Title: Panleukopenia Outbreak in a Municipal Shelter

Case description: An open-admission municipal shelter, with an annual intake of 3,000 animals and a low incidence of infectious disease, admitted a litter of six 6-week old kittens to the stray ward. The kittens were examined. A modified live feline viral rhinotracheitis, calicivirus, and panleukopenia vaccine and parasite control products were administered in accordance with the shelter’s intake protocol. One kitten was found dead 3 days later. No investigation was made into the cause of death. Five days later, a littermate was found moribund with vomit in the cage. A strong positive result was obtained on a fecal antigen test for canine parvovirus.

The kitten was euthanized. Animals in the stray ward were placed under quarantine while new arrivals were diverted to a separate room temporarily designated for intake. Over the next 5 days three other littermates as well as a kitten in the adoption ward developed diarrhea, tested positive, and were euthanized. The latter kitten was moved from the stray ward to the adoption ward 2 days after the index litter’s arrival.

The shelter subsequently implemented the following measures to contain the outbreak:

- Cessation of cat movement in the shelter
- Aggressive surveillance for new cases based on clinical signs and confirmatory testing
- Quarantine of exposed animals based on risk assessment
- Repeated vaccination of animals vaccinated > 14 days prior
• Heightened biosecurity

• Review of applicable animal care protocols

• Temporary closure of adoption ward

• Contact of persons adopting cats within 14 days

Staff was retrained in appropriate use of personal protective equipment and sanitation procedures. The quaternary-ammonium containing disinfectant was replaced with an accelerated hydrogen peroxide product. A dedicated staff member was assigned to each cat ward.

**Outcome:** Because the shelter had insufficient staffing and facilities to treat affected cats and prevent further disease spread, infected cats were euthanized. Adoptions resumed following 14 days in which no new cases were identified in the adoption room. Two cats in quarantine were diagnosed with panleukopenia and euthanized and the 14-day quarantine period was reinitiated. Once a complete quarantine cycle passed the remaining cats were bathed, revaccinated, and moved to the adoption ward. Thorough cleaning and disinfection was performed before reopening to admission of new cats.

**Implications/Applications:** Measures taken to control the outbreak (e.g. quarantine of exposed/high-risk cats, staff training, revision of sanitation protocols) prevented further spread of disease once fully implemented. Use of a disinfectant with efficacy against non-enveloped viruses is critical to reduce transmission of these pathogens. Prompt attention to the death of the first kitten through necropsy and diagnostic testing would have identified the presence of a highly infectious, easily transmitted pathogen and enabled the shelter to implement control measures in a more timely fashion, mitigating the impact on feline health and well-being.
Quarantine of high-risk cats may have limited the spread of panleukopenia to other areas of the shelter but practices that unnecessarily increase length of stay must be balanced with other health and welfare considerations and the shelter’s capacity for care.