Outbreak Management in Animal Shelters

Amanda Dykstra, DVM
Assistant Clinical Professor, Shelter Medicine
University of Tennessee College of Veterinary Medicine

Parvovirus

- Incubation well-defined (3-14 days)
- Antibody titers available
- All unvaccinated dogs susceptible
- Can infect cats
  - Can cause disease/death similar to panleukopenia
  - Cats can become carriers
- Consistent, recognizable clinical signs
- Recovered dogs can shed virus for 14 days
Parvovirus

- Clinical Signs
  - Diarrhea
  - Lethargy
  - Dehydration
  - Vomiting
  - Anorexia

Distemper

- Can infect dogs and other mammals
  - Ferrets and raccoons susceptible
  - All unvaccinated dogs susceptible
  - Incubation not well-defined
  - Signs highly variable
    - Early signs usually respiratory, loss of appetite, depression
    - Later signs can be lower respiratory and GI
    - Neuro signs can appear much later
    - May also have ocular and dermatologic signs
    - Can also be asymptomatic shedders
Distemper

- Can shed virus for months post-recovery
- Can be spread by respiratory droplets
- Vaccination highly effective and rapidly protective

Commonalities

- Constant threat of introduction
- Increase suffering
- Increase euthanasia
- Antibody titers available
- Vaccination highly effective and quickly effective
- Morbidity and mortality in otherwise healthy/adoptable animals
Is There an Outbreak?

Epidemic
- Frequency or incidence of disease in excess of its expected frequency. In shelters we look at numbers in relation to the usual incidence for that season or month.
- Incidence greater than two standard deviations above the average observed incidence.

Endemic
- Disease is regularly and continuously present. Often used as baseline.
- We need data to know if there is an outbreak.

Outbreak epidemiology
- Attack Rate: Compare affected and unaffected groups on basis of known exposure criteria to help determine disease contributors.
  - Compare dogs from two different zip codes
- Epidemic Curves
  - Plot number of affected animals in a population over time.
Outbreak Management

- Vaccination
- Quick recognition
- Segregation ill/exposed animals
- Proper cleaning/disinfection

Vaccination

- All dogs and puppies over 4 weeks old on intake
  - One week before when possible
- Revaccinate puppies every 2 weeks until 18 weeks old
- Revaccinate adults one time at least 2 weeks after initial vaccine
- Pregnant dogs?
Quick Recognition

- Perform intake exams
- Daily rounds
- All staff trained to recognize symptoms

Segregation of Ill/Exposed Animals: Who is at Risk

- Individual immune status
- Vaccination status
- Cleanliness of environment
- Proximity between exposed and infected animals
Assessing Risk: Distemper

- Antibody titers in dogs with no current or historical clinical signs of distemper
  - Positive titer indicates protection
- Asymptomatic adult dogs with titers are low risk and don’t require quarantine.
- Asymptomatic puppies (<5 months) could have protective titer or maternal antibody. Move through shelter as quickly as possible.
  - Continue vaccine schedule
- Any age dog with negative titer is considered high risk
  - Quarantine 4-6 weeks

Assessing Risk: Parvo

- Healthy adult dogs vaccinated at least 8 days prior to exposure can be considered low risk.
- Asymptomatic adult dogs with titers are low risk and don’t require quarantine.
- Asymptomatic puppies (<5 months) could have protective titer or maternal antibody. Move through shelter as quickly as possible.
  - Continue vaccine schedule
- Puppies heavily exposed or from high risk should be snap tested and titered
  - Pos snap with pos titer → infected
  - Neg snap with neg titer → not infected but not protected, needs quarantine
  - Neg snap with pos titer → protected (bathe and move to adoption)
- Any age dog with negative titer is considered high risk
  - Quarantine for 14 days
Proper Cleaning/Disinfection

- 5% sodium hypochlorite (bleach) ½ cup per gallon (1:32)
  - MUST CLEAN SURFACES FIRST
  - Must be stored in light-proof container
  - Stable for 1 month after dilution
- Potassium peroxymonosulfate (Trifectant)
- Accelerated hydrogen peroxide (Accel)
  - Greater detergent properties
  - Better activity in face of organic matter
  - Can apply to clean then to disinfect
- Follow contact times!

Reducing Risk: Environmental

- Reducing overcrowding
- Use double sided runs for cleaning
- House dogs alone or in stable groups/pairs
- Non-porous surfaces disinfected properly with parvocidal disinfectant
- Separate all equipment for each kennel area
- Proper handwashing between animals
- No common play areas for puppies
- Prompt isolation of sick animals
Reducing Risk: Animal

- All dogs over 4 weeks old vaccinated immediately upon intake
- Lower stress

Reducing Risk

- Overcrowding
  - Increases agent concentration
  - Lower air quality
  - Compromises husbandry
  - More animal contact
Should we bleach dirt play yards?

- No. Bleach has virtually no efficacy in the face of organic debris.

She we leave a parvo-infected kennel or run empty for 2 weeks?

- No. Proper disinfection is the only way to get rid of parvo virus. Waiting 2 weeks is of no more benefit than waiting 2 hours.
“Kennel Cough”
AKA: CIRDC

- Common signs: sneezing, nasal/ocular discharge, cough
- Multiple viral and bacterial agents implicated
- Prevention:
  - Immediate recognition and isolation of sick dogs
  - Avoid crowding
  - Lower barking and stress
  - Lower airway irritation
  - Vaccination (intranasal)
  - Lower LOS
- Most outbreaks can be stopped with isolation and disinfection

Take Home Points

- Don’t house cats with dogs!
- Make sure you are addressing socialization needs safely.
- Bleach is inactivated by organic material and light.
- You are not saving more dogs by housing more dogs.
- Depopulation is rarely (never?) necessary.
Questions???