection. <strong>Parenteral Bb vaccine is recommended only as an alternative when it is not possible or not feasible to administer an INI vaccine (above). Note: In previously unvaccinated dogs, a single dose of parenterally administered vaccine will not immunize. Immunity is expected 7–10 days after administration of the 2nd dose. The parenteral Bb vaccine does not include protection against parainfluenza virus.</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Administer a single dose immediately before or at the time of admission. Vaccine can be administered as early as 3–4 wk of age (see manufacturer’s administration recommendations). Do not administer SQ or IM.</strong></td>
<td><strong>Parenteral Bb</strong> Administer SQ. This vaccine is not effective if administered by the IN route.</td>
<td><strong>Parenteral Bb</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Administer the first dose at the time of admission. Administer a 2nd dose 2 wk later if still in the facility. (see comments).</strong></td>
<td><strong>Regardless of the dog’s age, 2 doses, 2 wk apart, are required to induce immunity unless previously vaccinated within the past 12 mo. Dogs that have previously received a 2-dose initial vaccination series or a booster vaccination within the past year require only a single dose at the time of admission.</strong></td>
<td></td>
</tr>
</tbody>
</table>

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http://www.aahanet.org/publicdocuments/caninevaccineguidelines.pdf
For diseases of concern in shelters, vaccines may be indicated at an earlier age and administered at shorter intervals compared with schedules for pet cats.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>First inoculation</th>
<th>Subsequent inoculations</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Panleukopenia + herpesvirus-1 + calicivirus (FPV, FHV-1, FCV) | Administer a single dose at intake or, where possible, at least 1 week prior to shelter entry. In kittens, administer the first dose as early as 4-6 weeks of age | Revaccinate every 2-3 weeks until 16-20 weeks of age. | Recent studies show that ML SC vaccination may provide better protection in the face of MDA than inactivated vaccines do, and may protect against illness even when cats are placed in a contaminated environment soon after vaccination. ML injectable or IN vaccines containing FPV should not be given to kittens less than 4 weeks of age due to the risk of cerebellar hypoplasia or clinical panleukopenia (see Appendix 1 [Shelter FAQs] ‘Are there special considerations for vaccinating and housing very young kittens in shelters?’, page 803). For pregnant queens, risk of exposure versus risk of vaccination should be balanced (see Appendix 1 [Shelter FAQs] ‘Should pregnant queens in shelters be vaccinated?’).  
Inactivated multivalent calicivirus vaccines exist and may provide broader cross-protection against calicivirus infection than single strain vaccines. Calicivirus may be more prevalent in shelters housing cats long term in group settings. A multivalent vaccine may be preferable in this context. If FCV disease occurs in fully vaccinated cats housed in groups, changing to a product with a different vaccine strain(s) may be of benefit. |
| Modified-live (use of inactivated vaccine is not generally recommended except where panleukopenia risk is low). Recommended for all cats | | Revaccinate once, 2-3 weeks following administration of the initial vaccine |                                                                                                                                                                                                                                                                                                                                 |
| Intrasinal herpesvirus-1 + calicivirus (IN FHV-1, FCV) | Administer a single dose at intake or, where possible, at least 1 week prior to shelter entry. In kittens, administer the first dose as early as 4-6 weeks of age | Revaccinate every 2-3 weeks until 16-20 weeks of age. | IN vaccination may result in onset of protection as early as 4-6 days post-inoculation. Study results have been mixed regarding reduction in risk for upper respiratory tract infection in shelters from IN vaccination. When using IN vaccination, use only products licensed and approved for administration by this route. Transient, mild signs of upper respiratory infection may develop following administration of vaccine by the IN route. |
| Modified-live | If IN vaccination is used for control of respiratory viruses, all shelter cats over 4-6 weeks of age should simultaneously receive a SC ML FPV vaccine (with or without respiratory viral antigens) | |                                                                                                                                                                                                                                                                                                                                 |

“Results suggest that many dogs entering a shelter will have insufficient antibody titers against fatal but preventable diseases. Restricting vaccination to some dogs while excluding others on the basis of source, health status, potential outcome, or any other criteria contributes to the risk of transmission of infectious diseases within the shelter.”

Maternal Antibody Interference

These aren’t booster vaccines
There is no magic number!

Window of Susceptibility
A Shot at Life Vaccination Grant

The Petfinder Foundation is working with Boehringer Ingelheim Vetmedica, Inc., and The Animal Rescue Site to provide various vaccinations to adoption organizations. They join us in the belief that there is nothing more important than reducing the number of adoptable pets euthanized because of illness and decreasing the spread of illness at a facility by providing important vaccinations.

Apply for FREE VACCINES!

Toni Morgan
Director of Programs
Petfinder Foundation
520-207-0626
toni@petfinderfoundation.com

http://www.petfinderfoundation.com/for-shelters/apply-for-a-grant/
PREVENTION – SANITATION

Remember common use areas! Intake processing, vehicles, carriers, scales, clinic areas
PREVENTION – MONITORING/HOUSING

• Housing challenges drastically increase risk of disease spread (drains, barriers, flooring)
• Remove symptomatic animals from the general population to isolation immediately
• Use guillotine doors as designed
• Avoid random comingling, do not mix litters
• Evaluate before cleaning, during feeding
• Monitor appetite with canned food
PREVENTION – DECREASE LENGTH OF STAY

• Safest place is out of the shelter!
• Managed intake
• Foster homes
• Intake diversion
• Eliminate hold periods for juveniles
• Remove standard intake quarantines
• Institute daily rounds and pathway planning
“STANDARD” INTAKE QUARANTINES

• Challenge the status quo
• True quarantine is achieved by housing animals in a secure environment in “all-in, all-out” fashion
• Reality in shelters is “trickle-in, trickle-out”
• Expose each animal to a larger number of animals
• Limit use to high-risk animals
Animals move after 3-5 days in facility

Trickle-In, Trickle-Out... Instead of True Quarantine
MULTIPLE METHODS OF PREVENTION

Minimize Risk

Sanitation

Monitoring/Housing

Vaccination

Decrease Length of Stay
DIAGNOSIS

• Symptoms and history
• In-house canine parvovirus ELISA tests
  • Can have false negatives
  • Trust a positive in symptomatic animals
  • Can be used for FPV as well as CPV
    • Questionable specificity (may get false positives post vaccination in cats)
• CBC or blood smear
• PCR testing at reference laboratory
• Necropsy
MYTH: TESTING EVERY DOG WILL PREVENT PARVO

• High predictive value when used on symptomatic animals
• Can be helpful to screen very high-risk individuals, like littermates of affected animals
• Frequency of **FALSE POSITIVES** increases when testing animals without clinical signs that are not high-risk
• Resource-intensive strategy
• Not recommended
DISEASE RESPONSE

Positive test – now what?

• Population Response
  • Risk Assessment
  • Decontaminate
  • Clean Break
  • Outbreak Response

• Individual Response
WHAT IS AN OUTBREAK?

• Greater number of cases of a particular disease than normally expected
• Significant increase in severity of clinical signs
OUTBREAK RESPONSE

1. Prepare, stop movement (animals, people, equipment)
2. Identify and characterize the cases: who, when, where
3. Isolate affected, quarantine exposed
4. Perform a risk assessment and separate animals according to risk
5. Develop control and prevention measures – protect unexposed
6. Decontaminate environment

CLEAN BREAK

7. Monitor success and failures
8. Refine plan
9. Communicate findings throughout
10. Establish conclusions, revise operations
QUARANTINE VS. ISOLATION

- **Isolation** = physical separation of infected/symptomatic animals from the general population
- **Quarantine** = physical separation of susceptible animals that have been exposed to an infectious disease but are not yet symptomatic or infected.
- Quarantine period = incubation period
  - 14 days for parvoviruses
  - Reset quarantine clock to zero any time another animal tests positive and moves to isolation
PRACTICAL CONSIDERATIONS

• Segregate clinically ill animals immediately
• Revaccinate all asymptomatic animals
• Strictly adhere to cleaning protocols (ensure parvocidal products in use!)
• Establish rational traffic patterns
  • Healthy to vulnerable
  • Young to old
  • Clinically ill animals have their own staff whenever possible
• Provide PPE to care staff – dedicated boots, not footbaths
• Consider stopping intake
QUARANTINE CHALLENGES

• Strain on housing capacity
• Strain on capacity for care
  • Strict biosecurity
• Concerns for deterioration of behavioral health and welfare for animals held in shelter quarantine
  • Impacts their potential for a live release
• Risk assessment is a humane and cost-effective strategy to quickly move animals out of quarantine
RISK ASSESSMENT

Very Low Risk
• Adult, fully vaccinated dogs

Low Risk
• Adults and puppies greater than 5 months old with vaccine on board for 7 days prior to exposure

Moderate Risk
• Vaccinated puppies under 5 months of age

High Risk
• All unvaccinated puppies and dogs or those with vaccine on board less than 7 days

Very High Risk
• Littermates of affected animals
**ACTION STEPS FOR EXPOSED ANIMALS**

- **Very Low Risk**: Adopt or transfer, do not quarantine
- **Low Risk**: Transfer with full disclosure, Quarantine, ideally in foster care
- **Moderate Risk**: Quarantine for 14 days, Monitor closely
- **High Risk**: Bathe, separate into pairs
- **Very High Risk**: Quarantine for 14 days, Monitor closely
TITER TESTING

- Helps clarify susceptibility and risk
- Use limited to animals without current or historical clinical signs
- Synbiotics TiterCHEK CDV/CPV ELISA
- Biogal ImmunoComb Canine VacciCheck
- Low risk animals = over 5 months of age AND received MLV more than 7 days prior to exposure OR have PAT
- High risk animals = under 5 months of age OR did not receive a vaccine 7 days prior to exposure AND do not have PAT
Risk Assessment of Exposed Animals

Perform CPV Titer

Clinical Signs?

No

Positive

Isolate and Treat

Negative

Medium risk: Transfer or foster off-site Quarantine for 14 days

Low risk: Adopt or transfer

Positive

<5 months (Puppy)

Isolate and Monitor

>5 months (Adult)

LITTERMATES ??

Negative

High risk: Quarantine for 14 days

Very High Risk: BATHE Quarantine for 14 days

Titers can rise faster than development of clinical signs. Low risk ≠ no risk!
TITERCHECK ACCURACY

- TiterCHEK vs. IFA at commercial lab (Gray 2012)
  - Higher specificity for CPV (98%) than IFA (82%)
    - Lower number of false positives
  - Similar sensitivity (98%) to IFA (97%)
    - Low numbers of false negatives
  - Costs 25% of the laboratory costs, need proficient technician to perform test
  - Results in 30 minutes vs. 2-4 days, allows immediate decision making
TITERCHEK® CDV/CPV

CANINE DISTEMPER VIRUS (CDV) AND CANINE PARVOVIRUS (CPV) ANTIBODY LEVEL TEST KIT

Accurate Distemper and Parvovirus Antibody Levels for Informed Decisions

For more information contact our Customer Service staff and veterinarians who are available from 9 a.m. to 8 p.m. EST at 1-888-Zoetis1 (1-888-963-8471)

https://online.zoetis.com/US/EN/Products/Pages/TiterCHEKCDVCPV.aspx
HOW SHOULD WE USE THE TESTS?

• In an outbreak situation:
  • Titer test all dogs over 5 months of age with potential and known exposure and segregate by findings
  • Puppy titers (<5 months of age) are not as reliable for protection
    • Can not distinguish between maternal and induced antibodies
• In a transport program
PARVO OUTBREAK SIMULATOR

Join our Mailing List!
Sign up to receive the latest news and information about sheltering issues and special events. Stay informed with our quarterly newsletter and learn how you can support our life-saving efforts.
Learn more →

Parvo outbreak simulator guide

Have you ever wanted to try your hand at managing a parvo outbreak, without all the mess and trauma of the real thing? Well, now you can! Not a horrible amusement park ride as you might surmise from the name, the PARVO OUTBREAK SIMULATOR allows you to work through a real-life outbreak scenario as many times as you like until you’re confident of your risk assessment skills. It also lets you get a sense for the fallibility of risk analysis – every once in a while, in the simulator as in life, you will do everything right and an infected animal will slip past your radar. However, you can also clearly see how many more lives are saved through careful risk assessment than either depopulation or failure to respond at all. For a quick guide to risk analysis as a tool for outbreak management and some intriguing questions to help you get the most out of the parvo outbreak simulator experience, download the parvo outbreak simulator guide below. For more detailed information, feel free to look around our website (the information sheets, under the Shelter Health Portal above are a good place to start) and of course the textbook Infectious Disease Management in Animal Shelters. And for those of you who want to skip ahead to the answers or check your work, a sample set of answers to the simulator guide are also below.

Documents:
- parvo outbreak simulator guide_9_2013.docx
- parvo outbreak simulator guide_sample answer key.docx

<table>
<thead>
<tr>
<th>Patient</th>
<th>Date Arrived</th>
<th>Signalment</th>
<th>Clinical Signs</th>
<th>SNAP Test</th>
<th>Antibody Titer</th>
<th>Action</th>
<th>Correct Action</th>
<th>Animal Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>12/27</td>
<td>Adult</td>
<td>Healthy</td>
<td>Run Test $15</td>
<td>Run Test $15</td>
<td>SELECT</td>
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<td>Case 2</td>
<td>12/29</td>
<td>Puppy</td>
<td>GI Signs</td>
<td>Run Test $15</td>
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<td>Run Test $15</td>
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<td>SELECT</td>
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<td>Case 5</td>
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<td>Run Test $15</td>
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<td>Run Test $15</td>
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<td>Case 9</td>
<td>12/26</td>
<td>Puppy</td>
<td>Healthy</td>
<td>Run Test $15</td>
<td>Run Test $15</td>
<td>SELECT</td>
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<td>Case 10</td>
<td>1/9</td>
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<td>Run Test $15</td>
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<td>Case 13</td>
<td>1/7</td>
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<td>Healthy</td>
<td>Run Test $15</td>
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<td>Case 15</td>
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<td>Run Test $15</td>
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<td>Case 17</td>
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<td>Run Test $15</td>
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</tbody>
</table>
Behavioral vs. Physical Health

Frequency of CPV Infection in Vaccinated Puppies that Attended Puppy Socialization Classes

Meredith E. Stepita, DVM*, Melissa J. Bain, DVM, DACVB, MS, Philip H. Kass, PhD, DVM, DACVPMM

ABSTRACT

Socialization is one method of preventing behavior problems in dogs; however, some oppose socialization before 16 wk of age due to the risk of contracting infectious diseases. The objectives of this study were to determine if puppies that attended puppy socialization classes and were vaccinated by a veterinarian at least once were at an increased risk of confirmed canine parvovirus (CPV) infection compared with puppies that did not attend classes and to determine the frequency of suspected CPV infection in puppies vaccinated at least once that attended classes with trainers. Twenty-one clinics in four cities in the United States provided information regarding demographics, vaccination, CPV diagnosis, and class attendance for puppies ≤ 16 wk of age. In addition, 24 trainers in those same cities collected similar information on puppies that attended their classes. In total, 279 puppies attended socialization classes and none were suspected of or diagnosed with CPV infection. Results indicated that vaccinated puppies attending socialization classes were at no greater risk of CPV infection than vaccinated puppies that did not attend those classes. (J Am Anim Hosp Assoc 2013; 49:95–100. DOI 10.5326/JAAHA-MS-5825)

“Results indicated that vaccinated puppies attending socialization classes were at no greater risk of CPV infection than vaccinated puppies that did not attend those classes.”
TREATMENT

• Supportive Care
  • Treat dehydration, hypoglycemia
  • Prevent sepsis
  • Provide antiemetics, pain relief, and nutrition
• Options for treatment – on-site, off-site clinic, foster home, transfer partner
• Monitoring is key! Status can change rapidly
• More evidence to support outpatient based therapy – prognosis is similar
New Protocol Gives Parvo Puppies a Fighting Chance When Owners Can’t Afford Hospitalization

Canine parovirus is a serious and often fatal viral illness that most commonly affects puppies, though unvaccinated adult dogs can be infected as well. While treatment for parovirus is available, it can be cost prohibitive for many families. Now, a new protocol developed at the Colorado State University Veterinary Teaching Hospital may help save “parvo puppies” and give their families a chance to give their dogs a healthy life.

“Parovirus is one of the most common and deadliest viruses that unvaccinated dogs tend to get,” said Dr. Lauren Sullivan, an Assistant Professor in the Department of Clinical Sciences and a veterinarian with the Critical Care Unit at the Veterinary Teaching Hospital. “While a vaccine is available, puppies can be exposed to the disease before their vaccinations are complete, or if they haven’t received puppy wellness care due to their owner’s financial limitations.”

Parovirus, which is spread through exposure to feces of infected dogs, has a wide range of symptoms including lethargy, vomiting, fever, and diarrhea. It primarily impacts the gastrointestinal tract and the circulatory system, where it suppresses the bone marrow and causes the white blood cell count to drop. Veterinary care focuses on supporting the puppy with IV fluids and antibiotics, and close monitoring, while the puppy weatheres the viral storm. Without intensive veterinary intervention, parovirus is almost always fatal due to dehydration and/or a severely compromised immune system.

Intervention, while effective, requires inpatient care ranging from $1,500 to $3,000 - a cost some owners simply can’t afford. Euthanasia often becomes the only other option for severely affected dogs.

CSU researchers are showing that there is another possibility - intensive at-home care at a fraction of the cost ($200-$300), but with similar outcomes when compared to the inpatient “gold standard” of care. The treatment relies on two drugs recently released by Pfizer Animal Health (which funded the CSU parovirus study): Maropitant, a strong anti-nausea medication given under the skin once a day; and Convenia, an antibiotic given under the skin once, and lasting two weeks; as well as administration of fluids under the skin three times daily.

“Rather than being hospitalized, our research shows that puppies can be successfully treated with a protocol that can be replicated at home,” said Dr. Sullivan. “We still recommend inpatient care as the best practice, but in some cases that simply isn’t financially possible.”

The study, which began June 4, was conducted by Drs. Sullivan, David Twedd, Pedro Boscana, Emilee Vern (a resident in critical care), Karolien Freyinger (student coordinator), and veterinary students interested in the research experience. The study was advertised to veterinarians in the greater Colorado community, who referred cases from their practices. A total of 40 dogs were admitted to the study group, randomized to one group that received traditional gold standard care and one group that received the at-home protocol.
Clinical signs present, parvo diagnosis confirmed

Population Response

Individual Response

Do you have:
- Medical supplies
- Trained staff/volunteers
- Dedicated isolation facility with **excellent biosecurity**

Yes  No

Follow Parvovirus Protocol
1. Perform patient assessment
2. Isolate and Treat
3. Monitor Carefully

Are resources available to support treatment at private clinic or foster home? Is patient stable for transfer? Is a reputable rescue willing to transfer the patient immediately?

Yes
- Immediate transfer

No
- Humane euthanasia
ISOLATION SPACE

• Ideally, physically separate building, or at least restricted access
• At minimum, must be separate, easily disinfected area with dedicated equipment
• Sufficient staffing for monitoring and care is mandatory
• PPE – full body protection, boots, gloves, ideally separate staff
• No crossover with juveniles and new intakes
POST-TREATMENT, NOW WHAT?

• Follow your protocol
  • Clinical signs have resolved, Negative ELISA test
• Thorough bathing, including toenails!
• Move ‘em out!
• What about vaccination?
  • Return to regular vaccination schedule as soon as completely recovered from clinical signs
COMMUNICATION IS KEY

• All staff, volunteers, foster parents should be well educated
• Counsel adopters!

INFO FOR NEW DOG ADOPTERS - PARVOVIRUS -

What you should know about Canine Parvovirus

Congratulations on your new dog! The shelter staff has worked very hard to ensure the health of your dog but with so few animals vaccinated in our community, the chance for spreading disease amongst our pets is increased—especially in shelters where large numbers of animals are housed. Canine Parvovirus, or Parvo as it’s more commonly known, is sometimes found in dogs adopted from shelters. Parvo is a very serious and contagious disease so please familiarize yourself with the following information.

Did you know?...

• Parvo is HIGHLY contagious and potentially fatal to "at risk" dogs—puppies under ten months old and dogs that have not been vaccinated are most at risk.
• Parvo generally affects the dog’s intestinal tract and in rare cases, the heart. Symptoms of Parvo can include bloody diarrhea, depression, fever, eventual dehydration, loss of appetite, and lethargy.
• Parvovirus is transmitted through the feces and vomit of infected dogs. Parvo is VERY hardy and can live on some surfaces for many months. It can easily be spread from dog to dog via "carriers" called fomites like the hands, shoes or clothing of anyone who comes into contact with the virus.
• Like many pet illnesses, Parvovirus can have a lengthy incubation period and animals may be harboring the disease. This means the pet may have contracted the disease and appear perfectly healthy until the symptoms suddenly appear.

When should you seek treatment?

• You should always take your new dog to a veterinarian within 2 days of adoption, for a routine health check.
• However, if any of your dogs develop bloody diarrhea, fever, lethargy or loss of appetite, you should make an appointment with a veterinarian immediately.

Can Canine Parvovirus be prevented?

Yes! Regular vaccinations are KEY to prevention and puppies especially need to see a veterinarian to protect them from this serious and potentially deadly disease. Remember, there is NO cure for Canine Parvovirus. Your dog MUST be vaccinated against Parvo to prevent them from getting this deadly disease. Regular vaccinations are the best way to ensure your dog leads a happy, healthy life. Call Animal Care Services at 210-4PET for info on low cost vaccination resources.
TAKE HOME POINTS

• Parvovirus is a continual threat
• Prevention through vaccination, sanitation, monitoring and population management
• Vaccines and diagnostics are effective for CPV-2c
• Perform risk assessment on exposed animals
• Carefully consider capacity to treat
• Routine testing may yield false positives and drain resources
• Eliminate intake quarantines in high volume facilities
Excellent Resources

www.sheltermedicine.com
www.sheltermedicine.vetmed.ufl.edu
www.animalsheltering.org
www.maddiesinstitute.org
www.sheltervet.org
www.aspcapro.org
QUESTIONS?

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Please contact me anytime!

Thank you to Maddie’s Fund!