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Shelter research

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How to have a healthier shelter

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While shelter staff are aware of the health needs of animals in their care, the importance of maintaining a healthy animal shelter can easily be overlooked. Sanitation, awareness and control of exotic diseases and safe animal handling all contribute to a healthy shelter environment, resulting in direct and indirect benefits to shelter staff and animals.

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What is a fomite? A fomite is any non-living object that is capable of carrying germs which can then be transferred to an animal or a human. Every object should be considered a potential fomite. For example, contaminated footwear worn by veterinarians and farmers may spread foot and mouth disease from farm to farm during outbreaks. Similarly, staff can easily transmit cat flu via contaminated clothing, rapidly leading to an outbreak. Fomites found in an animal shelter include but are not limited to muzzles, collars, leads, ropes, carry cages, mops, food and water bowls, clothing and uniforms, name tags, personal protective equipment, bedding, stethoscopes, thermometers and door knobs.

It is essential that physical cleaning is carried out prior to sanitation or disinfection.

Sanitation

Animals of different ages and health status are kept at a relatively high density in shelter environments, allowing germs and disease-causing agents to accumulate very quickly. The immune systems of animals housed in stressful conditions are often compromised. This means that poor hygiene can lead to disease outbreaks, which have a direct impact on animal welfare, leading to illness and possibly deaths. Additionally, shelters that are unhygienic are unattractive to potential adopters and may reduce opportunities for animals to be adopted. On the flip side, when practiced consistently, aggressive hygiene reduces the risk of disease in shelter animals, staff and visitors. Shelter staff should be aware of the critical role of hygiene in the overall running of the shelter: good hygiene saves lives.

Table 1.1 Types of cleaning

Types	Description and Limitations
Physical Cleaning	Removal of wastes and organic materials from the environment does not kill germs but removes the medium in which they can grow. If all organic material is not removed then disinfection will be ineffective.
Sanitation	Killing or removal of bacterial contaminants to safe level, usually achieved through use of chemicals. Does not achieve same level of decontamination as disinfection.
Disinfection	Kills most of contaminants which cause disease, except for bacterial spores.
Sterilisation	Kills all germs, including bacterial spores. Achieved through use of chemicals or heat (e.g. autoclaving of surgical instruments).

Adapted from Gilman (2004).

There are four major types of cleaning. Most shelters employ a combination of all of these. It is essential that physical cleaning is carried out prior to sanitation or disinfection, as sanitisers and disinfectants do not work as effectively in the presence of organic material (e.g. faeces or soil). Some bugs are more resistant to cleaning than others. For example, parvovirus can survive for years in the environment under the right conditions. This should be kept in mind when developing a cleaning protocol.

Many factors reduce the ability of shelter staff to maintain a disease-free environment. These include poor shelter design, such as inadequate ventilation and lack of space, overcrowding, constant mixing of animals with unknown medical backgrounds, inadequate staffing, lack of training and long-term survival of certain disease causing organisms in the environment.

But there are plenty of things you can do you minimise these obstacles. To ensure that an adequate standard of hygiene is achieved, it is important for shelters to invest time in developing sanitation policies such as cage cleaning protocols. These can be reviewed in the case of a disease outbreak, but at least it allows shelter managers to better work out where disease control measures failed.

Detailed information about appropriate disinfectants, as well as sample protocols for the cleaning of dog and cat cages, can be accessed online at: http://www.sheltermedicine.com/portal/is_cleaning.shtml

In the event of a disease outbreak, it is critical to establish a diagnosis and determine how the disease is transmitted, then review sanitisation procedures. This involves finding out whether disinfectants used target the agent/s responsible for the outbreak. Make sure disinfectants are being used appropriately, for example at the correct dilution, and ensure that staff are following correct cleaning protocols. Install foot disinfectant mats at entry and exit points of affected areas and change these daily. Increase frequency of cleaning (for example to twice daily) and use disposable rags and paper towels.

Table 1.2 Maintaining a healthy animal shelter

Use non-porous, disinfectable materials – replace wood and carpet with easy-to-clean surfaces.
Reduce fomite transmission by washing hands, wearing gloves and using disposable implements as much as possible.
Clean any surface that comes into contact with an animal after each use. This includes not just cage floors and walls but grills, treatment tables, collars and leads, transport cages, medical equipment (thermometers, stethoscopes), muzzles, crush cages and weighing scales.
Remove animal waste as soon as possible.
Use dishwasher safe bowls and litter trays and ensure they are cleaned and disinfected daily, and washed in a dishwasher between use by different animals.
Avoid using mops as these can harbour germs and spread them into new areas.
Animal care areas should be kept as dry as possible. Don't allow floors to air dry. Squeegee water into drains. Don't clean an area with plain water without disinfecting it afterwards.
Staff should attend to the healthiest animals first, working towards animals with most contagious diseases last. Healthy puppy and kitten areas should be cleaned and disinfected first as these animals are most susceptible to disease.
Return animals to the same cage where possible to minimize disease spread – especially where animals have highly contagious diseases such as parvovirus and ringworm.
Take measures to control rodents and insects such as cockroaches. These can spread germs but may also be a source of bites to both animals and people.
Launder uniforms, blankets, and bedding in hot water, soap and bleach.

Adapted from Gilman (2004).

Zoonotic disease in shelters

A Zoonotic disease infection in children, the elderly or immunocompromised, could be potentially life-threatening.

The word zoonosis comes from the Greek words for animal “zoo” and disease “nosos”. Zoonotic diseases are diseases that can be transferred between humans and animals. Common zoonotic diseases are listed in table 2.1.

Zoonotic diseases can affect shelter staff and volunteers, impacting on their ability to work. But they can also affect the health of people who adopt animals. In many cases zoonotic diseases are relatively harmless and self-limiting, but in children, the elderly or people who are immunocompromised (for example those who are HIV positive, undergoing chemotherapy or having recently undergone a transplant), infection could be potentially life-threatening. Shelters have a duty of care to protect staff, as well as members of the public, from zoonotic diseases originating from shelter animals wherever possible.

Shelter animals may be more vulnerable to zoonotic disease, and disease in general, because of a history of poor care including poor nutrition, lack of vaccination and veterinary treatment, high rate of illness and stress. Animals with zoonotic diseases may show no symptoms.

The good news is that many zoonotic diseases, particularly those transmitted via the oro-faecal route such as infections with E. Coli and salmonella, can be simply prevented by good hygiene.

If you suspect that you have a zoonotic disease, consult a doctor immediately. It is important to inform your supervisor, particularly if you have a highly infectious condition such as ringworm or scabies, and ensure that you do not have direct contact with animals until you are treated.

Ringworm is the most common zoonotic disease among shelter workers.

The most common zoonotic disease among shelter workers, ringworm, rates a particular mention. Ringworm (or dermatophytosis) often manifests as a red, raised, circular lesion on the skin. The lesion can be dry and scaly, or moist and crusty, and may appear on areas of skin which have not been in direct contact with affected animals (such as the lower back).

In the context of a private household, ringworm infection is a minor inconvenience. But in the shelter environment where pet animals are kept at a higher density, infection of a single animal can rapidly lead to an outbreak, which can be extremely costly and difficult to manage. Moreover, affected animals cannot be re-homed and may be euthanised as a result.

For this reason, you should avoid contact with animals if you suspect you have a ringworm lesion and seek medical attention immediately. Treatment typically involves application of a topical cream. As animal carriers, particularly cats, can be asymptomatic it can be difficult to pinpoint the source of human infection, but potential sources include shelter animals, pets at home or even children.

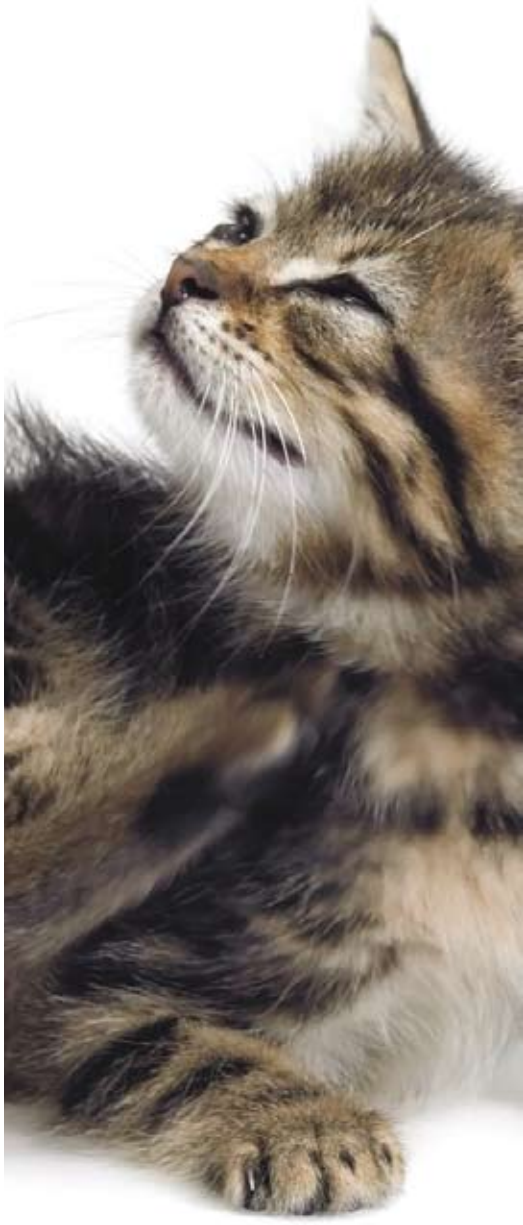
The University of California Davis provides a detailed information sheet on ringworm which can be accessed at: http://www.sheltermedicine.com/portal/is_ringworm.shtml

Avoid contact with animals if you suspect you have a ringworm lesion and seek medical attention immediately.

Table 2.1 Common zoonotic diseases seen in shelters

Category of infectious agent	Agent or disease	Source of exposure
Bacteria	Salmonella	Faeces
	Campylobacter	Faeces
	Cat scratch disease (Bartonella)	Bite, scratch or flea but can occur if cat licks wound
	Q-fever (Coxiella burnetti)	Reproductive fluids/placenta
	E. Coli	Faeces
	Psittacosis	Ocular and nasal secretions; faeces of affected birds
Protozoa	Toxoplasmosis	Faeces
	Giardia	Faeces
	Cryptosporidia	Faeces
Fungi	Ringworm	Contact with carriers, affected animals or fomites
Endoparasites (e.g. worms)	Tapeworm	Flea bite
	Toxocara	Faeces
Ectoparasites (e.g. mites)	Scabies	Contact with affected animals
	Fleas	Contact with affected animals
	Lice	Contact with affected animals

Adapted from Foley & Bannasch (2004)



Zoonotic diseases can affect shelter staff and volunteers, impacting on their ability to work

Safe handling

Dogs, cats and other shelter animals are so familiar to us that we often assume they are easy to handle. But it is surprisingly easy to get bitten, scratched or otherwise injured if shelter animals are not handled carefully. For example, cats that are transported between areas within a shelter, without use of a cat carrier, may take fright and inflict serious scratch wounds on the person carrying them. Similarly, some dogs and cats are cage-guarders and may launch an attack on anyone who opens their cage. People tend to be cautious around large dogs, but small dogs and cats can equally inflict serious damage. As bites can often transfer soil and bacteria into wounds, it is essential that shelter workers maintain up-to-date Tetanus shots.

It is surprisingly easy to get bitten, scratched or otherwise injured if shelter animals are not handled carefully.

Bite wounds cause trauma and secondary infection, and always require medical attention. It is not unusual to require hospitalisation and intravenous antibiotics for a serious bite. In addition, severe dog bites can cause fractures. Animal injuries can lead to extended absences from work, and medical treatment can be very costly.

It is not unusual to require hospitalisation and intravenous antibiotics for a serious animal bite.

The risk of being bitten by a dog or cat is increased in a shelter because animals may be fearful in an unfamiliar environment. Furthermore, many animals have had limited (or unpleasant) experience with humans. Injured or stressed animals are more likely to bite to protect themselves.

Fortunately, many bite or scratch related injuries are avoidable. Experienced staff are less likely to be bitten, but staff can be trained to recognise behavioural cues and body language that suggests that an animal may bite. Volunteers and inexperienced staff can be buddied with experienced staff until they have confidence to handle animals. Only experienced staff should be allowed to handle known aggressive animals.

Table 3.1 Safe handling

Take things slowly. Shelter animals, especially new arrivals, are often fearful and may take time to build trust. Where appropriate and safe it may be helpful to offer a small amount of food. In some cases it may be better to leave the animal for a few hours to settle in to a new environment.
Minimise handling of animals directly after potentially stressful procedures such as transport.
Take a moment to observe the body language of an animal prior to opening the cage. Animals which are baring their teeth, growling and/or have hackles raised are more likely to attack. Similarly, animals cowering or hiding in the back corner of the cage or displaying other body language indicative of increasing arousal, fear or stress may be fearful and may bite or scratch in self-defense. Some animals may be coaxed into a more accessible position with a treat, but if you think an animal is behaving in a way that suggests it might bite or attack, do not attempt to handle the animal.
Avoid direct eye-contact with apparently fearful or aggressive animals as this may be threatening.
Clear warnings should be placed on the cages of any animals known to have aggressive tendencies.
Work in pairs when examining, medicating or treating animals, so that one person can hold and reassure the animal while the other can focus on the task.
Know how and when to use restraint devices (muzzles, catching poles, crush cages, leather gloves) safely. Only staff trained to use these devices should attempt to use them, as misuse can expose employees to risk and may result in injury to animals (e.g. strangulation with a catching pole).

Minimise handling of animals directly after potentially stressful procedures such as transport.

One of the benefits of experience and training is the ability to recognise when restraint aids such as muzzles, crush cages or catching poles are required. It is always better to use this equipment early in the encounter with an animal, rather than wait until the animal is very upset before an attempt is made to muzzle it. Remember that some animals are actually more relaxed once they are comfortably restrained. There is nothing to be gained in trying to be a hero or fighting with a distressed animal when there are other safe ways of handling it.

Even when all care is taken, some animals may be too dangerous to handle. For example, dogs which cannot be safely muzzled. In these cases, chemical restraint may be required. A veterinarian should always be consulted. Remember that sedated animals are still capable of biting and sedation may mask early warning signs that an animal will attack. General anaesthesia may be the only option.

Take a moment to observe the body language of an animal prior to opening the cage.

About Shelter Research

This publication is distributed to every major shelter and pound in Australia. Articles in Shelter Research are written to assist the work of shelters, and information contained therein is obtained from international scientific literature and research.

We welcome your feedback and suggestions:
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Kate and her dogs; Archie and Joseph

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