Will Accel kill parvo in grassy areas, specifically when puppies are housed in outdoor kennels on grass?

Dr. Roberts discusses the difficulties of removing parvovirus from a grassy area and recommends vaccination and titer testing rather than routine in-shelter quarantine at a source shelter to reduce the risk of infection.

Question:

I run a rescue group and part of the work we do is helping shelters and other rescue people in the area we pull animals from develop better cleaning and care protocols to keep animals healthy. Recently there is a big debate about whether Rescue™ (formerly Accel®) will kill parvo in grassy areas, specifically when puppies are housed in outdoor kennels on grass.

In a slide show that Dr. Hurley contributed to it says, “Outdoor areas around the shelter must be kept clean recognizing it is impossible to disinfect gravel, dirt, and grass surfaces.” But the Sanitation in Animal Shelters document on the site says, "Accelerated hydrogen peroxide or potassium peroxymonosulfate may be the best choice to decontaminate a grassy area soiled by parvovirus..."

I am concerned because some of the people housing puppies outside the shelter for a two week "quarantine" are keeping them in outdoor areas and the puppies they are housing break with parvo about 80% of the time. I believe that they are giving the puppies parvo because they are housing them in a parvo infected area. They believe that Rescue appropriately disinfects the area so they continue to put puppies in the same pen.

If you can provide information on this I would greatly appreciate it as will the puppies who may be spared parvo!

Answer:

Thank you for the email and for the work you do. It is very concerning to hear that so many puppies that you are taking in are breaking with

parvovirus infections.

As you know, parvovirus is a very hardy virus that survives well in the environment. No one really has a good answer of how long the virus can survive in the environment but it is at least months and can be years. The good news is that there are several strategies that we can recommend that could help to reduce drastically the number of puppies who are getting sick.

You are correct that cleaning the grass/dirt with Rescue™ (formerly branded as Accel®) is probably not completely killing the parvovirus in the environment that these puppies are being housed in. If housing outside is the only option, doing it on a surface like cement that could be more effectively cleaned and disinfected may be the best option.

Products that are effective at killing parvoviruses include Rescue™ (accelerated hydrogen peroxide), potassium peroxymonosulfate (e.g., Virkon® or Trifectant®), calcium hypochlorite (e.g., Wysiwash®), bleach, and sodium dichloroisocyanurate (e.g., Bruclean®). None of these disinfectants is perfect and all must be used as directed for best results (e.g. bleach and its derivatives, Wysiwash and Bruclean, must be used on a pre-cleaned surface free of organic matter to disinfect effectively).

Rescue™ seems to have to best ability to kill pathogens when organic matter is present, but no disinfectant can work well when there is a large amount of organic matter present (especially when the surface is ALL organic matter). Rescue™ or potassium peroxymonosulfate applied to a ground surface can probably help to reduce the number of viable virus particles that are surviving in the outdoor area, but it is unlikely that it is killing enough virus to fully prevent all new infections in susceptible animals, especially if the area is heavily contaminated (which is likely if they are using Rescue™ and puppies are still becoming infected with parvovirus).

Ideally the outdoor area could be covered with sealed concrete or cement, which would be possible to disinfect, but regardless, the recommendation on how to deal with the area is to use Rescue™ at 1:16 (8 oz per gallon of water) on the whole area, ensuring it stays wet for at least 5 minutes or at 1:32 (4 oz per gallon of water) ensuring it stays wet for at least 10 minutes. Ideally this would be repeated 3 times before dogs are put in the yard again. Fully drying the area with natural sunlight will also help kill the virus.

Disinfection is just one step of an effective sanitation protocol. The first step is removal of the organic matter (not really an option when your

surface is dirt/grass) followed by cleaning with detergent to leave a visibly clean surface. Application of a disinfectant that is fresh, diluted appropriately and applied for the appropriate contact time is the final step. Products such as Rescue™ and Trifectant® are both a detergent and a disinfectant and thus the cleaning/disinfection step can be combined when using these products.

Perhaps the more concerning situation that you mentioned for exposing pups to parvovirus is that the source shelters are routinely holding puppies for a quarantine for at least 2 weeks prior to transport. Our program strongly recommends against routine in-shelter quarantines for animals who appear healthy and have no known exposure to parvovirus. *These quarantines are in fact a great way to expose puppies to parvovirus!* If dogs and puppies are healthy at the time of intake and there is not a known exposure to parvovirus, the recommendation is to move those animals out of the high risk shelter as soon as possible.

Vaccination protocols are also an important aspect of all infectious disease management strategies. For all shelters, ALL cats and dogs must be vaccinated at intake with a modified live vaccine, which is the most important practice to prevent the spread of disease within the shelter. The recommendation is for puppies to be vaccinated starting at 4 weeks of age and subsequently be vaccinated every 2 weeks until they are 20 weeks (5 months) old while in the shelter environment.

At the shelter where I work we usetiter testing which is a blood test that measures antibody levels, to evaluate which puppies (< 6 months) are at risk of developing parvovirus if exposed. Any healthy puppy with a sufficient number of antibodies in the blood is protected from parvovirus infection and they can be handled like adult dogs from that point forward, with a continued sense of urgency to get them out of the shelter ASAP.

If a puppy has a negative titer, they are not currently protected from becoming infected if exposed, so their handling restrictions should continue and another parvovirus titer will be done 10 days later (if the puppy has not already been adopted). These puppies do not go outside and do not walk on the floor outside of their kennels (we carry them to meet adopters); all interactions with volunteers for socialization take place in their kennels.

Directions on how to run the titer tests that we use can be found at https://www.youtube.com/watch?v=wQ4o6gFzqiw and the interpretation of the tests can be found at https://www.youtube.com/watch?v=AAClweqyp2k.

The reason I am describing the titer testing is because this would

probably be a better way for the source shelters to identify at-risk puppies than the current system of routine quarantines. Healthy pups with protective titers are unlikely to break with disease. Those without protective titers would be a higher risk for becoming infected and sick, and a quarantine period (ideally at the destination shelter) is reasonable. If 80% of the pups you are currently receiving are breaking with parvovirus, you would probably be better off taking puppies sooner after intake from the source shelter (so they have less time for potential exposure there) and using titer testing to determine which puppies your shelter should quarantine (e.g. those that are titer negative) after they come to you.

In addition to vaccination and sanitation practices there are some other aspects of preventing parvovirus infections that might be useful to discuss with them such as housing practices and population management.

Randi Roberts, DVM
Maddie's Shelter Medicine Intern
Shelter Medicine Program
University of Wisconsin - School of Veterinary Medicine