



# Infection Prevention and Control Best Practices

## *For Small Animal Veterinary Clinics*

Dear veterinary staff member,

We are conducting a brief online survey to understand your current infection control practices and your motivation for seeking out these guidelines. Participation in the survey is strictly voluntary. You may exit the survey at any time, and you may skip any questions you wish. All responses are anonymous

This survey should only take approximately 2-3 minutes to complete. We would greatly appreciate your feedback.

Click this link to start the survey:

[https://uoguelph.eu.qualtrics.com/jfe/form/SV\\_6DbIPOk3dZnLbQ9](https://uoguelph.eu.qualtrics.com/jfe/form/SV_6DbIPOk3dZnLbQ9)

# Patient Care and Handling

## Isolation facilities

Every veterinary clinic should have a dedicated isolation area for caring for and housing animals with potentially contagious infectious diseases. The size and structure of the isolation facility will vary based on factors such as clinic size, animal species treated and diseases endemic to the area. A proper isolation area should allow for complete physical separation of potentially infectious cases, and have areas for performing routine procedures such as bandage changes, thereby reducing the risk of direct or indirect transmission to other hospitalized animals or clinic personnel. Ideally, isolation facilities should be in an area that limits traffic into and near the entrance of the room, but with a means of easy monitoring for patient safety (e.g. webcam or window).

If an isolation area was not included in the original physical design of the clinic, a potential alternative in some cases may be to convert an examination room into a dedicated isolation room. The room selected should be in the area of the lowest human and animal traffic possible. The room should be easy to clean and disinfect and emptied of all non-essential equipment. This type of room conversion can be difficult to do effectively depending on the design and layout of the clinic and the room itself. The feasibility of using such a room for isolation of infectious animals must be assessed on a facility-by-facility basis. Depending on the situation, it may be more feasible and beneficial to refer the client to a facility with a more appropriate isolation facility in order to protect the health of the animal, other patients and personnel.

**Ventilation** should be designed such that movement of air from the isolation room to other areas of the clinic is prevented (i.e. the room should be vented to the outdoors). If this is not readily possible, a HEPA air filtration system should be used for the air leaving the isolation room. HEPA filters need to be replaced on a regular basis (according to manufacturer's instructions), whether for an entire room or for containment/oxygen cages. Although HEPA filter oxygen cages can provide primary containment of an infectious animal, the risk of cross-contamination by staff remains, so the animal should still be housed in the isolation area regardless.

**Every veterinary clinic should have a dedicated isolation area for caring for and housing animals with potentially contagious infectious diseases. All items entering an occupied isolation area should be considered contaminated.**



Only the equipment and materials needed for the care and treatment of the individual animal should be kept in the isolation room. This may include items such as a designated stethoscope, thermometer, grooming supplies, leash, and muzzle. Supplies of items that will be used for subsequent isolation patients (e.g. packages of bandage material, boxes of needles and syringes) should not be kept in the isolation area. All items entering an occupied isolation area should be considered contaminated and disposed of or thoroughly disinfected after discharge of the patient (e.g. fluid pumps). Items should not be removed from the room except for disposal or laundering (see [Chapter: Laundry and Waste Management](#)). Use of disposable articles can minimize the need to take soiled items out of the isolation room.

When the isolation room is in use by an animal with a potentially contagious infectious disease:

- **Use prominent signage** to indicate that the animal may be infectious and outline any additional precautions that need to be taken in addition to routine isolation protocols.
- **Limit access to the isolation room** to the minimum number of essential personnel necessary to provide appropriate patient care.

## Personal protective equipment and waste in isolation

All personnel entering an isolation area housing a potentially infectious animal, regardless of whether they plan on having direct contact with the animal, must wear appropriate personal protective clothing. At a minimum, this consists of a clean lab coat or similar item of outerwear that is only worn in the isolation area and disposable examination gloves. Depending on the diagnosis and the mode of transmission of the disease, shoe covers, masks and eye protection may be required when handling an animal in isolation (see [Chapter: Personal Protective Equipment](#)). All non-essential items should be left outside the isolation area, including personal cellphones, extra pens, extra clothing, etc.

After handling a patient in an isolation area ([CDC 2016](#), [PHO 2012](#), also see [Chapter: Personal Protective Equipment](#)):

- Discard gloves after a single use and perform hand hygiene after gloves are removed.
- Discard gowns (if disposable) after a single use. Launder reusable gowns and lab coats used in isolation after a single use. Immediately place these items in the isolation room garbage or laundry bag once removed. Storing/hanging and reusing a contaminated gown or lab coat inevitably leads to contamination of hands, clothing and the environment.
- Eye/nose/mouth protection may be re-used with the same animal if they are not visibly soiled and can be consistently removed without contamination of the inside of the eye wear/mask or the immediate environment. Nose and mouth masks may be reused only by the same person. Replace eyewear or masks with a clean article if they become contaminated with body fluids such as urine or feces. **Designated personal protective equipment must remain in the isolation room.**

Contaminated items and waste alike should be bagged prior to removal from the isolation area. Laundry and waste bags should be placed in a second “clean” bag to cover the original contaminated bag from isolation. Other items should also be placed in a “clean” bag and immediately taken to the appropriate area for additional cleaning and disinfection. Waste from an isolation room should be treated as potentially infectious and placed immediately in the appropriate disposal bin (see [Chapter: Laundry and Waste Management](#)).

## Patients in isolation

The decision of whether to house a patient in isolation often needs to be made on a case-by-case basis. While certain diagnoses or syndromes typically warrant isolation (see management of specific infectious syndromes in [Chapter: Hospital Associated Infections and Other Infectious Syndromes](#)), the likelihood of shedding of an infectious pathogen, the risk of transmission to other patients or personnel in the clinic, and the ability to manage the patient effectively in isolation all must be considered.

**Dogs that are housed in isolation should ideally not be walked nor allowed to urinate or defecate in public areas or areas used by other animals.** If a dedicated area for walking is not available and the dog needs to be taken out of the primary isolation area to urinate and defecate, a separate indoor or outdoor run should be designated for each dog in isolation (i.e. if there is more than one animal in isolation, they cannot all use the same run). The run selected should be as far as possible from runs being used by other animals. The dog should be moved **directly** to the run by personnel wearing appropriate personal protective clothing. Moving the animal through other areas of the clinic should be avoided as much as possible. **Carrying the dog or transporting it on a gurney** is ideal in order to minimize the risk of contamination of the floor and clinic environment. The designated run should be prominently labeled and disinfected at least daily and between patients. Prompt removal of feces and other solid waste (e.g. vomitus) is also crucial. (See outdoor elimination areas section in [Chapter: Clinic Design](#)).

**If a patient being housed in isolation absolutely must be taken elsewhere** in the clinic for essential procedures (e.g. radiographs, surgery), if at all possible this should be done the end of the day, or during a time where there is the least animal and personnel movement in the clinic and adequate time to clean and disinfected potentially contaminated areas prior to next use.

- All personnel involved with the procedure must wear appropriate personal protective equipment
- Keep other animals out of the procedure area while in use.
- Thoroughly clean and disinfect the procedure area as soon as the procedure is completed.

## Wound care and bandages

Wound infections can be caused by many bacterial pathogens, some of which can be transmitted between animals or between animals and people. One example is methicillin-resistant *Staphylococcus aureus* (MRSA), which can infect both people and animals, but there are a variety of other pathogens of concern. These include both multidrug-resistant and non-resistant strains of bacteria (e.g. *S. aureus*, *S. pseudintermedius*, *enterococci*). Wounds provide a prime site for invasion of opportunistic bacteria such as these. Even wounds that are not known to be infected should be protected from contamination by veterinary personnel and from the environment to reduce the risk of secondary infection, through the use of bandages and/or other routine protocols as appropriate.

To reduce the risk of infection or contamination of the environment from a wound during bandage changes:

- Wear sterile gloves for debridement, treatment and bandaging of deep wounds and those involving vital structures. Clean, non-sterile examination gloves are adequate for these procedures if the wound is superficial. Wash hands thoroughly before and after glove removal.
- **Bandages must be kept dry** to prevent bacterial strike-through. This means keeping the outside of the bandage as dry as possible, and also including sufficient absorbent material in the bandage itself to prevent discharge from the wound from soaking through the bandage. Change the bandage if the outside of it appears wet for any reason.
- **Consider used bandage materials infectious waste.** Place such materials directly in the garbage and not on the floor, examination table or any other surface. The risk of contamination and spread of any pathogen is likely higher for wounds with a large amount of discharge.
- Proximity to the potentially infectious wound during care increases risk of contamination of unused bandage materials. Keep extra materials away from the area when bandage changes are performed, and discard unused materials that may have been contaminated during the procedure (e.g. unfinished rolls).
- Perform wound treatments and bandage changes **in an area that is easily disinfected** (e.g. on an examination table). Perform wound irrigation and lavage in such a way that the fluid used is contained (e.g. in a sink or tub, or with disposable absorbent material). Do NOT change bandages in the kennel/ward area or in a high-traffic area where there is increased risk of cross-contamination of other patients.
- **Wash hands thoroughly** after changing a bandage. Disinfect equipment used for bandage changes (e.g. bandage scissors) between uses.

Additional personal protective equipment (e.g. gown, face protection) should be worn when managing large wounds or those producing a large amount of discharge (splash risk). Particularly if it is difficult to keep the wound completely covered (based on the nature of the wound or the demeanor of the animal), the patient should ideally be housed in isolation. Animals with known MRSA/MRSP or other multidrug-resistant bacterial wound infections are likely to be colonized with these pathogens at other body sites as well (e.g. nose, rectum, intestinal tract), and should therefore be handled with contact precautions and housed in isolation (see [Chapter: Hospital Associated Infections and Other Infectious Syndromes](#)).

## Feeding of raw meat diets and treats

Raw animal/meat-based diets and treats for cats and dogs often contain a variety of enteropathogens, including *Salmonella* spp, *Campylobacter* spp, *Clostridium difficile*, *Clostridium perfringens*, extended spectrum beta-lactamase (ESBL)-producing Enterobacteriaceae, and enterohemorrhagic strains of *Escherichia coli* such as O157:H7. It has also been shown that animals fed raw meat diets may shed higher levels of *Salmonella* and ESBL Enterobacteriaceae in their feces ([Lefebvre 2008](#)).

Raw animal-based products (diets and treats), and feces from animals fed these products, may pose a risk to hospitalized animals and clinic personnel, and may contaminate the hospital environment. Therefore, **a policy against the feeding of raw animal-based products to hospitalized animals should be in place.** Clients who do not wish to have their animal fed a commercial kibble diet can consider cooking the pet's normal diet for the duration of the hospitalization period. Non-diarrheic animals normally fed a raw meat diet do not necessarily need to be housed in isolation, but they should be walked in designated area and their feces considered potentially infectious (and therefore cleaned up immediately).

If it is the opinion of the attending veterinarian that changing an animal's diet from a raw meat diet for the duration of hospitalization would adversely affect the animal's health, then the following guidelines should be followed (as they should be at home):

- Keep raw meat frozen until the day before feeding. Thaw it in the refrigerator on the bottom shelf in a sealed container.
- Promptly discard any uneaten meat in such a way that it will not attract nor be accessible to insects, vermin or other animals. Significant bacterial growth can occur in any meat that is left out at room temperature, even for a short period of time.
- Thoroughly clean and disinfect any items that come in contact with raw meat (e.g. bowls, storage containers) immediately after use ([Weese & Rousseau 2008](#)). Bleach is a good choice for this as it has a broad spectrum of activity and is considered food safe, but items must be thoroughly cleaned first and an adequate concentration and contact time must be observed (see [Chapter: Cleaning, Disinfection and Sterilization](#)).
- Strongly emphasize hand hygiene after handling raw meat or any items that have been in contact with raw meat.

## High risk admissions

### Animals from shelters

Humane societies, animal shelters and similar facilities typically contain transient, stressed populations of animals, large numbers of young animals, sick animals and animals of unknown health and vaccination status. As such, they should be considered high risk from an infectious disease standpoint. Animals admitted from these facilities should be managed with additional precautions:

- Examine all animals from such facilities immediately upon arrival. Do not allow them to come in contact with other animals in the waiting/reception area.
- Always house animals from these facilities separately from other patients, if possible. Use of a separate ward, separate area of a ward or leaving empty cages between these animals and other patients are all potential strategies, depending on the degree of separation required for the diseases of primary concern.
- If there is an ongoing outbreak of an infectious disease at the animal shelter, restrict admission of animals from the facility to emergencies only (i.e. no elective procedures). Admit all animals from the facility directly to isolation until the outbreak is resolved.

### Patient management considerations for elective procedures for high-risk animals (e.g. spay / neuter of shelter animals):

- All dogs, cats and ferrets must be **currently vaccinated against rabies**, with their first vaccination given at least 2 weeks prior to presentation (i.e. if vaccinated at the minimum on-label age of 12 weeks, animals should be a minimum of 14 weeks of age at presentation).
- All dogs and cats must be up-to-date on other **core vaccinations**, as needed according to geographic region. Animals more than 14 weeks old should have received at least two doses of vaccine at an appropriate interval, with the most recent vaccine administered at least 2 weeks prior to presentation.
- All animals must be **dewormed** with a broad-spectrum anthelmintic approximately 7-10 days prior to admission. This interval can be longer for animals in which ongoing exposure to parasites has been controlled since the last deworming.
- Do not admit animals for elective procedures if they have abnormalities including, but not limited to, fever, oculonasal discharge, coughing/sneezing, diarrhea and potentially infectious skin conditions.
- Depending on the geographic region and time of year, **flea treatment** prior to admission may also be required.

## Imported animals

Clinics should be aware of current importation requirements in their jurisdiction, and apply a high degree of scrutiny to imported dogs. These animals can pose a risk to human and animal health through the introduction of non-endemic diseases into the local dog population, and spread of zoonotic pathogens to humans. Regulatory control over importation varies between countries. For example, Canada requires that dogs in most categories have a certificate of health and/or a rabies vaccination certificate, but there are exceptions to even these basic requirements (Anderson 2016, see below). Ideally, imported dogs will have received a formal health examination prior to entry that includes vaccinations, deworming, and any other relevant health tests (e.g. heartworm testing), but it can be difficult to verify that these procedures have been completed effectively due to the variability in veterinary services and products available in some countries. Dogs may be imported directly by the owner or by larger rescues or other organizations. If shelters are importing dogs, the recommendations for management of animals from shelters (see above) are appropriate.

Veterinarians should take extra precautions when handling imported dogs until they can be relatively certain of the dog's health and behaviour status. Management of the disease risk should include vaccination (repeated as necessary), internal and external parasite treatments, and necessary and relevant diagnostic testing (e.g. heartworm). A canine importation checklist for veterinarians is available from the Canadian Veterinary Medical Association (see References below).

## References

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