

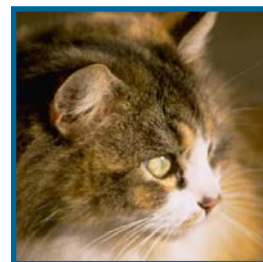
Detailed Summary of Infection Prevention and Control Best Practices For Small Animal Veterinary Clinics


Below is a detailed summary of the contents and key messages of this document. This summary can be used for review, and as an infectious disease control checklist, in addition to the clinic audit tool in Appendix II (page 61).


1. Infection prevention and control strategies are designed to **protect patients, owners, veterinary personnel and the community**. All veterinary personnel should play an active role in protecting every person and animal associated with the veterinary clinic.
2. **Decreasing exposure** to microorganisms is the most important aspect of disease control in most situations.
3. Every veterinary clinic, regardless of type or size, should have a **formal infection control program**, a written infection control manual that describes the program, and an infection control practitioner (ICP) to coordinate the program.
4. Some form of **surveillance** (either passive or active) should be practiced by all veterinary facilities. The keys to passive surveillance are to centralize the available data, and to have a designated ICP who compiles and evaluates the data on a regular basis.
5. **Routine Practices** that are critical to infectious disease prevention and control:
 - a. Hand hygiene, including:
 - i. Handwashing
 - ii. Use of alcohol-based hand sanitizers
 - b. Risk reduction strategies, particularly those related to:
 - i. Use of personal protective equipment (PPE)
 - ii. Cleaning and disinfection
 - iii. Laundry
 - iv. Waste management
 - c. Risk assessment of animals and personnel with regard to:
 - i. Disease transmission
 - ii. Disease susceptibility
 - d. Education
 - i. Veterinary personnel
 - ii. Animal owners
 - iii. Public
6. **Hand hygiene** is the single most important way to prevent infections in the healthcare setting. Intact skin is the first line of defense against bacteria. Hand hygiene of some kind should be performed:
 - a. Before and after contact with a patient (especially before performing invasive procedures)
 - b. Before and after contact with items in the patient's environment
 - c. After any contact with or any activity involving the body fluids of a patient
 - d. Before putting on and especially after taking off gloves
7. **Personal protective equipment (PPE)** is used to protect veterinary personnel and to reduce the risk of pathogen transmission by clothing to patients, owners, veterinary personnel and the public.
 - a. Street clothes should always be covered by protective outerwear, such as a lab coat, when working in the clinic.
 - b. Protective outerwear, including scrubs, should not be worn outside the clinic.
 - c. Lab coats and gowns worn when handling patients with potentially infectious diseases should be laundered after *each* use.
 - d. **Gloves** should be worn when contact with blood, body fluids, secretions, excretions and mucous membranes is possible, as well as when cleaning environmental surfaces and when doing laundry if gross contamination of items is present.



- i. Gloved hands should not be used to touch surfaces that will be touched by people with non-gloved hands.
 - ii. Gloves should be removed promptly after use and **hand hygiene** performed immediately.
 - iii. Gloves are NOT a substitute for proper hand hygiene.
 - e. Face protection should be used whenever exposure to splashes or sprays is likely to occur.
 - f. Designated footwear or disposable shoe covers may be required for some patients with infectious diseases. In veterinary clinics, it is important to prevent the spread of infectious materials present on the floor, as patients and personnel often have very close contact with the floor.
- 8. **Cleaning** involves the removal of visible organic matter with soap or detergent, whereas **disinfection** involves the application of a chemical or other procedure in order to kill the remaining microorganisms.
 - a. Cleaning must always be done before a disinfectant is used.
 - b. Gloves should be worn when cleaning and disinfecting, and hands should be washed after finishing any cleaning activity.
 - c. **Selection of a disinfectant** for a particular purpose should take into account the product's spectrum of activity, susceptibility to inactivation by organic matter, potential pathogens in the environment, compatibility with soaps and detergents, toxicity for personnel and animals, contact time required, residual activity, corrosiveness, environmental effects and cost.
 - d. Multi-use equipment must be properly cleaned and disinfected between each patient. There are three categories of multi-use equipment used on patients: critical, semi-critical and non-critical.
 - i. Disinfectant solutions in which a set of instruments is routinely kept are often referred to as "cold sterile," but such instruments are rarely, if ever, truly sterile. The main indication for cold (chemical) sterilization is for items that cannot tolerate steam sterilization, such as endoscopes.
- 9. **Laundry** is also an important component of a complete infectious disease control program.
 - a. Linens used in veterinary clinics should be laundered together using detergent, and dried in a hot air dryer to promote killing of microorganisms.
 - i. Laundry from potentially infectious cases should be treated separately from other laundry, including use of bleach in the wash cycle.
 - ii. Linens contaminated with gross organic material must be pre-cleaned by hand to remove such material prior to laundering.
 - iii. Laundry should not be considered clean until it has also been dried.
 - b. Clinic clothing (e.g. scrubs, lab coats) should always be laundered on-site or sent to a commercial laundry facility that is equipped to handle laundry from medical/veterinary facilities.
 - c. Always place soiled linens directly in a hamper or bag designated for dirty laundry.
 - d. Clean linens should be transported and stored in a manner that prevents contamination.
 - e. Personnel should wear appropriate personal protective equipment (e.g. gloves, lab coat) when handling soiled linens, and perform hand hygiene when the task is complete.
- 10. Veterinary clinic waste is a potential source of both zoonotic and non-zoonotic infectious pathogens. Therefore, it is important to handle all such waste appropriately.
 - a. **Biomedical waste** typically includes sharps, tissues (anatomic waste), highly contaminated (e.g. blood-soaked) materials, and dead animals.
 - b. All waste should be contained in a leak-proof container or bag that can be discarded with the waste.
 - c. Additional precautions should be taken to minimize contamination of the clinic environment and the risks to people and animals from potentially **infectious waste** (e.g. body fluids of and disposable equipment that has come in contact with an infectious animal).



11. All surgical procedures cause breaks in the normal defensive barriers of the skin or mucous membranes, and therefore carry an inherent risk of surgical site infection (SSI). Good general infection control practices (e.g. hand hygiene, cleaning and disinfection) are important for prevention of SSIs, but there are also specific infection control measures pertaining to surgery that should be considered.
- A surgical area should only be used for surgical procedures.
 - All personnel in the surgical area should wear **designated surgical scrubs**, a surgery cap or hair bonnet, and a nose-and-mouth mask when surgery is underway.
 - Scrubs worn in surgery should not be worn when handling or treating other patients, and should be covered with a lab coat outside of the surgical suite.
 - Steam sterilization (i.e. **autoclaving**) is most commonly used in veterinary clinics for sterilization of surgical instruments. Quality control testing of autoclaves should be performed regularly.
 - At a minimum, **anesthetic equipment**, including endotracheal (ET) tubes, must be thoroughly cleaned (inside and outside) with hot water and detergent immediately after use to prevent any discharge or debris from drying and forming a biofilm on the device. Additional disinfection may be required for certain pieces of equipment or under particular circumstances.
 - Peri-operative antimicrobials** are indicated in clean-contaminated, contaminated and dirty procedures. The need for antimicrobial prophylaxis in clean procedures is unclear.
 - If peri-operative antimicrobials are used, they should be administered so that therapeutic levels are present at the surgical site at the time of first incision. Starting antimicrobial therapy after surgery is no more effective than not using antimicrobials at all.
 - Clipping (not shaving) of the surgical site should only be performed right before surgery. Use of good quality, well-maintained clippers and blades helps to reduce the risk of skin abrasions which can provide sites for invasion and proliferation of opportunistic bacteria.
 - Refillable containers in which skin preparation solutions (e.g. antibacterial soap and water, alcohol, chlorhexidine, iodine) are kept must be disinfected when empty before being refilled, as contamination of these solutions with bacteria that are resistant to their respective antimicrobial actions can occur.
 - Contact with a surgical incision post-operatively, particularly with bare hands, should be avoided.
 - Bandage changes should be performed using aseptic technique.
 - Pet owners and handlers should be instructed on how to manage an animal with an incision, and the signs for which to look that may indicate the development of a SSI.
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12. Every veterinary clinic should have an isolation area for caring for and housing animals with potentially contagious infectious diseases.
- Only the equipment and materials needed for the care and treatment of the *individual* animal should be kept in the isolation room. All items entering an occupied isolation area should be considered infectious and disposed of or disinfected after discharge of the patient.
 - Access to the isolation room should be limited to the minimum number of essential personnel.
 - All personnel entering an isolation area, regardless of whether they plan on having direct contact with the animal, must wear appropriate personal protective clothing.
 - Designated personal protective equipment must remain in the isolation room.
 - All waste from an isolation room should be treated as potentially infectious.
 - Dogs that are housed in isolation should not be walked nor allowed to urinate or defecate in public areas or areas used by other animals.
13. As a policy, clients should not be allowed to visit hospitalized animals carrying any suspected infectious disease.
14. Footwear and floor surfaces cannot be overlooked in an infection control program in a small animal clinic, because patients so often have extensive direct contact with the floor.
- Footbaths or footmats should be considered when personnel will be walking on a surface that could potentially be more contaminated than the general floor environment, and where spread of this contamination might pose a risk to patients or personnel. Maintaining proper concentrations of active disinfectants in footbaths and footmats is essential for proper performance.

15. Wound infections can be caused by many bacterial pathogens, some of which can be transmitted between animals or between animals and people. Wounds provide a prime site for invasion of opportunistic bacteria.
- Sterile gloves should be worn for debridement, treatment and bandaging of deep wounds and those involving vital structures. Clean, non-sterile gloves are adequate for more superficial wounds.
 - Bandages must be kept dry to prevent bacterial strike-through.
 - Used bandage materials should be considered infectious.
 - Wound treatments and bandage changes should be performed in an area that is easily disinfected.
 - Hands should be washed thoroughly after changing a bandage, and equipment used for bandage changes should be disinfected between uses.
 - Animals with known multi-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.
16. It should be clinic policy not to feed **raw meat** to hospitalized animals.
17. **Animals from shelters** and similar facilities should be considered high risk from an infectious disease standpoint. All animals from such facilities should be examined immediately upon arrival without coming in contact with other animals in the waiting/reception area. Animals from these facilities should be housed separately from other patients, if possible.
- For elective procedures (e.g. spay, neuter), all animals should be appropriately vaccinated for their age and treated for relevant intestinal parasites and ectoparasites. Animals with clinical signs compatible with an infectious disease should not be admitted for elective procedures.
18. Personnel should take all necessary precautions to prevent animal-related injuries (e.g. bites, scratches) in the clinic, including physical or chemical restraint of an animal, if necessary. Experienced veterinary personnel rather than owners should restrain animals for procedures whenever possible.
- If anyone is bitten or scratched by an animal:
 - Immediately wash the wound thoroughly with plenty of soap and water.
 - Report the incident to the local public health unit (due to risk of rabies exposure).
 - Seek medical attention for bite wounds in certain locations on the body, and for any bite wound in certain persons, such as immunocompromised individuals.
19. Proper sharps handling practices are a practical yet effective way of reducing workplace injuries in veterinary clinics.
- The most important precaution for preventing needle-stick injuries is to **avoid recapping needles**.
 - Ensure that approved point-of-use sharps disposal containers are located everywhere needles are handled. Never dispose of needles or other sharps into anything other than an approved sharps container
 - If owners are required to treat their animals at home with injectable medications, ensure that the client is able to safely handle and dispose of sharps.
20. Urine from animals with suspected urinary tract disease, and all feces, aspirates, and swabs should be treated as potentially infectious material.
- Protective outerwear (e.g. lab coat) and disposable gloves should be worn when handling these specimens.
 - Avoiding touching clean items (e.g., microscopes, telephones, food) while handling specimens or before glove removal.
 - A separate refrigerator should be used to store diagnostic specimens, which should be cleaned on a regular basis.
 - A designated area of the clinic should be used for specimen processing.
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21. Persons performing **dental procedures**, and anyone in the immediate vicinity, should wear appropriate protective outerwear (e.g. designated lab coat), disposable gloves, a surgical (i.e. nose and mouth) mask and protective eye glasses/goggles, or a full face shield.
- Dental procedures should be performed in a contained area away from other patients, personnel and high traffic areas.

22. Personnel involved in or present at necropsies should wear appropriate protective outerwear (e.g. designated lab coat), disposable gloves, protective eye glasses/goggles, or a full face shield.
 - a. It is recommended that in-clinic necropsies **not** be conducted on any animal suspected of being infected with a pathogen requiring biosafety precautions above level 2. Instead the entire body should be submitted to an approved diagnostic laboratory. Ensure that all requirements for shipment of biological samples are met, including providing notification of any suspected infectious disease in order to protect laboratory personnel.
23. **All veterinary personnel that might have contact with animals should be vaccinated against rabies**, except in areas that have been formally declared rabies-free. This includes lay staff that might have periodic animal contact, such as front office staff.
24. All personnel should receive **education and training** about injury prevention and infection control, including temporary lay personnel, kennel staff, students and volunteers.
25. **Client education** is the responsibility of the entire practice team.
 - a. Discussion of zoonotic and infectious disease risks should be a routine part of new pet examinations and new client visits.
 - b. Client education must also occur when the veterinarian has a reasonable suspicion of a potentially infectious disease, and particularly if the disease is zoonotic.
26. From an infection control standpoint, veterinary clinics should never have a resident “clinic pet.”
27. **Pest management** is an important aspect of effective prevention and control of infectious disease transmission, including Examination of animals upon arrival for ectoparasites, proper storage of food and waste, sealing potential pest points-of-entry into buildings, elimination of potential rodent nesting sites, and removal of standing water outside buildings.
28. Infection control issues should be considered when **designing** new clinics or when undertaking **renovation or expansion** of existing clinics.
 - a. Designated staff areas should be set aside for eating, drinking and breaks. These activities should not occur in any area where animals or diagnostic specimens may be present.
29. Every veterinary clinic should have a list of reportable diseases prominently displayed in an area easily accessible to clinic personnel. The clinic’s Infection Control Manual should clearly state the required reporting procedures, including contact numbers for the appropriate animal health and/or public health authorities.

