

Companion Animals Biosecurity Standard Operating Procedures (SOP)

Contents

Attire for Inpatient and Outpatient Areas of the Small Animal Hospital	2
General Cleanliness and Hygiene	2
Food and Beverages	2
General Set-up for Inpatients	3
Managing Small Animal Patients with Suspected Contagious Disease	3
Required Diagnostic Testing In Patients with Suspected Infections:	4
Disease Differentials for which Testing is Mandatory	5
Management of Patients Infected or Colonized with Bacteria Resistant to Important Antimicrobial Drugs.....	5
Cleaning, disinfection and waste.....	5
Small Animal Emergency and Critical Care Unit (ECC) Biosecurity.....	6
Small Animal Isolation Biosecurity	7
General Information	7
Protocols to follow when working in SA ISO unit.....	8
Small Animal Surgery/Anesthesia Cases with Suspect Contagious Disease:	10
Exotic and Zoological Medicine Biosecurity	11
Specific Contagious Diseases of Concern	12
Infectious Diseases that Require Isolation	12
Additional Information for Selected Infectious Diseases.....	13
Acute Diarrhea (small animal)	13
Infectious Tracheobronchitis (<i>Bordetella</i>).....	13
Leptospirosis.....	14
Multidrug Resistant (MDR) Bacteria including Methicillin-Resistant <i>Staphylococcus</i> spp. (MRSA and MRSP):	14

It is essential that all students, clinicians and staff be familiar with the basics of hygiene and personal protection. All persons working in the small animal hospital are responsible for maintaining cleanliness of the facility.

Attire for Inpatient and Outpatient Areas of the Companion Animal Hospital

- 1) All personnel are required to wear clean professional attire, clean protective outer garments, and clean, appropriate footwear at all times when working in outpatient areas of the Companion Animal Hospital.
- 2) Approved section uniforms that are dedicated for hospital use are an acceptable alternative to wearing protective outer garments by staff and faculty.
- 3) Protective outer garments (smock, lab coat, etc) and shoes should be changed or cleaned and disinfected whenever they become soiled with feces, urine, blood, nasal exudates or other bodily fluid. Thus it is a good idea to have an extra outer garment available for use.
- 4) Personnel must wear closed toe footwear and must be willing to disinfect footwear while working.

General Cleanliness and Hygiene

- 1) Maintaining hospital cleanliness and appropriate personal hygiene are responsibilities of ALL personnel working in the Small Animal Hospital.
- 2) Hands must be washed or cleaned with an alcohol-based hand sanitizer prior to, and after examining each patient.
- 3) Clean exam gloves should be worn when handling high-risk patients (i.e. infectious disease suspects).
- 4) Surfaces or equipment contaminated by feces, secretions, or blood must be cleaned and disinfected immediately by personnel in charge of the patient. This is especially important regarding patients known or suspected of shedding important infectious disease agents.
- 5) Clean and disinfect all equipment between patients (muzzles, specula, forceps, etc) using 70% isopropyl alcohol or 0.5% chlorhexidine available in various areas. Alternatively, clean equipment can be returned to Central Supply for sterilization when appropriate.
- 6) Students are expected to carry some of their own equipment (e.g. scissors, clipper blades, thermometers, stethoscope, percussion hammer, penlight and hemostat), and it is critical that these supplies are routinely cleaned and disinfected.
- 7) If fleas or ticks are found on an animal, treat the animal with Frontline spray from pharmacy and bill to the client. Do not use the room until appropriate cleaning and disinfection occurs.

Food and Beverages

- 1) Food and beverages may only be stored and consumed on the first floor in rounds rooms but specifically are not allowed to be stored or consumed in patient care areas.
- 2) Patients are not allowed in any areas where food and beverages are allowed to be stored or consumed, and specifically are not allowed in any rounds rooms.
- 3) Food and beverages should be sealed in non-spill containers and be stored in backpacks in the cubbyholes. Do not leave food out for long periods as this promotes bacterial growth and the occurrence of foodborne illness.
- 4) Refrigerators used to store food or medications for patients must not be used to store food or beverage intended for human use.

General Set-up for Inpatients

- 1) Client beds, blankets, collar tags and leash should be returned to the owner (they get lost, soiled and may become contaminated). Laundry service is not available for client blankets.
- 2) Locate a clean cage in the ward designated for the service you are on.
- 3) Prepare a cage clipboard with the client/patient information; write patient details on the corresponding white board or blackboard including student and clinician names.
- 4) Suspected or confirmed infection status is to be written on the cage card immediately upon occupancy.
- 5) Place pertinent signs on cage with important information for animal care attendants, (i.e. "Student Will Feed," "Blanket at all times," "Caution—Will Bite," etc.)
- 6) Provide fresh water, unless otherwise indicated by clinician.
- 7) Do not move animals from cage to cage—clean the cage or run and return the patient to the same cage or run.

Managing Small Animal Patients with Suspected Contagious Disease

- 1) Any animal with a history of acute vomiting, diarrhea, coughing or upper respiratory signs should be handled as a suspected contagious disease case.
- 2) Animals with suspected contagious infectious disease should be treated as outpatients whenever possible.
- 3) Appointments for possible infectious disease cases will be handled by the receptionists and personnel receiving cases as follows:
 - a) If a client call indicates an acute case (within the past week) of vomiting, coughing, sneezing or diarrhea, the client will be asked to keep their pet in the car until they have been checked in and a student has been paged so they can be taken directly to an exam room, small animal isolation, or ECC depending on the circumstances.
 - b) The presenting complaint will be written on the schedule as "acute diarrhea" "acute vomiting", "acute coughing" or "possible infectious disease".
 - c) The letters "PID" for "possible infectious disease" will be written next to the complaint.
 - d) The only indicator each service may get is the word "PID" written on the schedule.
 - e) If the appointment is made and is coming in on the same day, the receptionist will phone the service to let them know they have scheduled an appointment that is a possible infectious disease case.
 - f) If the animal is presented directly to the reception desk without prior notification, the receptionist should contact the receiving service immediately and coordinate placement of the animal in an examination room or isolation to minimize hospital contamination.
- 4) Every attempt should be made to reduce any direct contact with the patient and any other VTH patients.
- 5) Animals should be transported to the appropriate exam / treatment / housing area by the shortest route possible to lessen the potential for hospital contamination. Consider using a green trolley if possible to lessen the potential for hospital contamination.
- 6) Treatment and diagnostic areas, hospital equipment, and personnel clothing should be cleaned and disinfected immediately after contact with animals with suspected infectious disease regardless of contamination.
- 7) If a contagious infectious disease is suspected based on history, physical examination, or evaluation of previously performed laboratory work:

- a) Close off exam room
 - b) Place a "Do not use exam room, special disinfection required" sign on the door.
 - c) Notify either the Community Practice Nurse (Danielle Horsley or Hafiz Mohamed Bakri) or Companion Animal Nursing Supervisor (Theresa Hardisty) of the suspected agent and do not use the room until adequate cleaning/disinfection occurs and the sign is removed.
- 8) Hospitalized small animal patients with suspected infectious gastrointestinal disease should be considered possible sources of nosocomial or zoonotic infection and should not be walked in common eliminating areas - they should be allowed to eliminate in the SA ISO unit - or if needed - be transported on a green trolley to the area designated for high risk patients. All waste material must be properly disposed and contaminated surfaces in the hospital must be appropriately cleaned and disinfected as soon as possible.
- 9) At discharge, personnel must ensure that instructions given to clients adequately address the infectious disease hazards associated with the patient (to other animals and to humans), and appropriately provide suggestions for mitigating risks to people and animals.

Required Diagnostic Testing In Patients with Suspected Infections:

Diagnostic testing to detect certain infectious and/or zoonotic agents provides essential information for appropriate clinical management of infected patients. This testing provides direct benefit to the patient in addition to benefiting clients' by allowing them to appropriately manage their other animals and protect their families.

- 1) It is therefore mandatory for all hospitalized patients to undergo diagnostic testing if infection with specific contagious or zoonotic agents is a reasonable consideration. This diagnostic testing is considered essential to case management and therefore is billed to the client.
- 2) It is the responsibility of the senior clinician responsible for a patient's care to ensure that appropriate samples are submitted for this testing, and that appropriate biosecurity precautions are taken with these patients.
- 3) In addition to the VTH personnel and students on the case, Biosecurity Personnel should be notified that there is a reasonable index of suspicion that a hospitalized patient may be infected with one of the agents listed below. This notification can be made in person, by phone, or by email (M.Dunowska@massey.ac.nz or any member of the Biosecurity Committee).

Disease Differentials for which Testing is Mandatory

Testing of appropriate samples is mandatory if the following disease or condition is a reasonable differential. A full description of testing, management, diagnosis, and potential treatment information is available in the Specific Contagious Diseases of Concern Section of the Biosecurity SOP.

- a) Acute Diarrhea in dogs and cats
- b) *Salmonella* and *Campylobacter*
- c) *Cryptosporidium* and *Giardia*
- d) *Chlamyphila psittici* (Avian, formerly *Chlamydia psittici*)
- e) Canine Distemper Virus
- f) Methicillin-resistant *Staphylococcus* infections (MRSA and MRSP)
- g) Leptospirosis
- h) Parvovirus

Management of Patients Infected or Colonized with Bacteria Resistant to Important Antimicrobial Drugs

Patients infected with bacteria resistant to important antimicrobial drugs or to multiple drug classes represent a potential health hazard to VTH personnel, clients, and to other patients. As such, they are managed with increased biosecurity precautions intended to discourage dissemination in the VTH. These patients can be housed in several different areas of the hospital, including:

- 1) SA isolation
- 2) Critical Care unit – barrier precautions **must** be used
- 3) General hospital area - barrier precautions **must** be used

Cleaning, disinfection and waste

- 1) Immediately clean and disinfect any hospital equipment, green trolleys, and examination tables after contact with infectious disease suspects, and follow general guidelines for hygiene/cleanliness. The nature of infectious agent and the species of the patient should be considered when choosing the appropriate disinfectant. As a default, 1% Acell Prevention can be used as it has a broad spectrum of action, quick contact times, is non-corrosive, has low toxicity and is biodegradable. Please note that for SAFE4 disinfectant should be used when the equipment is used with bird patients. For more information on disinfectants, refer to the General Biosecurity SOP.
- 2) Clean and disinfect scales and examination tables used during the treatment of infectious disease suspects immediately after treatment. Every effort should be made to weigh and treat other animals before using communal equipment for infectious disease suspects.
- 3) Personnel should change any contaminated outerwear after handling infectious disease patients.
- 4) After handling the infectious disease patient remove the barrier nursing gown and hang it within the isolation area or discard if soiled. Remove and discard gloves, use the footbath and wash hands.

- 5) Regular trash bags should be used to collect all disposables and laundry coming in contact with infectious disease suspects. Label all laundry with the suspected infectious disease and take to feed room, This laundry should be washed separately from other loads. Label disposables with suspected infectious disease to be discarded by kennel hands.

Small Animal Emergency and Critical Care Unit (ECC) Biosecurity

- 1) Patients with suspected or confirmed infectious disease should be preferentially housed in the SA ISO unit. Selected small animal infectious disease patients requiring intensive care may be housed in the Small Animal Critical Care Unit (ECC) with prior approval of the ECC faculty clinician on duty.
- 2) Patients with known gastrointestinal or respiratory tract disease should be identified upon admission and brought to the attention of attending nurses and clinicians in ECC.
- 3) Cages must be visibly labelled to identify infectious agents of concern, along with the required biosecurity precautions. It is very important to communicate the agent(s) of concern for these patients so that all personnel can take appropriate precautions for protecting human exposure and to ensure that appropriate cleaning and disinfection procedures are used.
- 4) Because of the intensive nature of nursing care provided in ECC, it is critical to strictly adhere to barrier nursing and hand hygiene protocols.
- 5) Stethoscopes and thermometers should be cleaned and disinfected frequently to minimize the risk of nosocomial transmission of infectious agents.
- 6) The number of personnel handling cases should be minimized whenever possible.
- 7) Owners should be discouraged from entering ECC.
- 8) When possible, students assigned to infectious disease cases should not have contact with immune suppressed patients elsewhere in the VTH. Examples would include leukopaenic patients, young animals, animals receiving immunosuppressive drugs and patients with diabetes mellitus. When caseload demands contact with infectious disease suspects, treat other patients before handling infectious cases.
- 9) Animals requiring hospitalization in ECC and suspected of having an infectious disease should be cared for using barrier nursing, including the following:
 - a) The animals should be placed in cages as far from other patients as caseload will allow.
 - b) An "isolation area" around the animal's housing area should be identified with tape placed on the floor creating a 1-meter perimeter around the cage.
 - c) Disposable barrier gowns, gloves, dedicated thermometers and a stethoscope should be available within the perimeter for persons coming in contact with the patient.
- 10) Hospitalized small animal patients with confirmed or suspected infectious diseases should be allowed to eliminate in their cages whenever possible. They should NOT be walked in common eliminating areas. If patients need to be taken outside, every effort should be made to prevent urination or defecation within the hospital. A suitable disinfectant should be carried and used to clean urine or faecal accidents. Whenever possible patients should be transported via green trolley to minimize the potential for contamination of common traffic areas.
- 11) If taken outside, patients with confirmed or suspected infectious diseases should only be taken to the area designated for high risk patients. All waste material must be properly disposed of.

Small Animal Isolation Biosecurity

General Information

- 1) The Small Animal Isolation (SA ISO) unit consists of one anteroom – for preparation and supplies, and one room for isolation cases consisting of one fixed isolation cage, one moveable bank of cages.
- 2) **Strict attention to hygiene and use of barrier nursing precautions** in isolation units is absolutely critical for appropriate containment of contagious disease agents.
- 3) Special care must be taken to **prevent contamination of the isolation environment by dirty hands, gloves, or shoes**. Gloves should be changed as often as necessary to minimize environmental contamination. Hands should be washed with soap and water or cleaned with alcohol-based hand sanitizer after contact with the patient or any potentially contaminated material, as well as on entry and exit from the SA isolation area.
- 4) **Environmental hygiene is the responsibility of all personnel working in the isolation unit**. Students assigned to the isolation case are responsible for routine cleaning and organization of anterooms when their patients are housed in the SA ISO Unit. This includes cleaning and disinfecting counters, door handles, door knobs, and emptying trash when full.
- 5) **Smoking, eating or drinking are not allowed in any part of the SA ISO unit** because of risk of exposure to zoonotic agents. Food and drinks are not to be brought to the unit.
- 6) Patients known or suspected to have an infectious disease should be housed in the SA ISO Unit. These include patients with:
 - a) Diarrhea +/- vomiting (e.g., *Salmonella*, *Campylobacter*, parvovirus infections, Clostridial agents, *Giardia*, etc.)
 - b) Respiratory disease (e.g., infectious tracheobronchitis (kennel cough), influenza, calicivirus, FHV, etc).
 - c) Other infectious diseases and agents deemed to require isolation by the senior clinician on the case or a member of the Biosecurity Committee.
- 7) **Patients** that would typically be housed in the SA ISO unit (those listed under point 6 above) **may be housed in the Small Animal ECC unit** if they require intensive care and **prior approval** is received from the senior ECC clinician.
- 8) **Clinicians** must inform the **Wards Patient Care Veterinary Nurse** of confirmed or suspected infectious cases and request that a Veterinary Nurse set up the unit.
- 9) Only one animal can be housed in the fixed isolation cage at any time.
- 10) Clinicians and students treating infectious animals are solely responsible for their daily cleaning and maintenance.
 - a) Patients in isolation are treated **after all other hospital patients** have been treated.
 - b) **Only trained staff and students will feed the animals**, however hospital caretakers are responsible for the preparation of food.
- 11) Staff and students are informed of the infectious disease, risks and protocols before entering the unit. Females are advised if there is a risk of fetal issues. Personnel who have an immunosuppressive disease are not allowed to treat patients in the unit.
- 12) Any accidents (including needle stick injuries, bites and scratches) must be reported to the clinician in charge of the case and the appropriate accident report form completed
- 13) Client-Patient Visitation

- a) **Clients are never allowed to visit animals housed in SA ISO unit.** Exceptions to this visitation rule may be granted under some circumstances, such as when patients are to be euthanized. These need to be approved by the senior clinician on the case.

14) Reducing Biosecurity Precautions for a Patient Housed in the SA ISO Unit

- a) In general, patients are not allowed to be moved from SA isolation to other housing areas of the hospital. Under special circumstances (e.g. requirements for intensive care at ECC or change of the initial diagnosis), the patient can be moved to general area of the hospital, providing that both the senior clinician on the case AND a member of the IVABS biosecurity committee agree to the move.

15) Patient Exercise

- a) Isolation patients are not to be taken outside of the isolation run or taken to common use elimination areas.

Protocols to follow when working in SA ISO unit

1) Procedures for Personnel Entering the SA ISO unit:

- a) Gather equipment required to examine patient and gather all medications required prior to entering the unit.
- b) Remove personal lab coat and place on hook on wall beside the door, outside of the anteroom. No personal items are to be taken into SA ISO unit.
- c) Enter the facility and put on a lab coat provided. The lab coat should be worn at all times within the isolation facility.
- d) Put gown and gloves on before crossing the red line. It is recommended to double glove. After examination of the patient, remove one set of gloves (and dispose of them). The remaining pair of gloves is worn while writing records, getting medication etc.
- e) Remove shoes and put on gumboots. Immerse gumboots in disinfectant (Trigene) on entry to the isolation unit.

2) Care for the patient in the SA ISO unit:

- a) In order to minimize the number of personnel handling cases in isolation, the primary clinician and student should be prepared to perform all physical examinations and treatments themselves. If necessary, the primary clinician may assign additional students and staff to help.
- b) All the preparations should be performed in anteroom on clean counter.
- c) After entry to the main isolation area, examine the patient and perform treatment – in cage, on the floor or on table in unit.

3) Procedures for Personnel Exiting the SA ISO unit:

- a) Discard outer gloves into garbage immediately prior to crossing the red line from the isolation unit to the anteroom.
- b) Walk through the disinfectant footbath.
- c) Disinfect any surfaces (doorknobs, etc.) that were contaminated (with inner gloves on).
- d) Just before leaving the ISO unit, remove gumboots and put on your shoes (with inner gloves on).
- e) Remove inner gloves and discard.
- f) *Hands* should be thoroughly washed with chlorhexidine scrub and water after removal of gloves and gumboots.
- g) Exit the anteroom.

- 4) Admitting a Patient to the Small Animal Isolation Unit
 - a) Whenever possible, patients should be admitted to the SA ISO Unit directly through an outside entrance. This is especially important if patients are diarrheic or are coughing.
 - b) If VTH in-patients are being transferred to the SA ISO Unit from within the VTH (e.g., from an exam room or from ECC) they should be transported on a green trolley or carried to limit hospital contamination.
 - c) Referred infectious disease cases should be admitted directly to the isolation unit from the outside entrance.
- 5) With approval from Biosecurity Personnel, one of the wards or selected kennels may be designated as an overflow isolation area for patients that should not be housed together in the SA ISO unit. Other patients should be removed from these areas prior to housing infectious patients. If the infectious patient is housed in the kennel area, this should be done in the far end, away from in-and-out traffic, with at least 1 empty cage between the isolated dog and another patient.
- 6) General Cleaning and Trash
 - a) **Garbage** should be double-bagged in marked yellow biohazard garbage bags. For disposal, seal the bags with tape and spray the outside of the bags with Accel Prevention or Trigene disinfectant. Label the outside of the bags with the suspected infectious agent and take the garbage to the Post Mortem room for disposal.
 - b) **Linen** (if used) should be placed in a biohazard marked laundry bag and washed separately from other items, using Trigene/Sterigene disinfectant.
 - c) **The occupied cages should be** cleaned daily and disinfected with the appropriate disinfectant. The disinfectant chosen should be appropriate for the infectious agent. The default disinfectant is Accel Prevention, but Trigene/Sterigene and Virkon can also be used at appropriate dilutions.
 - d) **If birds are housed in the SA ISO units, only SAFE4 disinfectant** should be used due to toxicity of other disinfectants for birds.
 - e) Remove reusable equipment and food bowls from cage and decontaminate with SAFE4 or Accel Prevention.
 - f) All instruments and equipment used on the case should be soaked in Accel Prevention or Trigene/Sterigene disinfectant for at least 10 minutes, followed by a thorough rinse in water (wear gloves to remove articles from disinfectant). Inform ward nurse, who will take the instruments to Sterile Supply for sterilization.
- 7) Minimizing Entry into the Isolation Unit
 - a) Minimize the number of personnel handling cases in isolation. Only the student and staff members directly responsible for the patient should enter isolation. Clients are not permitted to visit patients in isolation.
 - b) When possible, students assigned to infectious disease cases should not have contact with immune suppressed patients elsewhere in the Massey VTH. Examples would include leukopaenic patients, young animals, animals receiving immunosuppressive drugs and patients with diabetes mellitus. When caseload demands contact with infectious disease suspects, treat other patients before handling infectious cases.
 - c) Clients are never allowed to visit animals housed in SA ISO unit. With express permission from Biosecurity Personnel, exceptions to this visitation rule may be granted under some circumstances, such as when patients are to be euthanized.
- 8) **Equipment and Materials:** In general, any materials taken into the SA ISO Unit should not be taken back to the main hospital.
 - a) **Anteroom supplies are stocked by the Companion Animal Veterinary Nurses.** These include: gown, gloves, boots, masks, buckets, Trigene disinfectant (1:20 dilution with water) or Accel Prevention (1:40 with water), footbath set

up with Acell Prevention or Trigen, garbage bags, linen bags, assorted syringes and needles, sharps container, thermometer holder, clippers, stethoscope.

- b) Any **supplies** taken into an ISO Ward anteroom should be **used for that patient or discarded** (do not use on multiple patients or return them to the general stock).
 - c) **Treatment Supplies** should be determined by clinicians and students involved in the case. These should be obtained from the treatment room before entering isolation. No equipment or supplies (e.g. catheters, bandage material) should be taken to the SA ISO Unit without first checking with personnel responsible for this area.
 - d) **Drugs and intravenous fluids** are NOT kept in the isolation unit. These items will be dispensed from the central pharmacy (SA Hospital) if and when required, depending on their immediate or anticipated requirement. Any drugs dispensed from the central pharmacy, which are not subsequently used should be appropriately disposed of and not returned to the SA Hospital.
 - e) **Medications** used on isolation patients should be billed to client and sent home at discharge or else discarded. Do not return medications or intravenous fluids from isolation to the Pharmacy. All medications sent home with clients must be dispensed in appropriate child proof containers with a complete prescription label.
 - f) **Equipment used in the unit** (e.g. food containers, water buckets, foot baths, leads, drug bottles, stethoscopes, thermometers etc.) should not be removed from the unit for use in other areas of the hospital. This equipment will be provided in the unit and will be clearly labelled "isolation unit".
 - g) **Syringes/fluid bags/intravenous giving sets/catheters etc.** should be discarded in clinical waste bags following use, and needles should be discarded in "sharps" containers after use.
 - h) VTH-owned stethoscopes are used on patients in the SA ISO Unit. **Do not bring your own stethoscope or any other equipment into isolation.**
 - i) New digital thermometers (dispensed and charged to clients) or disposable thermometers are used in the SA ISO Unit.
 - j) Samples obtained from isolation patients should be disinfected and sealed in a biohazard bag for transport to the laboratory. This will minimize the likelihood of contaminating other surfaces.
- 9) Discharge of Isolation Patients
- a) Once a patient has entered isolation, the patient **should not return** to the general hospital area.
 - b) The patient is discharged from isolation directly to the owner in the car park, via the outside door.
 - c) Following removal of the SA ISO unit needs to be thoroughly cleaned and disinfected using Accel Prevention disinfectant. Alternatively, Virkon or Trigen/Sterigene disinfectants can be used (see General Biosecurity SOP for dilution guidelines). Please contact the Head Nurse, who will organise for that to happen. The cage should be left empty for 48 hours and a sign placed stating when it can be used.

Small Animal Surgery/Anesthesia Cases with Suspect Contagious Disease:

- 1) Surgery on animals with suspected infectious diseases should be avoided when possible. Bandage changes, minor procedures and minor surgeries should be performed in the SA ISO unit whenever possible. When absolutely necessary, surgery will be performed on animals suspected of having contagious diseases at the end of the day to minimize exposure to other patients.

- 2) It is the primary clinician's responsibility to notify anesthesia and small animal surgery about impending surgery on animals with potential infectious diseases (particularly respiratory, gastrointestinal, and multiple-antibiotic resistant bacterial infections).
- 3) The animal should be pre-medicated in the SA ISO Unit.
- 4) Transport to anesthesia prep should occur just prior to induction. A green trolley or transport cage should be used to minimize hospital contamination.
- 5) A remote induction and prep table should be used.
- 6) An operating room with minimal cross traffic should be selected.
- 7) After surgery, contaminated outerwear should be placed in plastic bags, marked with the biohazard sign, and returned to sterile supply for washing in a separate load from other washing.
- 8) All contaminated areas must be cleaned and disinfected immediately following the procedure.
- 9) All contaminated instruments and equipment must be cleaned and disinfected, and placed in a plastic bag marked with the suspected agent prior to returning to Central Supply for sterilization.
- 10) Patients should recover from anesthesia in SA ISO when possible.
- 11) The surgical suite must be immediately cleaned and disinfected.
- 12) All individuals contacting the animal must wash hands carefully and remove contaminated clothing prior to handling other animals.

Exotic and Zoological Medicine Biosecurity

- 1) The Small Animal Biosecurity SOP should be followed when dealing with exotic and zoological patients whenever possible. The general principles of minimizing risks of infectious disease transmission should be followed.
- 2) Patients admitted with a suspected infectious disease should be taken to SA ISO facility immediately per approval of the clinician in charge. Small Animal ISO unit protocols should be followed for exotic and zoological patients that are housed in SA ISO unit.
- 3) Physical separation of wildlife from private avian and reptile patients: All private birds and reptiles are hospitalised in Ward 3. However, our limited facility currently means that private and wild birds have procedures that require anaesthesia in the same space.
- 4) Patients affected by bacterial infections with multi-antibiotic resistance are either euthanased (common wild species); or treated within the Wildbase hospital under barrier precautions. These include the use of designated gowns, disposable gloves, shoe covers, and separate cleaning and disinfectant soaking of all equipment used with these cases).
- 5) Any patients with the following conditions are hospitalised in SA ISO unit with full barrier nursing: potentially zoonotic disease (e.g. *Chlamydophila*, *Salmonella*, mycobacteriosis); other infectious diseases (eg. poxvirus, PBFD, polyomavirus); or any backyard poultry with any evidence of respiratory or neurological disease.
- 6) There are hand wash and alcohol gel stations in each room of the widebase hospital. Staff are asked to wash their hands or use the gel-based sanitizer between patients.
- 7) Scrub tops should be worn during hospital treatments.
- 8) All floors, cages, feeding implements, food and water bowls are cleaned and disinfected (chlorhexidine) daily. Towels used as our main substrate in the cages are changed one or two times daily depending on the degree of faecal/food contamination. Between patients cages are cleaned and disinfected with Trigene.

Specific Contagious Diseases of Concern

Infectious Diseases that Require Isolation

Feline	Panleukopenia
	Leukemia virus
	Infectious peritonitis
	Upper respiratory tract infection
	Suspected infectious diarrhoea
Canine	Suspected infectious diarrhoea
	Distemper
	Infectious hepatitis
	Infectious tracheobronchitis (Bordetella)
	Parvovirus
	Campylobacter diarrhoea
	Corona virus
Avian/Reptiles	<i>Chlamydophila</i>
	Poxvirus
	Cryptosporidia
	Salmonellosis
	Mycobacteriosis

Additional Information for Selected Infectious Diseases

Acute Diarrhea (small animal)

- *Salmonella* and *Campylobacter*: A one gram faecal sample should be submitted for culture of *Salmonella* and *Campylobacter*, especially if, 1) the animal is febrile, 2) if neutrophils are seen on rectal cytology, 3) there is a history of feeding a raw food diet, or 4) if more than one animal in the household / population has been affected with a similar condition.
- Parvovirus: Parvovirus antigen ELISA performed on faeces is mandatory for any hospitalized canine patient in which parvovirus infection is a reasonable differential. Clinicians should consider the effects of recent vaccination when interpreting test results. The samples can also be submitted to the IVABS Virology Laboratory for confirmatory PCR testing and typing.
- *Cryptosporidium* and *Giardia*: An acid fast stain of a thin faecal smear, direct faecal examination, or wet mount examination is required for all diarrheic calves, dogs and cats admitted to the Massey VTH.

Some of the pathogens associated with acute diarrhoea in a small animal patient are zoonotic. These include *Salmonella*, *Campylobacter*, *Cryptosporidium* and *Giardia*.

These pathogens are transmitted via faecal-oral route. Therefore, strict adherence to personal hygiene is important in minimizing the risks of zoonotic and/or nosocomial infections. In addition, maintaining clean environments minimizes tracking of these organisms throughout the hospital.

These pathogens are typically environmentally stable and may be resistant to some disinfectants. Ensure that appropriate type, concentration and contact time of the disinfectant is used. Remember that many disinfectants are not active in the presence of organic matter – the area to be disinfected needs to be cleaned first, before appropriate disinfectant is applied (see General Biosecurity SOP for more details).

Infectious Tracheobronchitis (*Bordetella*)

Canine infectious tracheobronchitis is a multifactorial disease and may be associated with infection with one or more of the following agents:

- *Bordetella bronchiseptica*
- *Streptococcus* spp.
- Parainfluenza virus
- Canine distemper virus
- Canine adenoviruses
- Canine infectious coronavirus
- Canine influenza virus

Diagnostic testing to identify the agents of concern should be attempted. Clinicians should consider the effects of recent vaccination on these test results.

In general, pathogens involved in canine infectious tracheobronchitis do not pose zoonotic risks, although rarely human infections with *Streptococcus zooepidemicus* or parainfluenza virus have been documented. Canine influenza virus may pose zoonotic risks due to the known capacity of influenza viruses to cross species barriers. However, canine influenza virus is currently exotic to New Zealand.

Leptospirosis

Testing of appropriate samples is mandatory for any hospitalized dog for leptospirosis if they have unexplained renal azotemia or evidence of hepatic inflammation using PCR performed on urine. Because of requisite time delay, use of acute and convalescent serum titers is less desirable, but may be used if stored serum is available for the acute sample.

Management considerations for Leptospirosis suspects

- 1) Not all dogs with leptospirosis have acute renal failure. Other common clinical presentations include hepatic failure, uveitis, pulmonary hemorrhage, acute febrile illness, or abortion.
- 2) Negative titers do not completely rule out leptospirosis as a diagnosis.
- 3) Shedding of leptospires in urine of infected dogs is thought to stop within 2-3 days of initiating appropriate antimicrobial treatment. Untreated or inappropriately treated animals can shed infective organisms for months.
- 4) Cases of leptospirosis should be housed **either in SA ISO unit or ECC**. Regardless of antimicrobial therapy, animals known to be infected must be managed with **full barrier precautions and contact restriction**. Care must always be taken when cleaning the housing environment of infected animals or when handling urine.
- 5) Immunity to leptospires is serogroup specific.

Key control measures for Leptospirosis suspects

- 1) **Transmission almost always occurs through contact with urine of infected animals.** Thus, patient and personnel contact must be controlled in patients suspected of having leptospirosis.
- 2) If urine can be contained or controlled, risk is minimized:
 - a) Dogs should be allowed to void in the designated area.
 - b) Patients should have a urinary catheter placed if they have renal failure or if urine containment is otherwise problematic.
 - c) Prompt clean-up and disinfection of urine spills is important.
 - d) Protect eyes, mouth, and skin when cleaning cages or handling soiled bedding.
- 3) Transmission via contact with other body fluids is possible, but less likely.
- 4) Shedding will likely decrease once treatment with antimicrobial drugs is initiated.
- 5) Leptospira are very sensitive to drying, sunshine, detergents and disinfectants.
- 6) Negative leptospira titers do not completely rule out leptospirosis as a diagnosis.

Special precautions for cleaning

- 1) Protect eyes (goggles or glasses), mouth (mask), and skin (lab coat and gloves) when cleaning cages or handling soiled bedding.
- 2) Do NOT use high-pressure washing as this may result in aerosolization of the organism.

Multidrug Resistant (MDR) Bacteria including Methicillin-Resistant *Staphylococcus* spp. (MRSA and MRSP):

- 1) Major epidemics of nosocomial MRSA infection have been documented in Veterinary Teaching Hospitals throughout North America in which both animal patients and hospital personnel have become colonized and clinically infected after nosocomial exposure. MRSP has similarly caused epidemics of nosocomial infections among canine patients. Although similar outbreaks have not, as yet, been recorded in New Zealand, the Massey VTH considers MRSA and MRSP to be important potential threats to patients and personnel. Both bacteria are included in routine bacteriological surveillance of high traffic foot and hand-contact surfaces.
- 2) Biosecurity precautions for patients affected by MDR infections, including MRSA/MRSP should include **segregation or isolation** of hospitalized patients, use of **disposable barrier nursing gowns, gloves, disinfectant footbaths or footmats,**

and enforced hand washing after completing care of affected patients. Masks are generally not required, other than to reduce the potential for hand-to-face contact while handling patients. **Bandages and drainage from infected sites must also be contained and disposed of** appropriately to minimize environmental contamination and personnel exposure.

- 3) The **cases** should be **clearly identified** as affected by MDR bacteria, so that personnel handling these cases are aware of the potential risks. Standard cleaning and disinfection protocols should provide adequate decontamination, but extra care should be taken to ensure that cleaning is rigorous and protocols are carefully adhered to.
- 4) Because of the potential consequences of zoonotic infections with MRSA, **clients and referring veterinarians should be notified** by clinicians about isolation of MRSA from patients.
- 5) Passive surveillance in VTH Patients - All *S. aureus* isolates obtained from MU-VTH patients that are considered to be of clinical significance should be screened for susceptibility to oxacillin/cefoxitin (as a marker for methicillin and extended-spectrum beta lactam resistance). Isolates that are found to be resistant should be reported to Biosecurity Personnel and to clinicians. Appropriate treatment, barrier precautions, and isolation procedures are determined through consultation between Biosecurity personnel and clinicians responsible for these patients.
- 6) Environmental surveillance - Environmental samples are collected when nosocomial infections are suspected in the VTH using Swiffer® electrostatic wipes and are cultured for MRSA using enrichment procedures and media containing breakpoint-concentrations of oxacillin.
- 7) Surveillance in VTH Personnel: Information collected from other veterinary hospitals that have experienced MRSA epidemics suggests that colonization of personnel and subsequent transmission to patients is a major factor influencing the spread of infection and colonization. Further, colonization of personnel represents a potential health hazard for themselves and their family members. As such, in situations where information suggests that there has been nosocomial transmission of MRSA in the MU-VTH, personnel that may have been exposed to infected patients will be encouraged to undergo diagnostic testing to detect MRSA colonization.