

Shelter medicine – herd health for cats and dogs

Jenny Stavisky

Clinical Lecturer, Faculty of Medicine & Health Sciences, University of Nottingham, Nottingham

SYNOPSIS

Rescue shelters and rehoming centres are often important veterinary clients. In many cases, shelter animals are presented as individuals being brought to the vet clinic. Despite this, it is important to take into account the shelter population as a whole, and not to just treat the individual. This article discusses the importance of getting to know your shelter, how to take a shelter history and things to look out for on a site visit. Infectious disease is a common problem in shelters, and the ways in which practices, such as vaccine use, may be tailored to a shelter situation are discussed.

WHY ARE SHELTER CLIENTS DIFFERENT?

It has been suggested that over 90% of veterinary practitioners treat animals from rescue shelters, and that around a third of pet dogs and cats are obtained from shelters [1]. Therefore, such organisations are important clients in many practices. Within shelters, animals may be at increased risk of infectious disease due to the close-

contact living conditions, as well as management factors discussed below.

When considering shelter animal health, it can be helpful to use some of the principles of herd health more usually applied to livestock farming, as there are many parallels. For example, intake in shelters is often rolling and continuous, meaning that an all-in/all-out policy is not realistic. Therefore, at any one time, animals of different immune and infectious status will be together in close proximity. The presence of isolation and quarantine facilities is variable, and even if present, these facilities are not always used effectively to limit disease spread.

If we think of a shelter as a farm client, it means that when presented with a diseased animal or animals, we need to take a history and clinical examination pertaining to the whole shelter, and not just the one animal. A shelter history and clinical exam serves the same purpose as any other patient history and exam; to identify important clues to diagnosis and also to suggest targets for interventions for treatment or preventive care in future. This is particularly

Table 1: A brief overview of important questions to ask in a shelter history (NB: this is not exhaustive.)

Question	Relevance
How many animals are on site? What species are catered for?	Scale of operation. Ensure you see all accommodation and all animals if possible – may be varied. Potential for cross-species transmission.
What are the intake policies?	Stray versus relinquished (previous vaccination, nutrition, socialisation to conspecifics/humans) Contracted to take strays/lots of animals on the doorstep versus managed intake, waiting lists – element of control over what comes in when.
How many animals are rehomed per year? What is the average length of stay?	Most shelters will know their annual rehoming figures, and from then it is possible to infer an average length of stay. This is a key performance indicator – if animals are typically staying for very long periods they may be at increased risk of physical and psychological disease – or conversely, disease may be delaying rehoming.
Are there any quarantine measures?	Is there a separate holding block for new intake animals? Or any other measures, e.g. fostering of pregnant queens and bitches? If there is a quarantine area, how is it used? How long are animals held for before being mixed with others?
Are there isolation facilities?	Is there a space for sick/ infectious animals? If so, how separate is it from the rest of the population?
What preventive healthcare is carried out?	Are animals vaccinated? If so, with what and when (at what age, and how soon after entry)? Are animals routinely treated for endo/ectoparasites?
What opportunities are there for direct contact?	Are animals frequently moved or mixed, e.g. shared pens, exercise areas?
What about fomite spread?	How are litter trays, food bowls, bedding, scratch posts and cleaning materials used? E.g. are food bowls just washed or disinfected too? If there is a quarantine or isolation area, does it have its own washing and disinfection area?
What is the cleaning and disinfection routine?	Are there sufficient numbers of well-trained staff to look after the number of animals? Do staff move between areas e.g., isolation and quarantine? Do staff have suitable clothing and handwash opportunities?
Are humans spreading infection?	Do staff, volunteers and potential adopters have a role to play, e.g. visitors putting their fingers through cage bars?

true for infectious agents such as cat flu, kennel cough and canine or feline parvo virus. You may be presented at your clinic with a single animal, but that case may be symptomatic of a larger population problem. This is analogous to familiar conditions such as calf pneumonia, where considerations of husbandry and preventive medicine are as important as treatment of the individual.

TAKING HISTORY

A shelter history and clinical examination are best carried out on site. Getting to know your shelter staff and facilities not only helps to understand why some problems might occur, but, just as important, which interventions are feasible (and which might not be). There are many possible questions to ask, but some of the most important are listed in Table 1.

It is important to ask these questions in conjunction with a site visit. Shelters vary tremendously between each other, and even within each other. For example, Figures 1 and 2 show cats kept in the same shelter, which was run from a single house with approximately 60 cats, some loose in different rooms, others in enclosures or rabbit hutches outside.

PHYSICAL EXAMINATION OF THE SHELTER

Part of your physical examination of the shelter should involve a walk round the whole site. If it is possible to do, it is helpful to watch the cleaning and feeding routine to see how it is carried out. It is not uncommon to find inappropriate disinfectants, incorrect dilutions or a failure to properly clean organic matter before disinfection. This can contribute to chronic issues within the population due to the presence of high levels of environmentally-resistant organisms such as giardia and cryptosporidium.

In terms of husbandry, the core concepts of animal housing remain important. Is the housing of sufficient size to accommodate the animal or animals? For cats in particular, do they have access to a private space where they can escape other cats? Group versus individual housing is a much-debated issue for cats; however, if cats are group-housed it is important to ensure there are enough resources to go around. For example, the cats in Figure 3 are all sharing beds simply because there aren't sufficient beds available to sleep separately. Figure 4 shows a cat trying to pretend it isn't being housed with other cats at all. Overcrowding can be a significant stressor, particularly for cats, and may be implicated in diseases including feline lower urinary tract disease, cat flu and FIP. For dogs, boredom, isolation and a barren environment can



Figures 1 and 2: Cats in a shelter. Photos Credit: Lara Gosling.



Figure 3: These cats are sharing a bed - but aren't very happy about it.

lead to behavioural problems. Sometimes it is possible to strike a compromise between keeping the environment clean and providing enrichment. For example, changing bedding only when wet or dirty, rather than every day, can help to maintain an animal's olfactory environment. Check that the floors, walls and other surfaces are impervious, in good condition and easy to disinfect. Wooden kennels can be a particular problem to clean, especially with infectious agents such as ringworm. Drainage is another important issue – open, common drains are a good way to transmit infectious agents such as parvo virus. Ventilation is also important – housing varies from self-contained systems with positive pressure ventilation and carefully metered airflow to airless blocks which are uncomfortable to breathe in when visiting (Figure 5). Sharing of airspace can also be a problem, especially if animals are able to cough or sneeze over each other.

VACCINATION

Vaccination is a key part of a preventive medicine programme in any shelter. Although the vaccine data sheet is always the cornerstone of use, it may be necessary to utilise vaccines differently when considering populations undergoing overwhelming challenge. It is also important to remember that although some vaccines (e.g. canine and feline parvo virus) provide a sterilising immunity (i.e. vaccinated animals will neither become ill nor be infectious), other vaccines such as feline calicivirus, feline herpes virus and canine coronavirus are only able to reduce clinical signs and shedding, not prevent them completely. Although



Figure 4: The cat huddled on the window ledge is trying to pretend it can't see any other cats.

there is little direct evidence on best practice vaccine use in shelters, there are relatively well-established principles based on a combination of core science and pragmatic cost-benefit calculation.

As an example, for a private client, we would normally avoid vaccinating an animal at times of severe stress or when it might be incubating a concurrent infection. For a shelter animal, the change of environment on entering the shelter is likely to be a stressful time, and many animals will enter a shelter with some kind of asymptomatic infection. However, the risk of not vaccinating these vulnerable animals will generally outweigh the risk of vaccinating them. Vaccine reactions are rare, but infectious diseases are common. Although there is a risk of reduced efficacy of using vaccines in this way, good humoral responses have been documented in feral cats vaccinated at the time of trapping and neutering [2], suggesting that the immune system can still mount a robust response in the face of stress. It is, therefore, common practice to suggest that all animals entering a shelter should be vaccinated as soon as possible after admission, unless there is an obvious contraindication such as pregnancy. If the animals are booked to come in from a relinquishing owner, some shelters will pay for the animal to be vaccinated before admission, as it may be more cost-effective than allowing unvaccinated animals on-site, with the associated increased risk of disease. Although there is some debate over the issue, live vaccines are for the most part thought to have a quicker onset of immunity than killed and are therefore generally to be preferred in the shelter situation [3, 4].



Figure 5: Poor ventilation can increase the risk of respiratory disease.

Another common difference in vaccination in shelters centres around giving the primary course of vaccines. If there is a problem with infectious diseases such as canine or feline parvo virus or cat flu, typically it is the young animals which are worst affected. Although the first two doses of the primary course are traditionally administered (depending on the manufacturer's recommendations) between 6-13 weeks, it may be necessary to use vaccines outside these periods. (NB; the primary vaccine course is only fully complete at the first annual booster vaccination!) If young animals are being infected prior to their first vaccine taking place, it may be necessary to begin vaccinating earlier. Vaccines may be given from four weeks of age. This may be especially useful in colostrum-deprived individuals such as orphans and hand-rears. Conversely, if older, vaccinated kittens and puppies are being affected by disease, this may suggest maternally derived antibody (MDA) interference with vaccination. In puppies and kittens born to bitches and queens living in endemic environments, the dams may have a high degree of immunity to pass on, meaning MDA can persist for up to 20 weeks in some individuals [5, 6]. Therefore in these cases it may be necessary to extend the primary course with additional vaccines every two weeks until MDA has diminished enough to allow a full response to vaccination. There are, of course, cost implications to the use of additional vaccines. However, as well as the direct costs of a cat flu or parvo outbreak, the indirect costs such as additional staff time for nursing and cleaning and closure of the shelter can be substantial, in addition to the clear welfare benefits provided by prevention of these diseases.

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CONCLUSION

In summary, when considering a shelter client we need to apply some of the principles of farm herd health management alongside companion animal medicine to ensure optimum care of our patients. Taking an appropriate shelter history and making regular site visits are essential in order to improve the health of the whole herd, and enable the veterinary profession to be at the core of the management and husbandry decisions. Such decisions are at the core of maintaining animal health and welfare in such environments.

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Reader Questions and Answers

1. FAILURE TO CLEAN ORGANIC DEBRIS BEFORE DISINFECTION ALLOWS PERSISTENCE OF (CHOOSE ALL THAT APPLY)

- a) Feline calicivirus
- b) Feline/ canine parvo virus
- c) Giardia
- d) Cryptosporidium

2. IF THERE IS NO, OR MINIMAL DISEASE, ANIMAL ACCOMMODATION SHOULD BE CLEANED USING

- a) Spot cleaning when dirty, thorough disinfection between animals
- b) Twice daily disinfection and washing of bedding
- c) Daily disinfection and washing of bedding
- d) Weekly disinfectant 'bombs'

3. ANIMALS ENTERING A SHELTER SHOULD NORMALLY BE VACCINATED:

- a) Within a week of entering the shelter
- b) Within 3 days of entering a shelter
- c) Be vaccinated as soon as possible after entering a shelter
- d) Be vaccinated only when healthy

4. MATERNALLY DERIVED ANITIBODY

- a) Always declines within 8-10 weeks of birth
- b) Always declines within 10-12 weeks of birth
- c) May persist up to 14 weeks
- d) May persist up to 20 weeks

ANSWERS: 1 - ALL OF THE ABOVE; 2 - A; 3 - C; 4 - D