



Our Mission:

We are committed to saving lives and reducing suffering of homeless dogs and cats through education, advancement of knowledge and shelter outreach.

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Shelter Watch



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From the Director's Desk

It's hard to believe that it is the first of another month already! We thought we would talk this month about parvovirus management, because it is that time of year when the kittens (and often the puppies) begin to arrive in our shelters in large numbers, and unfortunately, they often bring unwelcome guests – the parvoviruses. Puppies and kittens (as a group) are *the* most susceptible to parvovirus infections, especially as the antibodies they acquired from their moms decline (see more about maternal antibodies in this issue). Since the babies can arrive infected with parvovirus (remember that kittens have their own parvovirus causing panleukopenia) or they are at high risk of developing disease if exposed, shelters must have protocols in place to both prevent and control parvovirus infections. Parvoviruses are very contagious – studies suggest that there are upwards of a billion virus particles per teaspoon of feces from recently infected animals; this means that the amount of stool needed to cause infection is, therefore, very small.

In light of the high number of virus particles in small amounts of feces, flies may transmit infection by contaminating their appendages and flying from kennel to kennel or cage to cage. Similarly, contaminated objects such as shoes, hands, and thermometers can transmit the infection. To make matters more challenging, virus can be shed in the stool for 7 – 12 days post exposure in dogs and up to 6 weeks from infected cats. Couple that with the fact that the viruses are among the most hardy little pathogens in the shelter environment (surviving quite well if cleaning is not thorough or quaternary ammonium disinfection products alone are used), and you realize why parvoviruses present as such formidable adversaries!

We are often asked whether shelters should routinely screen at entry for parvoviruses using a parvovirus SNAP test, and our answer is no. Modified live parvovirus vaccines (which we recommend) as well as, the low prevalence of

infected puppies and kittens at entry can cause false positive SNAP test results. As a result, parvovirus screening can lead to unnecessary euthanasias or exposure of healthy animals (testing positive) to truly infected animals in Isolation rooms.

Vaccination with modified live vaccines at entry, placing babies less than 8 weeks in foster care, separation of litters, vigilance for signs of infection (especially among puppies and kittens), prompt reporting and testing of animals with signs, immediate isolation of infected animals (or if complete isolation is not possible, euthanasia), quarantine of exposed animals and thorough cleaning and disinfection are the most effective measures to prevent and control parvoviruses. Of course, staff and volunteer training in the recognition and appropriate management of parvovirus infections is also essential.

Parvovirus outbreaks are always frightening. Being prepared, however, will minimize the spread of this highly infectious agent should parvovirus be introduced and appropriate preventive measures will minimize the number of such outbreaks.

On another note, as our program has grown – we now have a regular ambulatory service with veterinary students to local shelters – so have our commitments. Also, we are preparing for a number of other changes to the program arriving soon. (More about these in the early Fall!) As a result, we've made the decision to drop the number of annual Newsletter issues to 6 – one issue every other month rather than monthly - at least for awhile. We wanted to warn you now that our next issue will be in early August. If you are unhappy about the change, please let us know (sheltermedicine@cornell.edu).

Jan M. Scarlett, DVM, Ph.D.



“Recent study data suggest that a high proportion of dogs entering shelters, especially puppies, are likely to be susceptible to these deadly diseases.”



New Insights into Herd Immunity: Dr. Kate Gollon

Since managing parvovirus infections is our topic for this month, I thought it appropriate to share some new insights gained from a recent study in Florida regarding two particularly infectious canine diseases, parvovirus and canine distemper. Anecdotal reports suggest that outbreaks of these diseases have been on the rise in animal shelters, leading many to question why this appears to be the case and what to do about it.

Protection from parvovirus and distemper has largely centered on vaccination, both for individual animal health and for that of the susceptible “herd” of dogs, whether the herd be a given shelter, kennel or community. The concept of herd immunity in shelters is an important one. Herd immunity occurs through vaccination of a large proportion of a population, providing protection for animals that do not have immunity (new intakes and some puppies, for example) by inhibiting animal-to-animal transmission.

A paper published by veterinarians at University of Florida in 2010 sheds light on the current state of herd immunity for canine parvovirus and distemper. The study measured antibody levels for these two viruses in over 400 dogs entering a shelter in Florida. They then looked to see what percentage of the dogs had a protective antibody titer (PAT) for each disease (indicating that if they encountered the virus, they would be protected, and not become sick).

It was discovered in this particular population, that only about 43% of dogs had a PAT for distemper and 67% had a PAT for parvovirus. Not surprisingly, dogs under one year of age were less likely to have a

PAT for parvovirus and distemper, which translates to them being more susceptible to infection.

Even though the population of dogs coming into your shelter may differ somewhat from the population studied here, these results add to concerns that canine herd immunity may be waning in many communities. It strongly suggests that a high proportion of dogs coming into shelters, especially puppies, are likely to be susceptible to these deadly diseases.

So, what does this mean from a management standpoint? It highlights two important goals, each aimed at increasing herd immunity. First, every dog entering your shelter, regardless of their likely outcome, must be vaccinated immediately for parvovirus and distemper (DAPP vaccine) with a modified live vaccine. Choosing not to vaccinate dogs that may be euthanized is almost always a false economy. It may save money in the short-run, but once a parvovirus or distemper outbreak occurs, those savings are quickly lost, and animals suffer. Second, puppies must be vaccinated appropriately with DAPP (every two weeks until the age of 4 months), and be housed separately from adult dogs. Parvovirus and canine distemper vaccines are among the safest and most effective canine vaccines available. Vaccination at entry is a primary preventive measure for canine parvovirus and distemper virus infections.

References

Lechner ES et al. Prevalence of protective antibody titers for canine distemper virus and canine parvovirus in dogs entering a Florida animal Shelter. *JAVMA* 2010; 236: 1317-1321.

ASV Guidelines, Isolation and You: Dr. Nicole Putney

In 2010, the Association of Shelter Veterinarians (ASV) published a set of “best practice” guidelines for shelters to follow. This valuable resource emphasizes, among many aspects of animal sheltering, the critical importance of isolation when pro-

tecting the health of your shelter population. Although diseases such as canine parvovirus, feline panleukopenia, and ringworm may be curable with appropriate medical care and time, it is far preferable to prevent them! Isolation is an essential component of any

disease prevention or control program, and therefore, isolation facilities (in which to house animals with infectious disease) are a top priority.

Many animal shelter facilities do not have adequate isolation areas because they were built when shelter animals were not treated for highly infectious diseases. With increasing interest in “treating the treatable,” isolation has become a critical area to include when designing or renovating shelter facilities. As stated in the ASV Guidelines:

“When isolation is impossible, or inadequate to control transmission of the particular pathogen, the shelter must carefully weigh the consequences of exposure of the general population against euthanasia. Allowing animals with severe infectious disease to remain in the general population is unacceptable.”

Since parvoviruses are so infectious, if a shelter chooses to treat infected cats or dogs, they must be able to achieve *strict* isolation. Infectious viral particles can adhere to clothing, shoes, thermometers, hands, etc. such that staff and other potential fomites (e.g., pens, towels) must be carefully monitored to insure that they cannot transmit virus outside of isolation.

So what are the characteristics of an adequate isolation area? Below is a brief list of the minimal requirements of isolation areas. For more in-depth facility design and isolation recommendations, please refer to the resources provided below.

- Complete physical separation from the general population
 - Ideally, this includes a separate air supply and an entrance separate from the main shelter facilities. At minimum, separation by a door or curtain is required.
- Separate isolation areas for cats and dogs
- Routes for taking dogs outside which avoid healthy members of the population must be planned ahead of time and outside areas for dogs from isolation must be separated, as well.

- Separate isolation areas for animals with respiratory, other contagious diseases and non-infectious diseases requiring special care
- Adequate cage/kennel size
 - Double-sided cages/kennels are ideal to facilitate cleaning with minimal animal handling and stress.
- Handwashing facilities
- Cleaning and disinfection supplies exclusive to isolation
- Special handling of potential fomites from isolation such as dishes, towels, newspaper, gowns, booties, etc. that keep them from contaminating equipment and surfaces outside of isolation
- A surface (table, counter, etc) to perform examinations and treatments within isolation
- Changing station for gowns, gloves, footwear (either cleanable shoes, e.g. plastic clogs, or boot covers) to be worn only in isolation
- Don't forget to post clear signage, making clear what isolation protocols are (e.g. must wear gowns/gloves/boot covers, restricted personnel only, etc.).
- As with all things in shelter management, don't forget to include staff training regarding isolation!
- Enrichment is also essential – see article in this issue.

For an example from the ASPCA on shelter renovation to improve population health, please see: <http://www.aspcapro.org/creating-healthy-spaces-for-animals.php>

For a comprehensive facility design overview, including isolation facilities, please see this helpful information sheet from The Koret Shelter Medicine Program at UC Davis: <http://www.sheltermedicine.com/node/389>

To review the complete ASV Guidelines, please visit www.shelternet.org



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When Can You Count on Maternal Antibodies for Protection Against Parvoviruses? : Dr. Jan Scarlett



“Maternal antibodies are both a blessing and a curse; they can provide badly needed protection, but they may also block the effectiveness of vaccination until their concentration falls below an interfering level.”



We've talked about maternal antibodies in previous issues, but because they are so important, we touch on them again here. Maternal antibodies are provided by bitches and queens to their offspring in colostrum during their youngster's first 3 days of life outside the womb; but only if the mom's themselves carry antibodies to parvoviruses. If the mom's don't carry sufficient antibodies to provide protection for themselves, the antibodies they transfer to their offspring will not protect those babies either. See the article entitled *“New Insights into Herd Immunity”* in this issue. Since dogs and cats receive the vast majority of maternal antibodies from nursing during their first 3 days of life (not while in the uterus), orphans of mom's that die at birth or before 2-3 days, will also not receive sufficient protective antibodies. To make matters even more confusing, the level of antibodies carried by moms can vary, not only between moms, but also among members of a litter with the same mom. You have probably noticed that some members of a litter succumb to parvovirus (or panleukopenia), while others do not become clinically ill.

Parvovirus antibodies have a half life of approximately 8 to 13 days (50% will decay in that time frame) such that the time when puppies and kittens will become susceptible not only depends on whether their moms had antibodies, but also on the level of antibodies carried by their moms, the half life of the antibodies and how much the babies ingested. So, for example, a puppy born with antibodies well over the concentration needed to protect her against disease will see that concentration drop in half in approximately 8 to 13 days, and then half of that half will disappear within another 8 to 13 days, leaving almost all puppies (and kittens) without maternal antibody protection by 16 weeks of age.

Maternal antibodies are a wonderful gift to youngsters in their early weeks of life if mom was immune. Unfortunately, the problem is that these same antibodies block active immunity induced by vaccines. Since knowing which puppies (or kittens) carry protective antibodies and which do not, is not feasible in shelters, some vaccinated babies may not respond to vaccination by producing protective antibodies. This wouldn't be so bad if the maternal antibodies protected them instead, but levels of maternal antibodies that don't protect, but do block an immune reaction to vaccination, are possible for periods of 2 - 4 weeks in some puppies and kittens. So . . . we vaccinate all of our babies every 2 weeks (not knowing who is still susceptible) hoping to minimize that “window of susceptibility”. By sixteen weeks of age, almost all puppies or kittens will be immunized by vaccination with a modified live parvovirus vaccine.

Because of the uncertainty associated with predicting the window of susceptibility for individual animals, the best defense for babies under 9 weeks of age is residence in a foster home, not the shelter! No exposure = no disease. This does mean that litters should not be mixed in foster homes to minimize the likelihood of exposure. And once 9 week olds re-enter the shelter, since a few will still not be immune, they should be housed away from adults and other litters.

Maternal antibodies are both a blessing and a curse to young animals in shelters. They can provide badly needed protection, but they may also block the effectiveness of vaccination until their concentration falls below an interfering level.

Enrichment for Animals in Isolation: Ms. Kelley Bollen, MA, CABC

When shelter animals get sick with an infectious disease they must be placed in quarantine to protect the other animals in the shelter. Unfortunately, this often means that they receive very little stimulation during this period of isolation. While physical stimulation is not possible for these sick animals, it is critical to provide them with mental and social stimulation throughout this period.

Social stimulation involves more than just feeding and cleaning up after these animals twice a day. They need their caretakers to spend some quality time with them – petting, brushing, talking to them. This is especially important for young puppies and kittens who are still in their critical period for socialization (3-12 weeks for dogs, 3-7 weeks for cats). This period of isolation can have long lasting affects if efforts are not made to socialize these baby animals as much as possible.

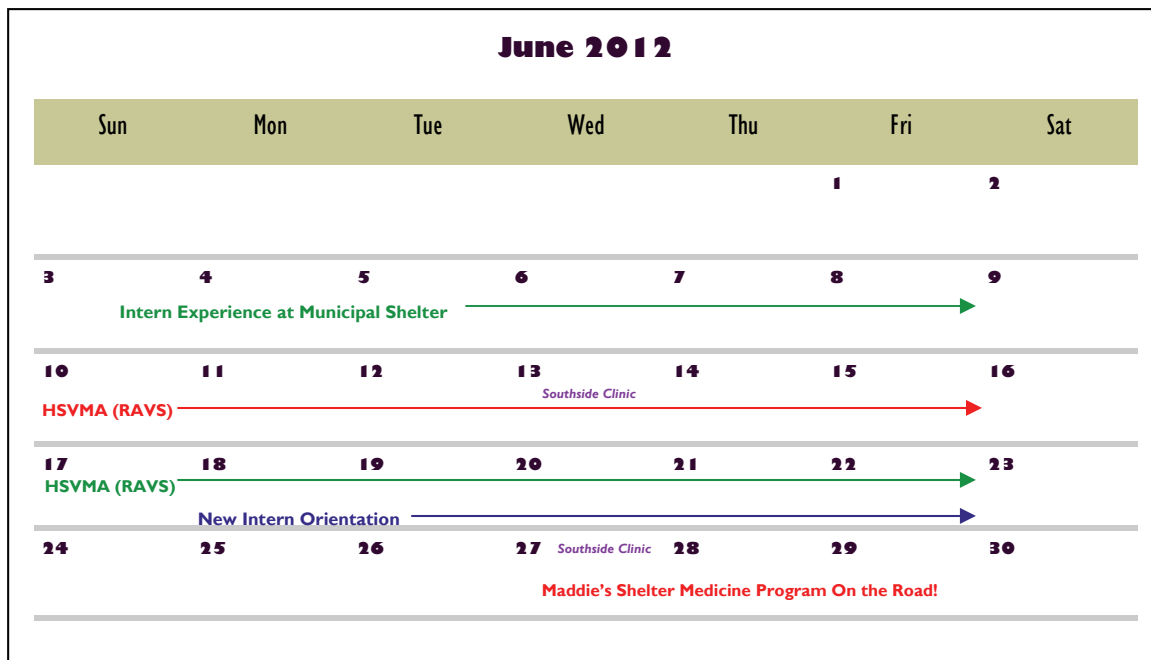
Mental stimulation for the animals in isolation involves stimulating their senses - at least those senses that are still working well. The sick animals in your shelter typically are suffering from upper respiratory illnesses so their sense of smell and their desire to eat are often compromised. This means that the olfactory enrichment and food gathering activities that I have written about in previous articles may not be useful. But they can still hear and can benefit from auditory enrichment. Playing music in the isolation areas is very beneficial. It has been found that classical music, versus other types of music, has a calming effect on animals. While any classical music CD

would be nice, I prefer to use the psychoacoustically designed music produced by BioAcoustic Research and Development Company. They have researched and developed the “Through a Dog’s Ear” series. While the research was done on shelter dogs, and the titles imply that the music is for calming dogs, it is music that can calm cats as well (and any animal for that matter, including humans). The company has a shelter program whereby shelters can receive one free CD to use in their facility (www.throughadogsear.com). Other auditory stimulation can include bird song CD’s or playing a news station like NPR so the animals stay exposed to the sounds of human voices.

The other sense that can be stimulated for these animals in isolation is their vision. Providing them with interesting things to look at such as perpetual motion toys set into motion a few times a day, mobiles that move when there is air movement, a small fish tank, or even a television. While we are not sure exactly what animals see on televisions, many animals do seem to watch them and there are even DVD’s designed for this very purpose. Additionally, the sound of a TV provides additional auditory stimulation and keeps the animals habituated to the sounds of a human household.

The point is that the animals in isolation need more than good medical care. They also need good behavioral care. If we can keep them mentally healthy and calm, they will recover from their illness quicker.

Events Calendar



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