

Environmental and infection control guidelines for cattery operations



Introduction – Infection control

Infection control plays an integral part in humane animal sheltering and is designed to control the spread of disease protecting animals, staff, volunteers and visitors from infection.

While animal shelters provide necessary temporary housing for owner-surrendered, stray or lost animals it is unfortunately “not conducive to their well-being due to progressive accumulation of infectious disease agents and the high animal density.”¹ Shelter environments are immunosuppressive, therefore every reasonable effort should be made to minimise infectious disease.

Compassion for animals is the primary reason for those who seek work (paid or unpaid) in animal shelters, but compassion alone does not protect shelter animals from disease or from the subsequent pain and suffering caused by disease, nor does it prevent staff or volunteers from becoming ill themselves.

To deliver humane care to animals in shelter environments compassion needs to be coupled with effective infection control protocols. “The maintenance of healthy [and hygienic] shelter conditions, [including personal health], is the responsibility of all shelter workers, not just management or the [shelter’s] veterinarian.”²

The barriers to implementation of infection control include:

- Perceived time constraints
- A lack of knowledge about disease and disease transmission in shelters
- Improper techniques with sanitation practices and PPE (personal protective equipment)
- Poor management
- Limited resources
- Inadequate staffing levels
- Non-existent or minimal veterinary input
- Poorly designed facilities.

The benefits of effective infection control are many and include:

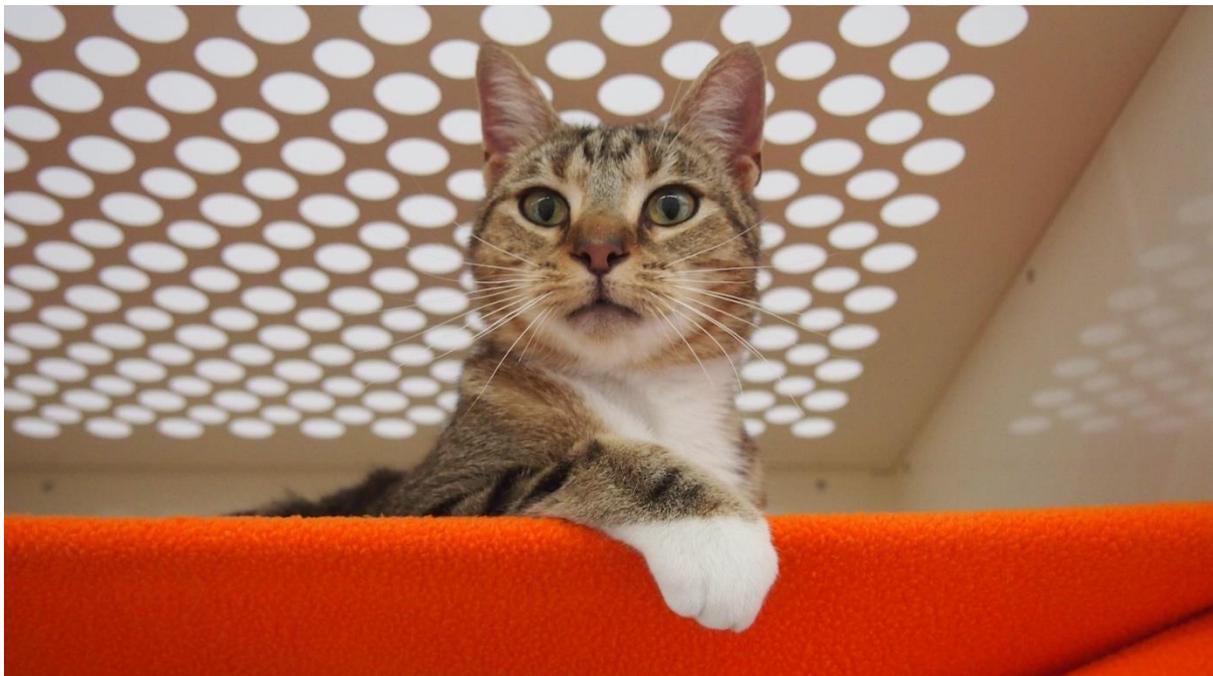
- Improves and saves lives by creating a hygienic environment that supports disease prevention strategies
- Increases adoption rates and reduces length of stay
- Reduces euthanasia rates for open-admission shelters/pounds
- Supports an organisation’s Work Health & Safety (WH&S) legal obligations to provide staff and volunteers a safe and healthy work environment
- Improves the reputation of an organisation in the community and industry.

Effective infection control requires the following key components to work together to minimise disease transmission.

Key components of infection control are outlined in these guidelines:

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The following guidelines are feline-specific although much of the information can apply to multi-species shelters and pounds



Population management and capacity for care

Operating beyond the capacity to care properly for the feline population in a cattery is an unacceptable practice.³ Overcrowding in catteries amplifies the transmission of infectious diseases, unnecessarily exposes staff to an increased risk of zoonotic infection and increases feline and staff stress. “When a population is not managed within capacity for care, other standards of care become difficult or impossible to maintain”⁴ including WH&S obligations.

“Population management describes an active process of planning, ongoing daily evaluation and a response to changing conditions as an organisation cares for multiple animals.”⁵ Active management ensures housing limits and staff resources are never exceeded. Open-admissions shelters and council pounds who are obliged to accept stray, lost and unwanted cats from their local government area(s) require facilities, staff and other resources to meet the demands of the communities they serve. It is unacceptable practice to provide a shelter service for cats with routine placement into overcrowded, under-resourced facilities. Open-admission shelters require facilities, trained staff and resources that can adequately cater for peak periods (kitten season). It is far preferable for a percentage of enclosures to remain empty during quieter times of the year than to have inadequate enclosures. Staffing needs to be flexible so that it can be increased during peak times of the year.

Maximum housing capacity must be based on the number of animals who can be adequately housed within available primary enclosures⁶ and the available trained staff who can attend to the animals in a timely and satisfactory fashion. This is called ‘capacity for care’ and applies to catteries or multi-species shelters and pounds.

To calculate adequate staffing levels The National Animal Control Association and the Humane Society of the United States recommend a minimum of 15 minutes of care time per cat, per day for feeding and cleaning (9 minutes for cleaning, 6 minutes for feeding). Preferably these tasks should be completed within 3 hours⁷ as it is unacceptable for cats to be forced to wait all day to be fed and have their enclosure cleaned. Based on this equation for basic care there should be a minimum of 4 staff for every 50 cats. This excludes staff or volunteer hours needed for other essential tasks including grooming, environmental enrichment, laundry, stock maintenance and customer service.

Shelters must have policies and protocols to maintain adequate capacity for care and housing. Policies must provide a means of balancing admission with outcomes available⁸ (adoption, transfer to a rescue group or other animal welfare organisation, return to owner, euthanasia) or with changes to staffing levels or other necessary resources.

Intake data including the number and type of new admissions (stray, owner-surrendered) and outcomes (adoption, return to owner) must be recorded. Monitoring population statistics over time is a necessary component of a population management plan.⁹ Open-admission shelters can use this information to plan needs for future capacity.

Catteries, shelters/pounds also need to comply with all relevant Local, State/Territory and Commonwealth legislation, codes of practice and standards that govern their operations



Facility design and environment controls

Good cattery design and feline appropriate environmental conditions help to counteract the immunosuppressive nature of cattery living. Catteries that address these components of infection control create a platform on which other infection control measures can be built.

A cat's level of comfort with their environment is intrinsically linked to their physical health, emotional well-being and behaviour.¹⁰

Good cattery design provides for proper separation of cats by health status, age and temperament. Multiple smaller housing areas rather than fewer larger housing areas are ideal to allow for flexibility in segregating different groups with different needs¹¹ reducing the risk of disease spread.

At the very minimum all catteries must isolate sick cats from healthy cats to protect all cats as far as possible from disease, distress and adverse environmental conditions.

For adequate infection control, a cattery needs to establish the following designated cat areas. These should be separate, secure rooms/areas within a weather-proof secure building(s), away from excessive noise and pollution.

Intake – where all new arrivals are assessed, processed and held temporarily until health-checked by a veterinarian (in-house or off-site). For multi-species shelters and pounds separate intake areas are required for cats and dogs.

Cats and kittens presented to a cattery with signs of an infectious disease should not be admitted into the cattery, or should be admitted directly to the isolation area and health-checked by a veterinarian as soon as possible.

Quarantine – this is a designated area for healthy cats admitted to the cattery who have been vaccinated on admission. Healthy cats remain in quarantine until the vaccine has had time to become effective (usually a minimum of 7 days). This area may also be used for vaccinated cats who are temporarily unsuitable for re-homing due to temperament, for healthy cats who legally need to be held, and for cats recovering from non-infectious illness or surgery (eg desexing).

Nursery – for foster-age kittens or queens (mother cats) with kittens waiting for foster care or rescue group placement. Outside of kitten season this area can be utilised for special-needs cats or emergency boarding after thorough disinfection.

Isolation – for cats and kittens with an infectious disease. Ideally, there should be two or more isolation areas so cats with different diseases can be separated (ringworm, cat flu) or for different stages of an illness (active or recovered but still shedding).

It is critical to have off-site accommodation options available if the number of cats or kittens with infectious diseases exceeds housing limits in isolation areas (eg veterinary clinics or foster homes). It is unacceptable to overcrowd isolation areas or to house sick cats and kittens alongside healthy cats and kittens when isolation areas become full. It is recommended by shelter health professionals to have at least 10% of available housing dedicated for isolating sick cats.

“Overcrowding and the inability to physically isolate sick animals from healthy ones is a leading contributing cause of disease transmission.”¹²

Re-homing areas – ideally there are two separate re-homing areas; one for healthy kittens and juveniles available for adoption, and one for healthy adults available for adoption. Until kittens and juveniles complete their core vaccination schedule they remain susceptible to disease, hence the need for them to be housed separately from adult cats.

For enrichment, indoor-only or indoor/outdoor play areas should be incorporated into re-homing areas for out-of-cage time. This provides prospective adopters a chance to meet cats and kittens in a relaxed and natural setting and further enhances a cat’s level of comfort with their environment.

Other design features of importance:

The positioning of cat areas in relation to one another can impact disease spread. “Entrances, exits, hallways and [cat areas] should be arranged so cleaning and general movement through a [cattery] proceeds from areas housing the most susceptible to disease and/or healthiest [cats/kittens] to those who are most likely to be sources of contagious disease.”¹³

Quarantine and isolation areas should not be positioned near re-homing areas or main (public) thoroughfares. Furthermore, isolation areas should be physically separate and furthest away from all other areas.

The position of laundry rooms, food preparation areas, stock, administration, visitor areas (reception and adoption), bathrooms, staff rooms and retail space (if applicable) also need consideration so the overall layout supports disease prevention.

All cat areas need sinks or tubs so hand hygiene and cleaning tasks can be performed within each cat area. Staff must not go into other areas to perform these tasks. Even small details like the choice of taps for sinks can make a difference (eg taps turned on and off using an elbow instead of hands and swing doors instead of doors with handles).

Infection control professionals need to be involved in designing/planning new facilities or renovations to prioritise minimisation of disease transmission from the outset. When new catteries are built without considering or understanding disease transmission, keeping cats healthy will be difficult and costly.

A cattery designed with feline health and welfare at the core can be transformative, not only for the cats and kittens housed there but to the people who care for them and to the communities they serve.¹⁴

Unfortunately, not all existing catteries can make major changes to their existing layout. In these circumstances optimisation of other key components of infection control is essential to help reduce disease transmission (eg improve ventilation systems, sanitation practices and enrichment, increase use of PPE, minimise noise and address housing inadequacies etc.).

Disease spread can be reduced by establishing optimal traffic-flow patterns and imposing access restrictions for staff, volunteers, visitors, contractors and cats, by:

- Visitors directed to see kittens and juveniles available for adoption first followed by adults available for adoption. Visitors can transmit disease on their hands, clothes, shoes, therefore it is important the most susceptible to disease (kittens) are seen first
- Visitors always accompanied by staff or volunteers. For their own safety and from an infection control perspective visitors should not be allowed to wander around a cattery by themselves
- Contractors inducted before working on-site (induction to include infection control protocols)
- Restrict access for intake, quarantine, nursery and isolation areas
- Assigning staff to areas each day for feeding and cleaning and not switching staff between areas. This is particularly important for staff who attend to sick cats and kittens in isolation. These staff should not have contact with healthy cats on the same day
- Cats should not be allowed in administration and other non-cat areas or allowed to roam freely
- Transportation of cats in carry cages that are disinfected after each use (and not in the arms of staff when moving them between cat areas).

Housing – also known as the primary enclosure “impacts [cats] 24 hours a day and affects everything from stress levels and disease risk to food intake, sleep quality”¹⁵ and toileting habits.

“Poor cat housing is one of the greatest shortcomings observed in shelters and has a substantially negative impact on both health and well-being.”¹⁶

For good quality housing regardless of type (cage, condo or pen) several important aspects need considering:

- Function and expected length of stay
- Required sanitation regimen
- Construction materials and features
- Size of primary enclosure for single, pair, litter or group occupancy
- Interior features (perches, separate litter compartments, ventilation).

Housing needs to be approached from two perspectives – infection control and stress minimisation. While one choice of housing may be optimal from an infection control perspective, it may not be conducive to minimising stress. Stainless steel cage construction is superior for achieving sanitary conditions but unfortunately produces excessive noise. Loud noise is a primary stressor for cats and a trigger for disease. In an unpublished study examining sound levels in cat intake housing areas and upper respiratory infection (URI) rates in five Californian shelters, the lowest URI rates occurred in a shelter with the lowest noise levels (10-100 fold quieter than the other four shelters).¹⁷ Fortunately, there are stainless steel cages available on the market with sound dampening features (eg insulated walls and quieter latch mechanisms). Also, sound dampening pads are available to attach to existing stainless steel cages.

Conversely, cages and condos made predominantly from laminated particle board or MRB (moisture resistant board) produce minimal noise but are less able to withstand some disinfectants or repetitive sanitation practices. Material quality varies between products and subsequently affects their durability. However, condo enclosures made of hospital grade melamine and superheated glue to minimise moisture and bacteria are available. These types of materials are more aesthetically pleasing compared with steel cages. Studies have shown prospective adopters are more likely to visit a cattery or shelter/pound if they are not confronted with 'jail-like' industrial-looking cages. Fibreglass is another cage material available that is both quiet and resilient to disinfectants and repetitive cleaning. Other products include powder-coated steel and plastic.

Cage/condo or pen materials to avoid are those that produce excessive noise (non-insulated stainless steel), materials that rust (non-stainless steel metals), become pitted, non-water resistant, degrade quickly or are simply too difficult to clean properly. Cage/condo or pen design features should not have cracks, gaps or open seams where dirt, fur, litter or viruses and bacteria can get trapped. Streamlined, smooth and washable surfaces are ideal for cleaning and disinfection.

Cats love to get up high so vertical platforms/perches are an essential feature for minimising stress in primary enclosures. Multiple platforms and ramps are required in shared housing so all cats who share a pen have the opportunity to perch if they choose. Platforms/perches can be easily retrofitted into existing housing if current housing does not have this feature. Additionally, platforms increase available floor space.

Good ventilation within the primary enclosure is as important as the ventilation in the room/cat area. Enclosures with solid sides need ventilation holes/vents in the top, or back in addition to the cage door. This helps to keep enclosures adequately ventilated and free of pollutant gases. Additionally, there are condo enclosures available with integrated ventilation systems that claim to significantly reduce disease transmission rates.

Ultimately a balance must be struck that meets a cat's unique needs and minimises disease transmission. For proposed new facilities, housing needs priority from the beginning, for existing catteries every reasonable effort should address housing inadequacies. It is unacceptable to confine cats to small cages or wire mesh crates that restrict normal postures of any size cat for any length of time, nor is it acceptable to group (force) non-social cats together in pens.

All enclosures must be structurally sound and maintained in safe working condition to properly confine cats, prevent injury, keep other cats out and enable cats to remain dry and clean. There should be no sharp edges, gaps or other defects that could cause an injury or trap a limb or other body part. It is unacceptable to house cats in cages with wire mesh bottoms or slatted floors.¹⁸

It should be the aim of all catteries to provide 'enriched housing' suited to social and non-social cats and kittens otherwise they risk widespread disease transmission caused by a stressed cat population.

The rule of thumb for housing size is the longer the stay, the larger and more enriched the housing required. Shelter health professionals all agree "size does matter" when it comes to housing. One study found cats were less stressed when given 1.02 sqm floor space per cage per adult cat compared to only 0.65 sqm.¹⁹ Other research documented lower risk of upper respiratory tract infection in shelters that provided > 0.83 sqm cage floor space compared to shelters that provided < 0.74 sqm.²⁰ The position of litter trays, food/water bowls and bedding also play a role in stress minimisation. Cats do not like to eat/drink and sleep near their litter trays. Studies have shown food intake can be adversely affected when food bowls are near litter trays. It is recommended a space of at least 60cm separates eating/drinking, sleeping and toileting areas.

As a minimum standard an adult cat needs sufficient space to "turn freely, easily stand, sit, stretch, move their head without touching the top of the enclosure, lie in a comfortable position with limbs extended, move about and assume a comfortable posture for feeding, drinking, urinating and defecating."²¹ Cages should be of a sufficient size so food and water bowls do not become contaminated by dirty litter. When length of stay increases additional floor space is required.

A cat area's function is a good place to start when investigating housing options. Exposure to disease varies along with expected length of stay for each cat area. For example:

Intake – the health of new arrivals is unknown and visual health-checks cannot be relied upon because cats can be shedding viruses or bacteria without presenting symptoms. The expected length of stay for this area is short-term. New cats and kittens should only be held in this area until they are veterinary health-checked, vaccinated, flea and worm treated and microchipped. Veterinary advice should be sought as to whether adult cats are tested for FIV (feline immunodeficiency virus) and FeLV (feline leukaemia virus) on admission. Catteries need to formulate a plan as to how the healthcare of infected cats is managed in consultation with the shelter veterinarian. It is recommended all cats and kittens from 8-10 weeks of age (minimum 1kg in weight) are desexed before being housed in re-homing areas.

It is imperative that cat enclosures in the intake area are constructed of non-porous materials able to withstand rigorous daily cleaning and disinfection practices. This area has a constant flow of new cats and kittens therefore each cage needs thorough cleaning and disinfecting between occupants.

Stress caused by fear, anxiety and separation is unfortunately the norm for new arrivals so every reasonable effort should be made to minimise stress.

Cage features and room conditions for intake should include:

- Hiding boxes, partitions or cage covers that enable a cat to hide if they choose are extremely important. Having no ability to hide is a primary stressor for cats who are anxious and scared. Hiding boxes should not compromise floor space in a cage as this can do more harm than good. If floor space is an issue then cage covers should be used instead (towels are ideal or purpose-made cage curtains)
- Restrict access to staff or trained volunteers only
- Cage material proven to withstand repetitive cleaning and disinfecting (insulated stainless steel, fibreglass, plastic, powder-coated stainless steel)
- Good ventilation (within the primary enclosure and the room)
- Minimise noise from all sources
- Cages should not face each other within 1.5-2 metres (sneeze droplets can propel this far and spread cat flu viruses).

Ideally include:

- Cats should not be restricted to floor level cages, since these are more stressful compared to elevated cages.²²
- Cages with built-in perches/platforms – this increases available floor space and allows cats to display a natural behaviour (perch above floor level)
- Double-compartment housing – this type of housing minimises stress and allows for proper separation for toileting and sleeping/eating. Additionally, it allows staff to change litter trays, food/water bowls and spot-clean without disturbing the cat.

See ‘Sanitation’ section for more information on spot-cleaning.

Quarantine – Only cats who pass their initial veterinary health check and have been vaccinated, flea and worm treated should be held in quarantine. Since vaccinations take around 7 days to confer protection, and since it is impossible to know whether a new cat or kitten is incubating disease or whether the stress of entering a cattery environment will trigger disease, sanitation practices need to be thorough.

The minimum recommendation for this area is either double-compartment housing (preferred) or increased cage floor space to allow for a hiding box and adequate separation of eating/drinking, sleeping and toileting areas. Double-compartment housing has the added benefit of minimising disease transmission opportunities when staff carry out feeding and sanitation duties. It allows staff to spot clean without disturbing the cat and safely attend to cats who may be behaviourally unpredictable or aggressive.

Quarantine should have the same room conditions, cage positions, cage features and construction materials as intake.

Nursery – ideally a cattery has a separate area for foster age kittens or queens with kittens who are waiting on foster care or rescue group placement. The expected length of stay should be as short-term as possible (< 1 week). The sooner this group of cats are relocated to an approved foster home the better. Young kittens have immature immune systems making them very susceptible to infection. While they are ‘temporarily’ protected against many diseases by antibodies received through their mother’s milk, unfortunately many young kittens who end up in catteries have been separated from their mother and may not have received these protective antibodies.

The ideal housing for this area is a combination of larger housing units for queens with kittens and units suitable for small and large litters of kittens. Queens need to lie out fully stretched so they can feed comfortably. Housing for kittens should be of sufficient size to prevent food and bedding becoming contaminated with dirty litter.

Due to the constant flow of new kittens during kitten season cage materials need to withstand repetitive sanitation practices.

It is a mistake to think kittens are less likely to be impacted by cage position, cage size/features and room conditions in the same way as adult cats. In fact, they are as sensitive to their environment as adult cats, therefore the same conditions outlined for intake and quarantine apply to the nursery area.

Isolation – ideally a cattery has two isolation areas; one to treat cats with ringworm and one to treat cat-flu and other infectious diseases. Isolation requires rigorous sanitation practices due to increased disease loads, therefore cage materials need to withstand repetitive use of disinfectants and/or steam-cleaning in between occupants. Length of stay may be up to 4 weeks or longer depending on type of disease, medication course length and recovery time. Enriched housing in this area greatly benefits cats leading to quicker recovery times.

Double-compartment housing is required for this area to enable staff to carry out cleaning and feeding that is low stress for cats, reduces opportunities for disease spread via fomites and provides cats with housing suited to their expected length of stay. The same room conditions as intake, quarantine and nursery apply.

Re-homing – this area showcases healthy cats and kittens available for adoption. Housing needs to be visually appealing to prospective adopters, enriched for cats and totally washable.

Many of the latest condo and pen-style housing products available are made from materials that are visually appealing (melamine, MRB or laminate) but do not withstand rigorous cleaning and disinfection. These products will not have the same durability as stainless steel, but you should research their capacity to withstand repeated cleaning and disinfection.

Condo style double-compartment housing with vertical space options (perches/platforms) is ideal for this area and to further enhance hygienic conditions there are condo products available with built-in ventilation systems. This type of housing affords optimum comfort, minimal stress and subsequently, healthier adoptable felines.

An alternative to buying new double-compartment housing is to retrofit existing single cage housing by installing portals between two cages.

Group housing in pens is another option for healthy compatible cats in re-homing areas as it provides for behavioural choices (jumping, climbing) but the downside is controlling disease within the group. It is more difficult to monitor food intake and toileting habits of individual cats in this arrangement and causes unrelieved stress in some cats. If performed, only cats from the same litter should be housed together.

Group housing should be used with care and not be the only housing available for cats who enter shelters/pounds or catteries. If group housing is the only housing available then stress and disease spread is inevitable.

The size of a pen for group/shared housing depends on how many cats are housed together. Shelter health professionals recommend “at least 1.8 sqm floor space per cat”²³ and no more than three to four cats per pen (*NSW Code of Practice No.5 section 3.3.3 states no more than 3 cats per pen*). “Cats also need the opportunity to maintain a distance of 1-3 metres between themselves and other cats”²⁴ if they choose. Hiding boxes should be provided so that cats can seek privacy.

Undesexed cats, and kittens aged 4 months or older must never be housed in shared pens. Kittens can reach sexual maturity as early as 4 months of age. Kittens can have kittens!

An alternative to group housing is dedicated play areas where cats and kittens have out-of-cage time individually or with compatible social cats. Depending on an organisation’s facility design this can be a secure indoor play space or indoor/outdoor space where cats/kittens receive the benefits of fresh air and sunshine. All objects, features and surfaces in pens or play areas need to be made of impervious materials that are easily cleaned and disinfected. Kittens should have separate play spaces from adult cats to reduce risks of infection.

Environmental controls – ventilation, temperature, lighting, noise, surfaces and drainage, waste and pest management all play an important role in maintaining a healthy and hygienic cattery.

The air quality in catteries is very important to maintain good health and hygiene. Fresh air does limit the spread of infectious diseases and cats in particular are very susceptible to airborne infections and require fresh air. Proper ventilation removes heat, dampness, odour, airborne microbes, pollutant gases such as ammonia and carbon monoxide, while allowing for the introduction of fresh air.

To accurately measure the air quality in a cattery, enlist a company that does indoor air quality testing (qualified air conditioning technicians). “Air exchanges of 10-12 per hour are recommended for [enclosed feline] housing areas but necessary air exchanges greatly depend on [feline] density.”²⁵ More exchanges may be required when a cattery is operating at maximum capacity. “It is normal for [catteries] to smell like [cats] but any persistent, noticeable odour of waste or cleaning chemicals can be a sign of inadequate air exchange, as can be respiratory irritation for staff during cleaning or frequent respiratory disease requiring treatment of [cats].”²⁶

Separate ventilation systems are required for healthy cat areas and sick cat areas. They should not share one system. This also applies to multi-species shelters. Dogs and cats should have separate systems.

The recommended temperature for cats is between 15.5 and 26.6 degrees Celsius and the relative humidity should range from 30-70%. All feline housing areas should be maintained at a constant temperature suited for the season and not fluctuate throughout the day. Cats whose body temperature needs to be individually monitored are kittens under 7 weeks of age, elderly cats (15 years old +) and cats who are in poor condition or sick. "To ensure [cat's] comfort and safety necessary measures must be taken if they appear too hot or too cold."²⁷

It is not acceptable to house cats in non-insulated buildings that become excessively cold in winter or excessively hot in summer.

Air-conditioning units in catteries need their filters regularly cleaned as these can be a source of disease. Air-conditioning professionals can advise on recommended times this needs to be done – possibly weekly or fortnightly for units that run continuously and monthly or bi-monthly for those that run periodically.

Artificial lighting should mimic the circadian rhythm of natural light cycles to support wakefulness and sleep. Ideally, catteries should be designed to offer as much natural light as possible taking care not to expose individual cages or pens to excessive sunlight, particularly during warmer months. Additionally, direct sunlight helps to kill some feline diseases like herpesvirus and ringworm. Also, there should be sufficient artificial light provided in areas that do not receive natural light as it is unacceptable to house cats in dark or low-lit conditions.

Noise needs to be kept at a minimum in catteries because it is a primary stressor for cats. One of the worst noises for cats is the sound of barking dogs. If catteries are part of a shelter/pound facility that houses dogs, there needs to be adequate separation and noise barriers to substantially reduce the sound of barking and minimise stress.

Ideally, all sources of noise should be kept to a minimum. This includes cleaning tasks, cleaning equipment, human voices, closing cage doors, music.

Some feline infectious agents can live in the environment for a long time (eg ringworm, feline panleukopaemia virus, feline calicivirus) so it is important that surfaces in catteries are made of non-porous durable material to enable proper disinfection and repeated cleaning. Carpet is not suitable in any cattery environment, including administration and other non-cat areas. Seams between floors and walls should be properly sealed and damage to flooring or walls (peeling paint) should be repaired. All concrete surfaces need to be smooth and sealed properly and drains in cat areas need cleaning and disinfecting regularly.

Waste and pest management are important components in maintaining a hygienic environment in and around a cattery. Waste services should be scheduled to remove waste regularly and waste should not be allowed to accumulate on-site, nor should waste be incinerated on-site. All garbage needs to be sealed properly in strong plastic bags (unsealed garbage or bags that split/break encourages pests).

Waste bins should be located in each cat area and only the bag is taken out to the main collection bin (skip).

Pests, including ticks, mosquitoes, flies, lice, fleas and rodents need to be controlled as these can transmit disease to cats. Because cats and humans may be adversely affected by pest control agents, expert advice should be sought to ensure cats and staff are not exposed when pest operations are carried out.

Warning: Permethrin is a chemical widely used as an insecticide and pesticide but is highly toxic to cats. This chemical should never be used in pest control operations around a cattery.

Dry cat food and wet food sachets need to be sealed in containers that are pest proof. All cat food needs to be stored in a cool, dry place.



Medical and healthcare program

Proper medical management and healthcare for shelter cats is an absolute necessity and includes attention to the overall well-being of all cats.²⁸ It should begin at intake and continue throughout length of stay. Without proper medical care cats can suffer and die unnecessarily.²⁹

Catteries that don't have a resident veterinarian need to establish a formal relationship with a veterinarian off-site, preferably one who has experience in shelter medicine and can help develop a medical and healthcare program that includes:

- Initial and routine health-checks
- Disease prevention and treatment protocols
- Desexing program
- Monitoring and record keeping protocols
- Nutrition – diet protocols.

Importantly, a veterinarian needs to be available to conduct health-checks and to treat and hospitalise sick or injured cats. It is unacceptable practice for any cattery to fail to organise treatment for sick or injured cats in a timely fashion. Cats should never be left to languish in pain, ill health or distress. Furthermore, medications and treatments must only be administered under the advice or in accordance with written protocols provided by a veterinarian and all drugs must be dispensed in accordance with Commonwealth and State regulations.³⁰

Healthcare should start with an initial health-check by trained staff as soon as possible after admission.³¹ This examination should include a check for identification (microchip/tattoo) and any sign of physical illness or injury. Cats should be specifically checked for gastrointestinal, respiratory or dermatological problems as these are commonly contagious and should be diagnosed and treated immediately.³² Any cat who presents with an infectious disease or serious injury must be veterinary health-checked as soon as possible and hospitalised or placed into an isolation area depending on the advice by the shelter's veterinarian.

Additionally, other important things should be accomplished during an initial health-check – assessing temperament, age, weight, checking desexing status and starting healthcare and identification records.

Initial health-checks by staff are a useful screening tool but do not replace the need for all cats to receive a veterinary health-check within a couple of days after admission.

Follow-up veterinary health-checks are required for cats who present with any signs of illness, pain, discomfort or behavioural changes during their stay. Behavioural changes should never be overlooked or treated as a behavioural problem only.

Many behavioural problems or changes can be the result of an underlying health issue. It is necessary, as the first step, to veterinary health-check a cat to identify any physical health issues before further exploring possible causes for changes in behaviour.

Cats are exceptionally good at hiding illness and pain, therefore all staff need to be well-trained to recognise the signs and symptoms of pain and disease so that cats can receive prompt veterinary treatment for their illness. Additionally, six monthly veterinary health-checks are recommended as a routine preventive measure for all shelter cats to maintain good health while waiting for their new home.

During the intake phase all unvaccinated cats or cats of unknown vaccination status should be vaccinated, microchipped (if not already) and treated for external and internal parasites. Ownership issues should not prevent any cat from being flea treated or dewormed as these are important preventative healthcare measures designed to protect individual cats and the overall feline population from disease.

The shelter's veterinarian should be consulted to determine the most appropriate protocol for vaccinations. Where a shelter veterinarian is not available on-site, dedicated shelter staff should be trained by the shelter veterinarian in vaccine administration. Some vaccinations can only be administered by veterinarians, and it is important to check that if non-veterinarians are administering vaccines, they are fully compliant with the veterinary regulations in their state.

It is unacceptable for a shelter to house cats and not practice vaccination on intake or delay vaccination until cats are adopted or assessed as suitable for re-homing. Catteries that do not vaccinate using vaccines effective against feline upper respiratory viruses and feline panleukopaemia virus (FPV) immediately on entry, or that do not vaccinate all cats are at great risk of widespread infectious disease outbreaks due to FPV or respiratory viruses that can cause mass fatalities.

The cost of vaccinations should be factored in as an essential cost of managing a feline shelter. Compared to costs associated with managing widespread illness across an entire shelter population, vaccination is significantly less expensive.

Responsible shelter healthcare ensures all unvaccinated cats or cats of unknown vaccine status are vaccinated at intake with core vaccines.

Vaccines are classified as core, non-core or not recommended. According to the Australian Veterinary Association and the World Small Animal Veterinary Association core vaccinations should be administered to all animals to protect them against severe, life-threatening diseases that have a global distribution.³³

For cats this means administration of the F3 (FVRCP) vaccination, which provides protection against the following diseases:

Feline Panleukopaenia – is a highly contagious disease of cats caused by feline parvovirus (FPV). Cats with this infection develop severe enteritis leading to vomiting and diarrhoea, dehydration and death. The virus is shed in faeces for weeks and remains infectious in the environment for up to a year. Unvaccinated cats of all ages are susceptible to infection, and disease in kittens is usually fatal. Feline Panleukopaenia is a vaccine-preventable disease.³⁴

Feline Herpesvirus – causes upper respiratory tract infection and severe eye infections. Signs of infection include fever, loss of appetite, sneezing, nasal discharge, conjunctivitis and ulceration of the eye (called corneal ulcer), resulting in pain, blinking the eye closed and in severe cases, loss of vision. Disease is most severe in kittens under six months of age. In shelter environments an outbreak of infection can be associated with mortality rates as high as 20-30%. Vaccination can be life-saving and significantly decreases the severity of clinical signs.

Feline Calicivirus – causes upper respiratory tract infection. Signs include fever, loss of appetite, sneezing, nasal discharge, conjunctivitis and drooling from ulcers in the mouth, limping (from joint infection), and occasionally ulcers of the nose or skin. Feline calicivirus can also mutate to cause a disease known as virulent systemic disease which is highly contagious and has a high fatality rate, due to the virus replicating in multiple organs in the body. Like feline herpesvirus, disease caused by feline calicivirus is most severe in kittens, and can be fatal in shelter outbreaks. Vaccination does not prevent infection with the virus, but significantly decreases the severity of clinical signs, and can be life-saving.

There may be other diseases the shelter veterinarian recommends vaccinating against or screening for depending on their prevalence within a geographical area.

Parasite control – is another important preventative healthcare measure that should commence at intake and regularly throughout a cat's length of stay. Many cats entering shelters are infected with internal and external parasites. Though not always clinically apparent, parasites can be easily transmitted, cause significant disease and suffering (in some cases, even death), persist in the environment and pose a risk to public health.³⁵ The benefits of parasite prevention treatments significantly outweigh the cost and risks associated with not administering parasite control. Shelters have a responsibility to reduce risk of parasite transmission to humans and animals.³⁶

There are many flea and worm products on the market, including dual action products that treat both fleas and worms, and products only suitable for adult cats. The shelter's veterinarian can provide advice to help choose the most appropriate products and to develop protocols to ensure parasite prevention is applied routinely and safely throughout a cat's length of stay.

Grooming – dirty, ungroomed or matted coats are uncomfortable, predispose cats to skin disease and in extreme cases can lead to severe suffering. Appropriate grooming and/or bathing is an essential component of cat health and should never be considered cosmetic or optional.³⁷

Desexing – should be viewed as part of the healthcare program. All adoptable cats and kittens (minimum 1kg in weight) should be desexed. More information and a video on the benefits of early-age desexing can be found on our desexing page: <http://catcare.org.au/cat-early-age-desexing/>

Desexing prior to adoption reduces the risk of owners not following up on having their new cat desexed, or delaying the procedure until it is too late and the cat is pregnant. Many owners do not realise their kitten can have kittens. Desexing vouchers issued to adopters have proven to have poor compliance rates.

Female cats can become pregnant as early as 4 months of age and can produce their first litter by the time they are 6 months of age. Desexing cats, both male and female, at an early age (known as early-age desexing or EAD) before they are sexually mature ensures they do not produce unplanned/unwanted litters that end up abandoned or in shelters where many are euthanased.

Early-age desexing is the model of desexing that addresses a very serious welfare problem – feline overpopulation. Catteries, shelters/pounds that embrace this desexing model recognise the ethical and economic benefits of being part of the solution.

Re-homing cats who are already desexed sends an important message to the community. It underscores the importance of desexing, improves the reputation of the organisation and reflects best-practice animal welfare.

Monitoring and record-keeping – is essential to ensure cats are kept in good health. Important details about their health and behaviour should be recorded on a daily basis and any health issues should be addressed in a timely fashion.

Every cat should be checked at least once (preferably twice) daily, and more frequently for kittens to ensure they are eating, toileting and behaving normally and do not show signs of illness or pain. Each cat needs a daily health chart or health record so that important functions and observations can be documented. Undocumented cursory visual inspections are unacceptable.

Daily health charts should clearly identify the cat by microchip number and/or intake number, sex, colour, breed, age and name. Daily health charts should record the following:

- Food intake, water intake, urination, defecation, signs of illness, pain and behaviour/temperament.

There are many conditions that may indicate disease, pain and/or stress, and if overlooked can be life threatening. Daily health charts/records can help ensure oversights and delay in treatments don't occur.

Notes on behaviour and temperament are necessary and as important as other functions. This information is useful for:

- Re-homing purposes (successful adoptions are those that place cats into homes with owners who best match their physical, behavioural and temperament needs)
- Choosing an appropriate enrichment strategy to help minimise stress, frustration, depression or boredom
- Staff, volunteer and visitor safety
- Identifying underlying health issues (eg inappropriate toileting could be a symptom of a urinary tract infection).

It is very important to document this information so every cat has the opportunity to receive individualised care and attention based on their physical, mental and behavioural needs.

Staff need to be well-trained to identify pain and signs of disease. As previously mentioned, cats are very good at hiding illness and pain, and in many cases it is only when they become very sick their illness becomes obvious. Because of this, staff need to identify subtle changes, know what's normal and what's not, document their observations and raise concerns promptly with the shelter's veterinarian or their supervisor/manager. They should also recognise conditions that require emergency care and be aware of emergency care protocols.

Along with documenting daily functions and observations, vaccination, parasite control and medical treatments need documenting too. Knowing when and what treatments have been applied is important for knowing when follow-up treatments are due (eg 2nd vaccination, monthly flea treatment) or details about prescribed medical treatments.

Cage signs are good tools to use to alert staff, volunteers or visitors of important information about cats (eg infectious, special diet, unpredictable, aggressive, needs regular brushing, nil by mouth).

Nutrition – fresh clean water and good quality food is important to maintain (or regain) optimal health and well-being. A nutritious diet supports the immune system and helps to prevent illnesses associated with malnourishment. Many cats who enter shelters are often in poor health therefore a nutritious diet is an important part of their healthcare program.

Feeding guidelines:

- Water should be fresh and replenished whenever it has become contaminated or consumed
- Expiry dates on food packets/tins/sachets should be regularly checked. Expired food should be thrown out
- Contaminated food (food that has been left open and not sealed or stored properly) should be thrown out
- Food should be stored in a cool, dry place/fridge as appropriate
- Avoid feeding fresh meat (fresh meat if not handled properly or left uneaten can become contaminated with bacteria)
- Food should be nutritionally complete and balanced (always check the label)
- Poor quality food should be avoided
- Avoid sudden changes in diet – this can cause inappetence, gastrointestinal upset or stress
- Uneaten food should not be left in a cage or given to another cat
- Cats and kittens who share a cage, condo or pen should be monitored while eating. Cats who guard food bowls or steal food from other cats' bowls should be housed separately or separated during feeding times
- Kittens up to 1 year old should be fed food specifically for kittens
- Young kittens should not be fed cold wet food straight from the fridge
- Food amounts should be followed as per guidelines on food packets/tins
- Juveniles and adult cats should be fed twice daily
- Kittens under 10 weeks old and nursing queens have special needs regarding their diet and how often they should be fed. Ideally kittens under 10 weeks old and nursing queens are fostered so their special needs (including dietary requirements) can be fully met and they are not exposed to risks of infectious disease in the cattery.

Veterinary input should be sought when developing a feeding protocol for a population of cats, or when treating starved cats or individuals with unique nutritional and health needs.³⁸

Sanitation

Sanitation plays an integral role in supporting a hygienic cattery environment. It is achieved through a systematic approach to cleaning and disinfection of all items and surfaces exposed to dirt and disease (including cleaning equipment). It is not possible to achieve sanitation by using disinfectant without cleaning first, because disinfectants are inactivated (neutralised) by the presence of organic matter such as urine, faeces and litter. Disinfection and cleaning are two separate tasks that work together.

Cleaning is the first step and involves the manual removal of dirt and organic debris (including litter, leftover food, faeces, urine, vomit, dirt or fur) from all surfaces, in addition to washing with hot water and detergent. Cleaning does not kill pathogens (viruses and bacteria), but mechanically removes them and reduces their load in the environment.³⁹ Disinfecting is the second step and kills pathogens still remaining after cleaning. Since disinfectants are neutralised in the presence of organic matter, cleaning is fundamental as the first step.

Sanitation duties need to be approached systematically and given priority with regards to allocating resources. It is unacceptable for there not to be adequate staff time, cleaning equipment or cleaning products to carry out sanitation duties. Cats should spend the majority of their time in sanitary conditions.⁴⁰

Separate cleaning supplies and equipment (buckets, mops, paper towel, brooms) should be designated for each cat area and kept stored in the designated area. This also applies to waste bins and dirty laundry baskets. If these items are moved from one area to another, disease spread is inevitable.

Sanitation is performed after feeding duties and ideally there should be sufficient staff to assign feeding and sanitation duties in each cat area. If that is not possible, healthy kittens and juveniles should be attended to first, followed by healthy adult cats, then sick cats and kittens (isolation). Staff who attend to sick cats and kittens should preferably have no contact with healthy cats on the same day.

An evaluation and inventory of items that need cleaning and disinfecting in the cattery should be made including cattery floors/benches, cleaning equipment and inside any vehicle used to transport cats. From there a sanitising protocol can be created for each item or group of items, including the most appropriate detergent, degreaser (if needed) and disinfectant to use and how often or when the item needs cleaning.

Soaps and detergents are cleaning agents which work by suspending dirt and grease and breaking up organic matter. Degreasers are strong cleaners formulated for removal of tough oils and greasy build-up.⁴¹ Products that claim to have both cleansing and disinfectant properties are very unlikely to achieve effective sanitation.

The choice of shelter disinfectant, how it is diluted, applied (including contact time) and stored is important, and should be decided considering advice from your shelter veterinarian.

Commonly used effective disinfectants include quaternary ammonium compounds/biguanide combinations (F10, Trigene II) and 5.25% household bleach (sodium hypochlorite, eg White King). A 1:30 dilution of 5.25% household bleach is effective against dermatophytes (ringworm), parvoviruses and calicivirus, but a contact time of at least 10 minutes is required and bleach is corrosive to metals.

Rinsing is important after application of caustic substances such as F10 disinfectant, and dilutions used vary for different pathogens. Always check the manufacturer's recommendations.

Many disinfectants are highly toxic or hazardous to cats and humans and must be used according to manufacturer's guidelines. Staff and volunteers need to be trained to use disinfectants properly. Improper use of a disinfectant can be fatal or cause serious harm to both cats and people.

The following is an 'example only' of items that need cleaning or laundering in a cattery and how often they should be cleaned. This list is not exhaustive.

Cattery item	Minimum cleaning schedule
Food bowls and utensils	Daily (see Note 1)
Water bowls	Twice weekly or whenever they are dirty or used for a new cat
Plastic cat toys	Whenever they are dirty or used for a new cat
Food preparation benches/trolleys	After use
Examination tables	After single use
Litter trays	Whenever soiled (see Note 2)
Scratching posts in healthy cat areas	Spray each evening
Scratching mats in isolation cages	Thrown out after cat has moved out of isolation
Disinfectant mats	Multiple times per day in high traffic areas
Brushes	After single use
Nail clippers	After single use
Dry food containers	Weekly
Water jugs	Twice weekly
Sinks and tubs	After use
Phones, radios, electronic devices (tablets) used inside cat areas	Wiped daily with disinfectant wipes
Waste bins	Weekly (always use bin liners)
Clean laundry baskets	After each use spray/wipe
Dirty laundry baskets	Weekly (always use bin liners)
Buckets and brooms	Daily. Always empty and dry buckets after use: do not continue using throughout the day or leave filled
Feline handling equipment	After single use

Note 1: Ideally a dishwasher with a hot water temperature of 60 degrees Celsius or greater is used to clean food, water bowls and utensils. This is the minimum temperature needed to kill many viruses and bacteria.

Note 2: Litter trays should not be cleaned in the same sink/tub as food/water bowls, food utensils/containers or cat toys. Litter trays and waste bins should be cleaned and disinfected separately from all other items.

The cleaning schedule for litter trays depends on a few factors: litter product; cats with diarrhoea; kittens or adults. It's not acceptable to re-fill dirty trays with clean litter or allow litter to become saturated with urine and faeces. Faeces should be removed immediately no matter what type of litter is used.

Laundry item	Minimum cleaning schedule
Cat bedding	At least weekly and whenever it is dirty or used for a new cat
Staff and volunteer scrub wear (non-disposable)	After dirty tasks – see PPE section for more information
Fabric cat toys	Whenever they are dirty or used for a new cat
Carry cage covers	After single use
Cage covers	After single use

Note: To effectively sanitise laundry items a minimum hot water temperature of 60 degrees Celsius is required. Water temperature is more important than choice of detergent. Soiled linen should be disposed of. Clean damp laundry should be dried immediately in a dryer or hung out to dry in the sun and not left damp in the machine or basket (damp conditions favour disease). The use of dryers is preferred as the heat provides for extra desiccation (extra dry). Machines for washing and drying should never be overloaded, ¾ full should be the maximum load.

Cat enclosures	Minimum cleaning schedule
Cages/condos	Daily and in-between occupants
Shared pens	Daily and in-between groups
Play areas	Daily
Carry cages	After single use
Collapsible cages (canvas or metal)	After single use
Traps/crush cages	After single use

Note: Cleaning a cat's primary enclosure is a stressful experience for cats. To help minimise stress, spot-cleaning with minimal disturbance (replace/change food bowl, litter tray, refill water) can be performed for healthy cats. Cats should be placed in a clean carry cage if their primary enclosure requires thorough cleaning. It is not acceptable to spray disinfectant in a cage and/or hose out a pen when it is occupied. A thorough clean and disinfection must be performed when cats have been rehomed and before the enclosure is used for another cat.

Steam-cleaning is highly recommended as an alternative to chemical cleaning primary enclosures in-between occupants. It is very effective against many feline diseases, including ringworm and calicivirus and doesn't involve the use of chemical disinfectants. Steam cleaning is also recommended to clean floors and other cattery items (scratching posts) on a regular or periodic basis. However, they can produce excessive noise which is not ideal for using in an area where cats are close by.

Other	Minimum cleaning schedule
Inside cat transport vehicle	Weekly or after single use if transporting sick cats
Floors	Daily
Drain covers/baskets	Daily

Note: Cage covers should be used whenever cats are transported. This helps to keep the cat calm during transport and reduces disease transmission.

Any item that is chipped, cracked, broken, rusted or has become porous (degraded) should be discarded – dirt, viruses and bacteria can become trapped in degraded and broken materials. Additionally, bedding or fabric items that are soiled by faeces, vomit, blood, ringworm spores or other durable pathogens should be bagged and discarded.

Footbaths and footmats are often used to reduce microbial content on footwear. Footbaths are shallow containers containing a disinfectant solution, while footmats are covered sponges saturated with disinfectant solution. Footbaths can create a slippery surface from spillages while footmats are prone to drying out. Neither is effective if shoe soles are dirty and coated by organic matter.

For effective use, footbath solutions must be changed daily to remove accumulated organic matter and some disinfectants require to be freshly diluted to remain active.

An alternative to the use of footbaths/footmats is the use of shoe/boot covers. However, these are designed for single use and must be changed every time a “dirty” room, such as isolation is entered, and removed at the doorway on leaving.

Mop heads, cleaning brushes, washing-up gloves, sponges/wipes etc. should be replaced on a regular basis (fortnightly or monthly) or at any time there is a disease outbreak across cat areas.

For items that need cleaning or replacing periodically (weekly, fortnightly or monthly) a calendar is a good tool to use for this purpose. Each cat area should have its own calendar to reflect what and when items need periodic cleaning or replacing.

Example of calendar:

Mon 8/4	Tue 9/4	Wed 10/4	Thu 11/4	Fri 12/4	Sat 13/4	Sun 14/4
Replace mop heads	Sanitise waste bin	Steam clean floors	Clean cupboards & shelves	Steam clean scratching posts	Re-stock PPE	Sanitise buckets and brooms
Initial:	Initial:	Initial:	Initial:	Initial:	Initial:	Initial:

All areas and items in a cattery should never be left wet or damp because many infectious viruses, bacteria and fungi thrive in these conditions. If hosing is used to clean shared pens or play areas, surfaces must be dried thoroughly afterwards.

Additionally, a sanitation plan is required for non-cat areas of a cattery (offices, visitor areas, staff rooms and frequently handled items such as door knobs, phones and keyboards).



Understanding disease transmission

Transmission of infection requires three elements: a source of pathogens, a susceptible host, and a means of transmission for the microorganism.⁴²

Sources of disease in animal shelters can be from animals, a contaminated environment, staff, volunteers or visitors.

Host susceptibility varies greatly depending how healthy the host is initially. Host factors such as age (very young or old), underlying health issues, stressful environments/situations (catteries) and vaccination status affect the body's ability to resist infection.

Transmission occurs through three main mechanisms: direct or indirect contact, aerosol and vector-borne. The same agent (pathogen) may be transmitted through more than one route.⁴³

Direct contact transmission is cat-to-cat contact with bodily fluids (faeces, urine, saliva, nasal or ocular discharge or blood). This may occur when cats bite each other, groom each other or rub up against each other.

Indirect contact transmission occurs when cats become infected via objects or materials that have been contaminated with infectious particles. These contaminated objects are known as fomites and include for example, clothes, utensils, human hands, footwear, food bowls, litter trays, cages, phones, door handles, cat bedding, benches and floors.

“Aerosol transmission occurs when pathogens from [cats] or their environments travel by air and enter the [cat] through inhalation and/or mucous membranes.”⁴⁴ Cat sneeze droplets can travel up to 1.5-2 metres.

Vector-borne transmission occurs when vectors such as mosquitoes, fleas and ticks transmit disease through biting their host.

The presence of disease does not always appear in the form of symptoms that are observable. Some viruses, feline herpesvirus, feline calicivirus and feline panleukopaemia virus can be actively shed by a cat and infect their environment or another cat while the shedding cat shows no symptoms of disease. This is known as being asymptomatic.

Zoonoses

Zoonoses are diseases of animal origin that can cause infection and disease in people. The diseases may be caused by bacteria, parasites, protozoa, fungi and viruses.

Zoonotic disease can spread to humans by:

- Close contact with infected animals
- Contact with the saliva, blood, urine or faeces of an infected animal
- Water or soil that has been contaminated by infected animals
- Being bitten by an infected tick, flea or mosquito
- Eating or drinking unpasteurised dairy products, undercooked meat or unwashed fruit and vegetables that are contaminated with faeces from an infected animal.

People most at risk of being affected by a zoonotic disease are those in close contact with animals or animal products. This includes animal shelter workers. Also at higher risk are children, elderly people, pregnant women and people with impaired immunity.⁴⁵

Common zoonotic diseases include ringworm, intestinal worms and gastrointestinal diseases. For more information see “Zoonotic diseases: what can we catch from cats?”



Environmental enrichment

Stress, depression and boredom are unfortunately almost inevitable in cattery environments and can contribute to an immunocompromised state. Thus every effort should be made to minimise physical, emotional and environmental stressors.⁴⁶ Many feline diseases are exacerbated or induced by stress.⁴⁷

Cats often do not express overt signs of stress and anxiety. Studies have suggested that even stoic cats can have elevated levels of catecholamines and other stress hormones.⁴⁸

Enrichment offers the opportunity for cats to display natural behaviours thereby helping to reduce stress levels, alleviate depression and boredom, and to promote wellbeing.

There are two categories of enrichment:

Animate enrichment – includes interaction with humans (playing, talking, patting, being held/nursed or groomed) and for social felines, other feline friends to play with.

Inanimate enrichment – includes toys, scratching posts/mats, perches, hiding boxes, play tunnels, catnip, cat grass, increased floor space of primary enclosure, windows with a view to look out from, food treat balls, soft bedding, soft toys, water fountains (this list is not exhaustive).

Note: toys with string attachments or small parts that could break off should never be left with cats or kittens unsupervised because they are a choking hazard or can be ingested and cause bowel obstruction.

While both types of enrichment are important for shelter cats, inanimate enrichment (toys) should not replace feline and/or human interaction. Studies have shown cats who are confined (shelter cats) prefer animate enrichment over inanimate enrichment. Each cat should be treated on an individual basis with environmental enrichment strategies tailored to their particular behavioural, emotional and physical needs. Volunteers trained in safe feline handling can make a significant contribution to enhance a cat's well-being by applying or using enrichment strategies that best match a cat's needs.

For poorly socialised cats or cats who are scared or anxious, patting and grooming may cause further stress and anxiety; in these instances, talking softly or reading to them can have a soothing and beneficial effect without physical contact. They would also benefit from a box or cat igloo to hide in.

For cats who might enjoy being groomed, a box of clean cat brushes with soft and hard bristles should be available for staff or volunteers to use. Begin brushing cats gently along their cheeks, under chin or top of head to evaluate whether they enjoy being brushed; this applies to patting as well (not many cats like being brushed or patted on their abdomen or legs). These facial regions are used in both scent and tactile affiliative communication between cats and have been shown to be areas that produce the most positive responses to human contact.⁴⁹

Some cats only liked to be brushed for a minute or two, others longer. Always be guided by the cat's behaviour when grooming and patting. Any signs of agitation (tail flicking, growling or biting/attacking the brush/hands) means the grooming or patting session is over!

Signs of relaxation and willingness of the cat to interact with people:

Slow blinking, purring/chirruping, facial rubbing, head bunting on the hand or other parts of the human body, attempts to climb into a person's lap, staying in close proximity with the person, pushing the body into the hand of someone who is not interacting with the cat or a relaxed roll onto the side to expose the belly.⁵⁰

Cats behaviourally express their negative emotional states (whether frustration, anxiety or fear) in one of two ways: actively or passively, depending on the cat's temperament.

It's vitally important to be able to recognise both types of cat and not to presume passive cats are coping, due to their lack of activity.

Active responder – often at front of cage, rears on hind legs, attempts to climb cage, attempts to escape by pawing at exit point to cage/enclosure, paws anyone passing cage/enclosure, paces at front of cage, attention seeking vocalisations (yowling/constant meowing), displays aggressive behaviour or may be destructive.

Passive (inactive) responder – behavioural depression (including inhibition of maintenance behaviours such as feeding, drinking, grooming, elimination), immobility, often attempting to hide, no vocalisations (although may exhibit defensive vocalisations, such as hissing/growling if approached), lack of interest in the environment (both social and physical).⁵¹

Food treat balls/puzzles – (homemade or commercial) are an excellent enrichment tool for cats who display frustration (pacing, butting head against cage, trashing their cage) or other problem behaviours (excessive meowing, over-grooming). These cats may also benefit from out-of-cage playtime by themselves with humans or possibly with other compatible cats. Food treat balls do not replace the need for cats to be fed as normal but a portion of their daily dry food can be placed in the puzzle.

Music – at low volume (easy listening or classical) may soothe some stressed cats. If music is used, radios or other music devices should not sit/rest on cages or be adjusted by staff for personal preferences (volume and style of music). If music is used inappropriately, it could do more harm than good.

Feliway – is a synthetic pheromone product that can help anxious and fearful cats be more relaxed. It is available as a spray or plug-in diffuser and can be helpful for reducing stress. The spray can be used directly on bedding, in a hiding box or carry cage when the cat is being transported or moved from one area of a cattery to another. It can also be sprayed on scrub shirts when staff or volunteers attend to cats. Ideally, diffusers should be used in all cat rooms/areas.

While all forms of enrichment might not be available at all times, it is necessary that both categories of enrichment (animate and inanimate), in one form or another, are provided on a regular basis. Care giving (including enrichment) should be as routine and predictable as possible – this helps a cat’s ability to deal with the challenges of confinement that come with cattery living.

The provision of environmental enrichment should not be underestimated by cattery owners or managers of pounds/shelters. It’s a mistake to think environmental enrichment is optional or a luxury and not fundamentally important to cat health and behaviour.

“Emotional stress can cause more pain than physical injury, and staff should be well-trained to recognise it so treatment can be provided as soon as possible.”⁵²



Personal protective actions for infection control

Routine and regular hand hygiene practices are the single most effective action to prevent the spread of disease. Other protective actions include immunisations for staff and training in safe feline handling.

Hand washing – must become a routine and regular practice, adopted as the norm by staff and volunteers in catteries. Hand washing areas (bathrooms, sinks/tubs) must be stocked with anti-bacterial liquid hand soap, paper towels and never left to run out.

Key times to wash hands are when staff or volunteers move from one cat area to another; between handling cats; between clean and dirty jobs; before and after eating, smoking or going to the toilet; and before and after work. This list is not exhaustive. Staff and volunteers need to put in place good hand hygiene behaviours and be continually mindful of what can be transmitted by their hands.

Signage to encourage hand washing should be placed in all areas where it can be noticed. Signage showing how to wash hands properly should be placed in bathrooms and above sinks. How hands are washed is very important. Staff and volunteers need to adopt proper hand washing techniques for their hands to be thoroughly cleaned.

Hand sanitising – complements good hand washing practices but does not replace the need to wash hands on a regular basis. Hands should be sanitised between handling individual cats, attending to a group of cats in a pen or litter. For staff and volunteers to be compliant, hand sanitiser dispensers need to be placed in areas where they are easily visible and accessible (including cat transport vehicles). The choice of product needs high staff acceptability otherwise, if workers don't like the smell or the feel of the sanitiser, they are less likely to use it. Hand sanitisers should contain 70-90% v/v alcohol to be effective against most pathogens.

Note 1: Hand sanitiser products are not effective against feline panleukopaemia virus or ringworm and soap is only effective through its detergent action to remove pathogens from the skin. Disposable gloves need to be worn when attending to cats with infectious diseases.

Note 2: Some religions ban the use of alcohol in all forms. In these instances, alcohol-free hand hygiene products should be made available for those staff, volunteers or visitors. However, alcohol-free hand sanitisers are not as effective, and hand washing is recommended over the use of alcohol-free hand sanitisers.

Hand conditioning – is required to maintain good skin condition. Dry, cracked, peeling skin can harbour bacteria and be a barrier to routine hand washing. Dermatologically tested hand cream or barrier cream should be made available in all bathrooms for staff and volunteers to maintain healthy hands.

Immunisations – staff and volunteers who work in catteries, shelters or pound environments are at greater risk of zoonotic disease due to their extended contact with animals. “It is estimated that of the 1,415 agents causing disease in humans, 868 (61%) are zoonotic. Moreover, of the 175 pathogens defined as emerging infections, 75% are zoonotic.”⁵³ Therefore, consideration for staff health and safety needs to be part of an organisation’s infection control plan. Immunisations for staff should be a consideration as a condition of employment for staff and volunteers (eg tetanus). Any immunisation is a matter for the person to discuss with their doctor.

Safe feline handling – knowing how to prevent being bitten or scratched by a cat is the best way to protect against the risk of serious infection and illness these injuries can cause.

It is not acceptable to think, ‘oh! I don’t mind a few bites or scratches’ or ‘it’s all part of the job’. It is definitely not acceptable and should not be viewed as ‘part of the job’ by staff or volunteers.

All staff and volunteers have WH&S responsibilities to take reasonable care of their own health and safety. Therefore, it is important to understand when it is not safe to handle a cat and what to do when unsure.

There’s a golden rule for safe feline handling and it is: **WHEN IN DOUBT, DON’T!**

Cats in shelter environments can often be stressed, anxious and/or fearful. Some might respond positively to close human interaction but for others, close interaction might only serve to elevate stress levels and fear, leading to an attack.

Learning to read a cat’s body language is important to understanding whether or not a cat wishes to engage. Persisting in patting a cat who is showing signs the patting is not welcome will cause the cat additional stress and anxiety. At these times, it is better to talk to the cat in soft soothing tones rather than touch or pat them.

Staff who work in catteries or shelters/pounds should be competent in the animal related tasks they’ve been employed to do, including safe feline handling. Staff who are not trained in this area should not handle cats until training is undertaken and they have demonstrated competency in this area. Experience handling a pet cat is not the same as handling cats in a shelter environment.

Staff must demonstrate compassion for cats who are scared and/or aggressive and not lose patience or their temper when difficult situations arise. Inappropriate and aggressive methods of handling are absolutely unacceptable and will make a bad situation worse. Safe feline handling requires ‘thinking outside the box’ when confronted with challenging situations.

Cats who display aggression should not be handled unless absolutely necessary. Necessary times are: the cat has escaped his/her enclosure and they pose a danger to themselves, other cats, workers or visitors; the cat is critically injured or sick and requires immediate veterinary attention. It is important to remember cats might display aggression because they are in pain and not because they are normally aggressive.



Some cats become cage guarders when they enter a cattery. Any attempt to change their litter tray or food bowl triggers aggression. It makes it very difficult for staff to provide basic daily necessities (food, water and a clean litter tray) without risking injury. In most cases these types of cats eventually calm down but while they remain 'upset' staff should use animal handling devices such as elbow length gloves, animal handling tongs to add or remove food bowls, cage dividers that can be used to stop the cat from escaping their cage or injuring staff.

Note: cats who become cage guarders or aggressive after they enter a cattery environment should not be labelled as 'feral'. In many cases, aggressive behaviour is a result of confinement in an unfamiliar environment and not the cat's usual temperament.

Double-compartment housing with portals that open and close is ideal in situations when it is unsafe to feed and clean a cat's cage in the normal way.

There are a variety of feline handling devices on the market that assist handling unpredictable/aggressive cats although some devices cause injury to cats if not used properly (the use of catchpoles for routine restraint of cats is inhumane). Safe feline handling training for staff should include instruction on when and how to use animal handling devices.

While these devices can assist in dealing with aggressive/scared cats, they do not replace the need for staff to be well-trained in feline handling and behaviour.

Importantly, staff should create a calm and quiet atmosphere (minimise noise, minimise activity, use pheromone spray, use cage covers) to help an angry cat to settle. The sound and smell of other cats can be a trigger for aggression too; if this happens, if possible try to move the cat's cage away from other occupied cages.

There are several medications that can be given in food for cats who are difficult or unsafe to medicate. Always seek advice from the cattery's veterinarian before adding medication to food.

Towelling is a safe method used to secure a cat's body from the neck down. It can be used for many applications on cats who are shy/nervous (microchipping, flea treating, applying eye ointment). Scruffing is not an acceptable practice as a means to restrain a cat. It causes pain; how queens carry their young is not comparable and cannot be referenced as a means to justify this type of handling.



First aid – should be applied immediately following any injury to staff, volunteer or visitor by a trained first aid officer. Depending on the severity, it may require follow-up treatment at a medical centre or hospital.

A key to different cat moods:

Content: Sitting or lying down, eyes half-closed, pupils narrowed, tail mostly still, ears forward and purring – a really happy cat will often knead on a soft surface. Exposing their belly most often demonstrates trust and comfort but does not necessarily mean the cat would like a tummy rub.

Playful: Ears forward, tail up, whiskers forward and pupils somewhat dilated.

Irritated or over-stimulated: Pupils dilated, ears turned back and tail twitching or flicking up and down.

Nervous or anxious: Ears sideways or back, pupils dilated and tail low or tucked between legs and looking for somewhere to hide.

Frightened: Ears back and flat against the head, whiskers back, back arched, fur standing on end and tail erect or low. This can be accompanied by growling, hissing or spitting.

Defensive: Crouched, ears flattened, whiskers back, tail between legs or wrapped around body, pupils dilated.

Angry, aggressive: Ears back, pupils like slits, tail up or down with the fur standing on end. This is usually accompanied by growling, hissing and spitting.

Individual body parts:

Ears:

Forward – alert, interested or happy

Backward, sideways or flat – irritable, angry or frightened

Swivelling – attentive or cautious

Eyes:

Pupils like slits – offensively aggressive or possibly content

Pupils fully dilated – defensively aggressive or possibly playful

Pupils somewhat dilated – nervous or submissive

Tail:

Erect, fur flat – alert, inquisitive or happy

Fur standing on end – angry or frightened

Held very low or tucked between legs – insecure or anxious

Thrashing back and forth – agitated. The faster the thrashing, the angrier the cat

Straight up quivering – excited, happy or about to spray

Body:

Back arched, fur standing on end – frightened or angry

Back arched, fur flat – welcoming your touch

Lying on back, purring – very relaxed

Lying on back, growling – upset and ready to strike



Personal protective equipment

Personal protective equipment (PPE) does not eliminate the risk of infection and cross-contamination but it does minimise the risks substantially. Protective equipment include scrubs (shirt/top) and disposable PPE (gloves, booties, coveralls, smocks and hairnets).

PPE is an important infection control tool and is designed to reduce the risk of contamination of personal clothing, reduce skin exposure to pathogens and the transmission of pathogens to animals or humans.

Scrub tops/shirts should be worn by staff or volunteers whenever they are handling a cat, attending to a cat (feeding, medicating, processing a new cat, patting) and while performing cleaning duties of any description. A scrub top/shirt should also be worn by staff who transport cats to/from the vet. The only time staff should not wear a scrub top/shirt is when they are consuming food or doing administrative or customer service duties in non-cat areas.

To achieve the main purpose of wearing a scrub top/shirt requires staff and volunteers to change them between dirty and clean jobs, after handling sick cats, after handling new cats (health status unknown), after handling kittens, after handling dirty laundry/equipment and after returning from the vet. This list is not exhaustive. Staff and volunteers need to continually think about minimising cross-contamination and adopting appropriate behaviours to support this.

Ad-hoc use of scrub tops/shirts and other PPE defeats the purpose of what PPE is intended for, that's why it is very important for staff and volunteers to take the time necessary to use PPE when handling animals or cleaning and change PPE whenever it becomes dirty/contaminated. It is also important to follow the correct procedures for putting on and taking off PPE.

Disposable gloves should be worn while attending to the admission of a new cat, attending to infectious cats or at any time the health of a cat is in question.

Both clean scrubs and disposable gloves should be made available in cat areas and any cat transport vehicle. They should be stored in tubs with lids or closed cupboards so supplies don't become contaminated.

Disposable PPE such as gloves, smock or coverall and booties should be worn by staff who attend cats in isolation areas and disposed of after individual use. Disposable PPE should also be used whenever there's been an outbreak of an infectious disease.

Disposable gloves do not replace the need to wash and sanitise hands. PPE should be made available in sizes to accommodate all staff, and be available in alternative materials, for example, to suit those with latex allergies.

Administration controls

Administration controls include daily and accurate record keeping in relation to each individual cat, as well as ongoing education, training and supervision of staff and volunteers, the development and documentation of protocols, periodic reviews and updates.

Staff and volunteer training needs to emphasise the critical role effective infection control practices play. Staff and volunteers need to be encouraged to adopt behaviours similar to those of human health care workers.

“Practical measures to promote infection control could include:

- Incorporating responsibilities for infection control and prevention into position descriptions
- Including infection control in staff performance reviews
- Conducting infection control audits.”⁵⁴

Protocols for infection control require ongoing management after they are introduced, therefore, it is recommended one or more senior staff members are nominated to have overall responsibility for ensuring:

- New and existing staff and volunteers are trained
- Staff and volunteer participation in training is recorded
- Any equipment or product associated with protocols is in stock and readily available in areas where it is needed (eg PPE and hand hygiene products)
- Protocols are documented and accessible to staff and volunteers
- Protocols are reviewed annually or six-monthly and reflect any changes to policy or procedure (eg any change to products used)
- Protocols are consistently implemented.

“Senior and managerial personnel should set the standard for infection control practices, stress its importance to other staff and reference the infection control plan in daily activities.”⁵⁵

All staff need to help ensure volunteers and visitors/contractors comply with infection control protocols and to be aware of their WH&S responsibilities to take reasonable care for their own health and safety.

For information on record-keeping for cats please refer to the ‘Medical and healthcare program’ section.

References:

1. Journal of Feline Medicine and Surgery – Prevention of infectious diseases in cat shelters ABCD Guidelines (page 2)
2. 5th National G2Z Summit and Workshops – G2Z through disease management, Dr Lila Miller (page 1)
3. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 12)
4. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 12)
5. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 12)
6. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 12)
7. 5th National G2Z Summit and Workshops – G2Z through disease management, Dr Lila Miller (page 3)
8. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 13)
9. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 13)
10. Journal of Feline Medicine and Surgery – AAFP and ISFM Environmental Needs Guidelines (page 1)
11. Koret Shelter Medicine Program – Shelter Design and Housing
12. 5th National G2Z Summit and Workshops – G2Z through disease management, Dr Lila Miller (page 4)
13. ASPCA – Guidelines for Shelter Care Checklists (page 5)
14. Koret Shelter Medicine Program – Shelter Design and Housing
15. Koret Shelter Medicine Program – Shelter Design and Housing
16. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 7)
17. Koret Shelter Medicine Program – Shelter Design and Housing
18. ASPCA – Guidelines for Shelter Care Checklists (pages 6,7)
19. Koret Shelter Medicine Program – Shelter Design and Housing
20. Koret Shelter Medicine Program – Shelter Design and Housing
21. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 7)
22. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 9)
23. Koret Shelter Medicine Program – Shelter Design and Housing
24. Koret Shelter Medicine Program – Shelter Design and Housing
25. Koret Shelter Medicine Program – Shelter Design and Housing
26. Koret Shelter Medicine Program – Shelter Design and Housing
27. ASPCA – Guidelines for Shelter Care Checklists (page 9)
28. ASPCA – Guidelines for Shelter Care Checklists (page 17)
29. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 18)
30. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 18)
31. ASPCA Vet Outreach – Alphabetical Resource of Shelter Medicine Topics (page 3)
32. Journal of Feline Medicine and Surgery – Prevention of infectious diseases in cat shelters ABCD Guidelines (page 4)
33. Australian Veterinary Association – Vaccination guidelines
34. World Small Animal Veterinary Association – Feline vaccination guidelines
35. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 21)

36. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians (page 21)
37. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 22)
38. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 22)
39. ASPCA Vet Outreach – Alphabetical Resource of Shelter Medicine Topics (page 12)
40. Guidelines for Standards of Care in Animal Shelters – The Association of Shelter Veterinarians 2010 (page 14)
41. ASPCA Vet Outreach – Alphabetical Resource of Shelter Medicine Topics (page 13)
42. Australian Veterinary Association – Guidelines for Veterinary Personal Biosecurity (page 4)
43. Australian Veterinary Association – Guidelines for Veterinary Personal Biosecurity (page 4)
44. Australian Veterinary Association – Guidelines for Veterinary Personal Biosecurity (page 4)
45. Department of Primary Industries – June 2015 Primefact 814 Second Edition
46. ASPCA Vet Outreach – Alphabetical Resource of Shelter Medicine Topics (page 2)
47. 5th National G2Z Summit and Workshops – G2Z through disease management, Dr Lila Miller (page 5)
48. Journal of Feline Medicine and Surgery – AAFP and ISFM Feline environmental needs guidelines (page 219)
49. Journal of Feline Medicine and Surgery – AAFP and ISFM Feline environmental needs guidelines (page 220)
50. Journal of Feline Medicine and Surgery – AAFP and ISFM Feline environmental needs guidelines (page 226)
51. Journal of Feline Medicine and Surgery – Environmental Enrichment – Practical strategies for improving feline welfare (page 908)
52. 5th National G2Z Summit and Workshops – G2Z through disease management, Dr Lila Miller (page 9)
53. Australian Veterinary Association – Guidelines for Veterinary Personal Biosecurity (page 3)
54. Australian Veterinary Association – Guidelines for Veterinary Personal Biosecurity (page 25)
55. Australian Veterinary Association – Guidelines for Veterinary Personal Biosecurity (page 25)

