4. Companion Animal Hospital

4.1. Introduction

- It is essential that all students, clinicians, nurses, and staff are familiar with the basic principles of hygiene and personal protection. All individuals working in the Companion Animal Teaching Hospital (HE-AC) are responsible for maintaining cleanliness within the facilities.

4.2. General Attire

- FMV recommends the use of scrub attire for all staff and students to reduce risk and limit the potential exposure of people or other animals outside the HE-AC facilities.
- All staff and students must wear clean professional clothing, clean outer protective gowns, and clean, appropriate footwear at all times while working in the HE-AC.
- Uniforms must be protected with a white coat or a blue jacket/sweatshirt when outside the surgery rooms.
- Footwear must be disinfected during work using Klorkleen. Waterproof footwear is recommended to limit potential damage caused by disinfectant solutions.
- Outer protective gowns and footwear must be changed or cleaned and disinfected whenever soiled with feces, urine, blood, nasal discharges, or other body fluids.
- Upon arriving at the HE-AC, all staff, students, and trainees must change from their personal clothing into their designated scrubs and store them, along with their personal belongings, in individual lockers.
- Lockers are located in the corridor of the surgery changing room area.
- Changing clothes must take place in the surgery changing rooms.
- Each student or trainee must have a padlock to temporarily secure their locker.
- Each student/trainee must have their own petroleum-blue scrub set and rubber clogs or trainers for exclusive use within the HE-AC, which must be easily washable and disinfectable.
- Each student/trainee must have a spare scrub set to change into in case the first set becomes contaminated with organic matter during a class in the HE-AC.
- It is forbidden to store personal belongings such as backpacks, bags, or clothing anywhere other than the individual lockers.
- At the end of class, students/trainees collect their clothes and belongings from the lockers and change clothes in the surgery changing rooms, storing their scrubs and clogs in a clean bag.
- Whenever they need to return to the HE-AC for any reason, they must equip themselves in the same way

Poster 5 summarizes the instructions that students must follow whenever they have practical classes in the HE-AC. This poster is displayed at the entrance of the HE-AC.

Poster 5

Instructions for students regarding the Biosafety Standard Operating Procedures in force at the Companion Animal Teaching Hospital

COMPANION ANIMAL TEACHING HOSPITAL (HE-AC)

INSTRUCTIONS FOR STUDENTS

1 – Store your belongings in a locker on Floor 0 of the HE-AC, take a bag with your blue hospital scrubs and your hospital clogs or trainers, and lock the locker with your padlock.

2 – Tie back long hair.

3 – Go to the CHANGING ROOM on Floor 0. Remove your shoes and place them under the wooden benches.

4 – Put on your blue hospital scrubs and your hospital clogs or trainers.

5 – Go up the stairs to Floor 1 of the HE-AC. Always follow the marked entry and exit routes.

6 – Go to the room where your practical class will take place (e.g., consultation room, general hospitalization ward, X-ray, CT, etc.) and wait for authorization from the lecturer or clinical instructor before entering.

7 – Disinfect your hands when entering and leaving the HE-AC.

8 – After class, return to the CHANGING ROOM on Floor 0, remove your blue scrubs and hospital clogs or trainers, store them in your clean bag, and put your shoes back on.

9 – Remove your belongings from the locker on Floor 0 of the HE-AC, store your padlock, and leave the locker open.

10 – If you have any questions, read the QR Code on the poster to access more detailed information.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

A - Personal blue hospital scrubs.
B - Personal hospital clogs or trainers for exclusive use in the HE, clean.
C - The remaining PPE, e.g., gloves, is provided by FMV.

4.3. Patient Hygiene

- For basic hygiene and reduction of infection pressure, it is very important that HE-AC patients are housed in a clean cage. Before housing a new patient in a cage, ensure that all organic fluids from the previous animal (faeces, blood, urine, etc.) and soiled materials (pads, bedding) have been cleaned.

- The cleaning staff clean the corridors daily. Nurses, assistants, and students are responsible for cleaning and disinfecting cages, following current procedures. Faeces or wet bedding must be removed immediately and the cage disinfected by students and/or nurses/assistants.
- Cages used for non-contagious patients are regularly emptied, cleaned, and disinfected between use by different animals.
- Water bowls must be cleaned regularly (at least twice daily or as needed) during an animal's hospitalization and must be cleaned and disinfected between use by different animals. The presence of water in the bowl must be checked regularly. The bowl must be refilled with fresh water at least twice daily after cleaning.
- Food bowls must be cleaned regularly (at least twice daily or as needed) during an animal's hospitalization and must be cleaned and disinfected between use by different animals. Leftover food must be discarded in the appropriate waste container.
- Patients must be kept as clean as possible; all excretions or secretions must be removed as soon as detected. Dirty patients must be washed, and all patients must be brushed regularly.
- The area around the cage must be tidy and clean, meaning no scattered medications or materials, no bedding outside the cage, and no student equipment.
- If patients defecate outside a cage (either inside Building D or in the walking area), faeces must be collected immediately. If patients urinate inside Building D, the floor must be cleaned, disinfected, and dried.
- When a patient is discharged, the cage must be cleaned as soon as possible.
- Patients suspected or confirmed to be infected (Classes 3 and 4) are transported to the HE-AC Biological Isolation and Containment Unit (UICB-AC), where they are treated in isolation.

4.4. Food and beverages

- Food and beverages may only be stored and consumed outside the HE-AC, in the student cafeteria, in the rooms of veterinarians, nurses, and students, in staff offices, and in outdoor areas designated for this purpose.
- No medication, biological sample, or medical equipment may be stored in a refrigerator used for human food.
- No medication, biological sample, or other medical equipment may be stored in staff or student rest areas.
- It is strictly forbidden to store or consume food and beverages in patient care areas.
- Patients are not allowed in areas where food and beverages are stored or consumed.
- Food and beverages must not be left out for long periods, to avoid bacterial growth and the risk of foodborne illness.
- Refrigerators used to store patient food or medications must not be used to store human food or beverages.

4.5. Cleaning Procedures and General Hygiene

4.5.1. Cleaning Procedures

- Maintaining cleanliness of the HE-AC and personal hygiene are responsibilities of all staff members and students who study and work in the HE-AC.
- Hands must be washed and disinfected with an alcohol-based hand antiseptic before and after handling each patient.

- Hands must also be washed and sanitized when leaving the hospitalization ward, before working in other areas of the HE-AC.
- Disposable examination gloves must be used when triaging high-risk patients (Class 3 and 4) and during their transport to the UICB-AC, as well as when handling immunosuppressed animals or those with excretions, secretions, or wounds.
- Surfaces and equipment contaminated with faeces, secretions, or blood must be cleaned and disinfected by the students/trainees/staff responsible for the patient. This is particularly important after triaging patients suspected of infection with Class 3 or Class 4 infectious agents.

4.5.2. General Disinfection Protocol

- Clean and disinfect all equipment between patients (muzzles, speculums, forceps). Clean equipment may be returned for sterilization when necessary.
- Students' personal equipment (e.g., scissors, thermometer, stethoscope, and penlight) must be routinely cleaned and disinfected.
- If fleas or ticks are found on a patient, treat the animal with an antiparasitic spray.
- Appropriate clothing must be worn when using disinfectants. Additional PPE, such as gloves, masks, and disposable gowns, must be used whenever splashing is likely during the disinfection process.
- Remove all inorganic and organic material before disinfection. The presence of heavy contamination will inactivate most disinfectants. If organic material is removed using a hose, care must be taken to minimize aerosolization and the spread of potential infectious agents.
- Wash the cage, including walls, doors, feeding bowls, and water bowls, with water and detergent or soap. Scrubbing is essential to remove biofilms and residual debris that interfere with the disinfection process.
- Rinse the area thoroughly to remove detergent residues. Note: disinfectants may be inactivated by detergents or soap, so it is very important to rinse and remove detergent residues after use.
- Allow the area to dry as much as possible to avoid dilution of disinfectant solutions.
- Apply the disinfectant solution (prepared according to the manufacturer's instructions) to the walls and door of the cage. The disinfectant must remain in contact with the surfaces for several minutes (ideally 15 minutes, or according to the manufacturer's instructions).
- Remove excess disinfectant solution with water.
- Disinfectant must be removed from all surfaces before admitting another patient into the cage.
- After disinfection, remove PPE and wash hands.
- All multipurpose areas (e.g., examination rooms) must be tidied, cleaned, and disinfected after use by the staff and students responsible for the patient, regardless of infectious status

4.5.3. Instrument and Equipment Disinfection Protocol

- All instruments, equipment, and other items (e.g., gastric tubes, oral speculums, endoscopes, cleaning tools, clipper blades) must be cleaned and sterilized or disinfected between uses in different patients.
- Materials normally sterilized after use (e.g., surgical instruments) must be cleaned with enzymatic detergent and returned to the cleaning service for sterilization.
- Surfaces or equipment contaminated with faeces, secretions, or blood must be cleaned and disinfected immediately by the staff and students responsible for the patient.

- **Stethoscopes**

- Staff and students' stethoscopes may be used on Class 1–2 patients but must be regularly disinfected with hydroalcoholic solution (Promanum), namely at the beginning and end of the day.

- **Thermometers**

- Thermometers must be carefully cleaned and disinfected after each patient using alcohol or Sterilium.

- Between patients, thermometers used for continuous temperature monitoring (e.g., during anaesthesia) must be carefully cleaned (with a cloth or washing) to remove gross faecal material and disinfected by immersion in alcohol and/or chlorhexidine solutions.

- Other instruments and equipment belonging to staff and students (e.g., forceps, scissors) may be used on multiple non-contagious patients (Class 1 and 2) but must be cleaned and disinfected between patients with 70% isopropyl alcohol or Sterilium, available in various areas.

- Individuals walking dogs are responsible for cleaning faeces from the ground. Paper bins and waste containers located in various areas of the HE-AC provide plastic bags in the animal walking areas around the hospital.

- All rooms must be kept clean and tidy at all times, including tabletops, counters, and floors. All students' personal belongings must be stored in lockers.

4.5.4. Walking Area

- This area must be cleaned daily and immediately after each defecation, which is the responsibility of the student/nurse/assistant who takes the dog for a walk.

4.6. Guidelines for the Admission and Handling of Small Animals

4.6.1. Outpatients

- Small animals without clinical signs of infectious disease may be accompanied by their owner in the waiting room.
- Outpatients may be hospitalized for a short period (if additional tests or procedures are to be completed), provided they are not Class 3 or 4 patients.
- Outpatients should be taken to hospitalization areas as little as possible.
- Students, nurses, and veterinarians are responsible for the immediate removal and proper disposal of faeces from outpatient cages. If the patient urinates and/or defecates, the responsible staff must temporarily remove the animal from the cage and clean the area, rather than using a different cage.
- If an FMV bowl is used to give water or feed the patient, the student and the responsible team are in charge of cleaning and disinfecting it with chlorhexidine (following the manufacturer's instructions) after use.

4.6.2. Hospitaliized Patients

4.6.2.1. Cage Allocation

- Cages for hospitalized patients are preferably assigned by the nursing team or by the person responsible for the hospitalization area.
- Due to the risk of loss, contamination, or organic matter contamination, owners' bedding, blankets, collars, and leashes must be returned to them prior to hospitalization.

- If the owner insists on leaving bedding or a blanket for their animal, they must be informed that the item may not be returned.
- A clean cage must be located in the ward designated by one of the staff members mentioned above.
- A cage card must be prepared with the client/patient information detailing the animal's name, weight, and date of admission.
- Whenever justified, relevant information must be indicated on the cage identification (e.g., "Keep fasting", "Caution – bites").
- Diets containing raw meat or bones are not allowed at FMV.
- Fresh water must be provided unless otherwise instructed by the veterinarian.
- Animals must not be moved to another cage unless expressly indicated by the person responsible for hospitalization.
- When the patient is discharged, the cage must be immediately cleaned and disinfected by the student, trainee, or staff member. A "Clean" sign is then placed on the cage to indicate that it is available for another patient.
- To "reserve" a cage for day patients that will return (e.g., from the surgery room), a sign indicating "Cage in use" must be placed.

4.6.2.2. Patient Records and Medications

- For hospitalized patients, the respective medical record is available in the hospitalization software system.
- Medications and other materials used for hospitalized patients must be stored in the "corridor medication cabinet" or in the box attached to the patient's cage. All medications and materials dedicated to a patient must be clearly labelled with the patient's name.

4.6.2.4. Food and Water

- All food (including that provided by clients) must be stored in appropriate plastic bags, cans, or containers with tight-fitting lids.
- Only minimal quantities of food should be stored in the hospitalization refrigerator to prevent contamination.
- If a new can is opened, the opening date must be clearly indicated on the outside of the can, and a plastic lid must seal it before being stored in the refrigerator.
- All cans opened more than two days previously must no longer be used and must be discarded.

4.6.2.5. Bedding

- Students, nursing staff, and veterinarians are responsible for patient bedding at the time of admission and throughout hospitalization.
- Occupied cages are cleaned at least twice daily by students, technical staff, trainees, or veterinarians, and bedding is replaced if necessary.
- If cages are dirty or wet, students, technical staff, and veterinarians are responsible for checking, cleaning, and replacing bedding.

4.6.2.6. Discharge

- When the patient is discharged, the cage must be cleaned as soon as possible.

• Before discharge, owners must be informed about potential infectious risks and receive recommendations for their control at home.

• The expected date and time of discharge must be recorded in the electronic record and communicated to the nurses, trainee, or veterinarian, to optimize patient hygiene at discharge.

• Students, nursing staff, and veterinarians are responsible for removing items around cages and ensuring they are discarded, stored, or cleaned and disinfected (fluids, brushes, protective aprons, papers).

• When the patient is discharged, the cage must be cleaned as soon as possible.

4.6.2.7. Owners' Items

• Owners' items must not be left with patients at the HE-AC.

• The HE-AC provides all necessary materials for patients.

• If an owner insists on providing their own materials, with exceptional approval from the veterinarian, they must understand that the items may not be returned.

4.7. Cleaning Protocols

4.7.1. Parking Area

• The parking area and adjacent lawns will be checked at least weekly for removal of any remaining faeces. The area, including concrete surfaces, must be cleaned at least once a year.

4.7.2. Hospitalization Area

• Students, technical staff, and veterinarians clean and disinfect all cages in use at least daily and more frequently if necessary.

• Once vacated, cages are cleaned and disinfected as soon as possible and properly by the students, technical support team, or clinicians responsible for the patient.

• Occupied cages are thoroughly cleaned and disinfected daily, preferably while patients are being walked or undergoing diagnostic or therapeutic procedures, or during owner visits.

• Whenever a cage is excessively dirty or wet, students, veterinarians, and technical staff are responsible for cleaning, disinfecting, and replacing bedding.

4.7.3. Routine Cage Cleaning

• To be effective, disinfectants must be used on clean surfaces. Therefore, before disinfection, all organic material must be removed by scrubbing surfaces with detergent. The surface must be washed before disinfection. Biofilms develop in areas with stagnant water and where disinfectant remains on dirty surfaces.

• General cleaning principles: it is imperative to remember that when using disinfectants, more does not mean better. Using the correct dilution (as recommended by the manufacturer) provides optimal disinfectant action. Excessive use of disinfectants may promote microbial resistance.

• Special care must be taken when working in high-risk areas to avoid contaminating equipment or other areas.

Cleaning Procedures for an Unoccupied Cage That Housed Class 1 and 2 Dogs

• Wear appropriate clothing (protective clothing if necessary; place a sign on the cage).

• Remove all bedding to the appropriate waste container.

- Sweep and scrub the floor to remove all debris.
- Wash the floor and walls with water and detergent to remove gross debris. Scrub dirty areas with a brush and detergent.
- Wash and rinse the cage with water.
- Apply Virkon disinfectant.
- Allow the cage to dry (ideally for 15 minutes).
- Clean and disinfect the adjacent corridor.
- Cleaning utensils must be disinfected at the end of each day (including handles) and between corridors when necessary.

Daily Routines

- All procedures carried out by nurses must be performed by trainees and students when requested. Dirty cages are cleaned, and animals are not transferred to another cage.
- When doing so, all unoccupied cages must be in perfect condition by 08:00.
- Sinks and drains in consultation rooms and the hospitalization area must be cleaned and disinfected daily.

Monthly Routines

- Areas not used daily (e.g., tops of walls, cages, windows, scales, sinks) must be cleaned monthly to prevent dust accumulation.

Biannual Routines

- All floors must be cleaned and disinfected.
- The isolation area must be emptied and thoroughly cleaned, scrubbed, and disinfected from top to bottom.

Annual Routines

- The entire hospitalization area must be thoroughly cleaned, scrubbed, and disinfected, including all equipment.
- A schedule must be prepared, and the work must be evaluated by the Head of Hospitalization.

4.8. Management of patients suspected of infectious disease

- Special precautions are required when treating patients infected with contagious pathogens. Due to their transmission potential, conditions of particular concern include patients with acute gastrointestinal disorders (e.g., diarrhoea), acute respiratory tract infections, or infections caused by multidrug-resistant bacteria.
- Animals suspected of infectious disease should be treated on an outpatient basis whenever their clinical condition allows.
- Appointments for possible infectious diseases will be handled by receptionists, staff, and students, and cases will be received as follows:

- If the client mentions over the phone acute vomiting, cough, sneezing, or diarrhoea suspected to be caused by an infectious disease, the owner will be asked to keep their animal in the car in the HE-AC parking area until check-in. After that, the patient should preferably be transported on a

stretcher or in a cage/carrier to minimise contamination of the hospital environment, or to an examination room or to the UICB-AC, depending on the circumstances.

- The owner's description will be recorded in the schedule, including an indication that the patient may be suffering from an infectious disease.

- If the appointment is scheduled, the receptionist will call the service area to warn that a potentially contagious patient will be presented.

- If the client arrives at reception with the animal without prior notice, the receptionist must immediately contact the reception service and coordinate receiving the animal in an examination room or in the UICB-AC in order to minimise hospital contamination.

- Everything must be done to minimise direct contact between the patient and other HE-AC patients.

- Animals must be transported to the examination area in the HE-AC or in the UICB-AC via the most direct route to limit hospital contamination. Consider using a stretcher whenever possible to limit environmental contamination.

• Treatment and diagnostic areas, hospital equipment, and the clothing of staff and students must be cleaned and disinfected immediately after contact with potentially infectious patients.

• If infectious disease is suspected based on history, physical examination, or assessment of previously performed laboratory tests:

- Close the examination room.

- Place a sign "Do not use, disinfection required" on the door.

- Notify the cleaning staff of the suspected infectious agent and do not use the room until the signage is removed or until another appropriate cleaning/disinfection has been carried out.

• Class 3 patients are isolated in the Intermediate Area of the UICB-AC.

• If a notifiable and/or zoonotic disease is suspected/confirmed, this must be communicated to the CHB (email sent to: biosseguranca@fmv.ulisboa.pt) as soon as possible, so that they can supervise the case and notify the suspicion/confirmation to the DGAV (form 1728, sent to the following addresses: secdspa@dgav.pt and secretariado.lvt@dgav.pt).

• Any animal with a history of acute vomiting and diarrhoea, and/or a history of acute cough or respiratory signs suspected to be of infectious origin must be treated as a patient suspected of being contagious (Class 3 or 4).

• Hospitalised animals suspected of infectious gastrointestinal disease must be considered possible sources of hospital-acquired or zoonotic infections and therefore must not be walked in common areas. All waste must be disposed of appropriately, and contaminated surfaces must be properly cleaned, disinfected, and dried as quickly as possible.

• After discharge, staff and students must ensure that the instructions given to clients adequately address infectious hazards to other animals and human beings and provide recommendations to protect people and other animals.

4.8.1. Access and Exit Routes of the Biological Isolation and Containment Unit and Rules for Patient Movement

The infectious diseases area where the Biological Isolation and Containment Unit (UICB) is located, **intended for the hospitalisation and follow-up of companion animals**, has differentiated and mandatory physical routes designed to ensure separation between patients, people, and functional flows, minimising the risk of cross-contamination. Patient circulation for complementary diagnostic tests and surgery is integrated into these routes and subject to strict biosafety rules.

4.8.1.1. Access for Students and Staff

- Access of students and staff to the UICB is carried out **exclusively via a staircase leading to a door with exclusive access to the UICB**, which opens into the unit's sanitary facilities.
- Circulation on the staircase is carried out wearing **usual clothing (*street clothes*)**.
- The transport of patients, clinical materials, equipment, or waste through this route is **expressly prohibited**.
- Changing into uniforms and donning personal protective equipment (PPE) is carried out **only in the designated areas of the UICB**, according to the protocols in force

4.8.1.2. Patient Access and Exit Routes

The routes intended for patients are carried out via a **ramp with two lanes, physically separated by structural panels**, ensuring segregation of flows and biological containment

1. **RAMP FOR ACCESS TO HOSPITALISATION / INPATIENT CARE (Dirty Zone)**

- The main **ramp** providing access to the UICB hospitalisation/inpatient care area **leads to the UICB admission door**.
- **All patients admitted to the UICB must enter via this ramp**; this is the **only** authorised route for their arrival and admission to the unit.
- This route is also used **for the temporary exit of UICB patients** whenever there is a need for complementary diagnostic tests (e.g., X-ray, ultrasound, CT or magnetic resonance imaging) or surgical interventions.
- This ramp is considered a **Dirty Zone** and is subject to specific rules regarding circulation, use of PPE, and disinfection.

2. **RAMP FOR ACCESS TO THE CONSULTATION ROOM (RE-EVALUATIONS AND HOSPITAL DISCHARGE)**

- A parallel ramp, **physically separated from the hospitalisation ramp**, leads to the **consultation room** intended for clinical re-evaluations.
- Through this route:

- **Patients coming from the UICB descend for re-evaluation consultations**;
- **Patients discharged from the UICB ascend**, leaving the infectious diseases area.

- This ramp **must not be used** for initial admission of patients or for movements to complementary diagnostic tests or surgery

4.8.1.3. Rules for Patient Movement for Complementary Diagnostic Tests and Surgeries

- UICB patients **must always be transported on a stretcher and, whenever possible, inside a properly closed and disinfectable transport carrier/box** suitable for the animal species and clinical condition.
- Transport must be carried out **exclusively via the hospitalisation access ramp (Dirty Zone)**, avoiding any contact with clean routes or common areas of the HE-AC.
- Patient movement must be carried out **by a UICB staff member**, properly equipped with appropriate PPE according to the patient's biological risk level.
- **Whenever possible, these patients should be received last in the operation of the respective services** (complementary tests or surgical suite) to reduce the risk of contamination of other patients and areas.

- After the patient leaves, **the service used must be fully disinfected**, including surfaces, equipment, and contact areas, **using the designated biocide**, in accordance with the institutional protocols in force.
- Upon the patient's return to the UICB, **a second staff member from the unit must be present**, also equipped with appropriate PPE, responsible for receiving the patient and ensuring their safe entry into the UICB.
- The staff member who carried out the transport **must remove all PPE in the anteroom**, **disinfect hands, and only then may enter the common areas of the UICB**.
- After each movement, **the stretcher, the transport carrier/box, and any surfaces or equipment used must be properly disinfected** in accordance with the protocols in force

4.8.1.3. General Rules

- Strict compliance with the defined routes and rules is **mandatory for all students, professionals, and services involved**.
- Any deviation from the established routes constitutes a **breach of biosafety rules** and must be reported to the UICB coordination.
- Routes and circulation areas are subject to **regular cleaning and disinfection**, according to institutional protocols and the associated biological risk level.

4.8.2. Classification of suspected/confirmed infectious disease patients

4.8.2.1. General rules (Class 1, 2, 3 and 4)

- For patient classification, consult the initial chapter.
- This classification has implications for the possibility of owners visiting their animals, which must be explained at the initial consultation or as early as possible after assigning Class 3 or Class 4 status to an animal.
- Class 3 dogs, isolated in the Intermediate Area of the UICB-AC, may still be visited by owners, under stricter visiting rules and, if possible, in the hospitalisation cage or after transfer to a consultation room that will be disinfected after the visit.
- Class 4 dogs may only be visited under exceptional circumstances (e.g., during euthanasia). Even in such circumstances, the visit must be as brief as possible. If the owner insists, a brief visit to the UICB-AC, complying with barrier nursing rules, may be authorised by the responsible veterinarian.

4.8.2.2. Special care during hospitalisation

4.8.2.2.1. Movement of high-risk patients

- Class 4 patients must be transported directly to the UICB-AC.
- Patients transferred from the main hospital to the UICB-AC must follow a route that minimises exposure to other patients and contamination of the facilities.
- The FMV team moving these patients must apply barrier nursing precautions.
- Any areas or equipment contaminated during transport must be immediately cleaned with water and detergent and then disinfected.
- All movements must be minimised and, whenever possible, patients should be transported on a stretcher or in a cage/carrier rather than being carried in arms.
- All waste and faeces must be removed, and all contaminated surfaces must be cleaned, disinfected, and dried as quickly as possible. Low-traffic areas should be preferred and, whenever possible, patients should be transferred at the end of the day, after other animals have been moved

4.8.2.2.2. Diagnostic tests required for a patient suspected of infection

• Diagnostic testing for infectious and/or zoonotic diseases provides essential information for proper patient management. Testing directly benefits patients and clients by allowing protection of human health. It also enables proper management of infectious risks for patients, staff, and students of the FMV.

• It is therefore mandatory that all hospitalised patients undergo diagnostic testing if a specific infectious or zoonotic disease is seriously considered. Diagnostic testing is an essential part of patient management at the FMV.

• It is the responsibility of the veterinarian in charge of the patient to ensure that appropriate biological samples are submitted for testing and that proper biosafety precautions are taken during their collection, packaging, labelling, and transport.

• The veterinarian responsible for the patient must be consulted before transferring any Class 3 or 4 patient for additional procedures.

• Whenever possible, diagnostic, surgical, or other procedures should be carried out wherever high-risk patients are housed, rather than transferring them to common examination and treatment areas.

• Barrier nursing precautions must be followed by all persons at all times during diagnostic or other procedures.

• If the patient requires diagnostic or other procedures (e.g., radiography, surgery) that can only be performed in the HE-AC, these procedures should be planned for the end of the day whenever possible:

- In general, all barrier nursing precautions required in the patient's housing area must be implemented wherever the patient is handled.

- Instruments, equipment, and the environment must be carefully cleaned, disinfected, and sterilised after the procedure, regardless of where the procedure was performed.

• The Director of the HE-AC must inform the CHB of any HE-AC staff member suspected of having contracted an infectious disease in the hospital environment (email sent to: biosseguranca@fmv.ulisboa.pt) as soon as possible, so that the CHB can follow the case.

4.8.2.2.3. Biological samples from patients suspected or confirmed to be contagious

• Biological samples must be handled with the same barrier nursing precautions as the patient (gown, gloves, mask).

• All biological samples from Class 3 or 4 patients must be stored in a sealed plastic bag, and the suspected infectious disease/agent must be indicated on the outside of the plastic bag.

• Special care must be taken to avoid contaminating the outside of the bag when placing samples inside.

• The suspected disease or pathogen must be clearly specified on all submission forms.

4.8.2.2.4. Use of ultrasound, radiography, or electrocardiography in Class 4 patients

• Auxiliary service staff must wear appropriate clothing and apply barrier precautions when handling Class 4 patients outside the UICB-AC.

• Any gross organic material must be cleaned before disinfection.

• After performing an ECG, staff must clean and disinfect the leads with a gauze pad soaked in disinfectant (Promanum), paying particular attention to clips and wires that were in contact with the patient.

- After performing endoscopy, the technical team will clean and disinfect the endoscope, light source, anaesthetic circuits, filters, and other equipment.
- All radiography equipment and materials must be cleaned and disinfected after use.
- Cassettes must be placed in plastic bags before use.

4.8.2.2.5. Surgery/Anaesthesia in isolated patients

- Auxiliary service staff must wear appropriate clothing and apply barrier precautions when handling Class 4 patients outside the UICB-AC.
- Clean any gross organic material before disinfection.
- After surgery, staff must clean and disinfect all materials and place them in a sealed plastic bag labelled with the suspected or confirmed pathogen/disease before sending the material for sterilisation.
- No other patient may enter the room before complete and rigorous cleaning and disinfection of all surfaces.
- Whenever possible, surgeries in Class 3 or 4 patients should be scheduled for the end of the day.
- A notice must be left for cleaning staff stating the suspected or confirmed infectious disease/pathogen and the recommended disinfection protocol.

4.8.3. Management of patients suspected/confirmed of infectious disease

Diseases/conditions

- Gastrointestinal infections: gastrointestinal pathogens of concern (nosocomial risks) include parvovirus in unvaccinated or vaccination-naïve animals, panleukopenia virus, and *Salmonella* spp..
- Respiratory infections: respiratory pathogens of concern (nosocomial risks) include influenza virus, canine distemper virus, *Aspergillus* spp., and feline infectious rhinotracheitis complex.
- Neurological diseases: neurological pathogens of concern (nosocomial infection risks) include rabies virus and canine distemper virus.

4.8.4. Management of patients infected or colonised with multidrug-resistant bacteria

- Patients infected with multidrug-resistant bacteria pose a potential hazard to other patients, students, faculty, HE-AC staff, and clients. As such, they are managed with enhanced biosafety precautions aimed at mitigating their spread within the HE-AC. They are classified as Class 3 and isolated in the Intermediate Area of the UICB-AC.

Poster 6 contains instructions for students on the Standard Operating Procedures for Biosecurity in effect at UICB-AC.

Poster 6

Instructions for students on the Biosafety Standard Operating Procedures in force at the Biological Isolation and Containment Unit of the Companion Animal Teaching Hospital

BIOLOGICAL ISOLATION AND CONTAINMENT UNIT OF THE COMPANION ANIMAL HOSPITAL

INSTRUCTIONS FOR STUDENTS / VETERINARIANS / NURSES AND ASSISTANTS (EMEAs)

1. Access to the UICB is **restricted to authorised personnel and EMEAs with prior biosafety training**, within supervised teaching activities and training for veterinarians, nurses, and assistants.
2. The use of tablets, laptops, or electronic devices is not permitted in the unit. Mobile phones must remain stored in the locker.
3. Go to the UICB **only via the designated circulation routes**, strictly respecting entry and exit pathways.

Entry into the UICB is exclusively **through the door designated for staff entry**. After entering through this door, **EMEAs** must go to the sanitary facilities, identified by gender, located in the corridor accessed by the door. In the sanitary facilities they must:

- Remove personal clothing and all personal belongings (including backpack, computer, tablet, and mobile phone) and store them in the designated locker.
- Put on the surgical scrubs provided by the UICB.
- No clothing other than personal underwear may be worn under the surgical scrubs.
- Put on the medical clogs provided by the UICB.
- Keep long hair fully tied back.
- Remove all personal adornments (necklaces, earrings, rings, bracelets, and watches) and store them properly.
- Keep nails short/trimmed and without nail polish, gel, or other artificial coverings.

4. After leaving the sanitary facilities, already wearing surgical scrubs and medical clogs, **EMEAs** must enter the UICB via the access corridor and step on the **disinfectant footbaths** located there before proceeding into the interior of the UICB.
5. **Circulation inside the UICB, in clean areas** (i.e., outside hospitalisation/inpatient rooms), must be carried out exclusively wearing the surgical scrubs and medical clogs for exclusive use within the unit.
6. Before entering any **hospitalisation/inpatient room** they must:

- Perform hand hygiene.
- Put on Personal Protective Equipment (PPE) in the following **order**:

1º Shoe covers
2º Disposable gown or disposable coverall if zoonotic agent risk
3º Surgical mask or FFP2 (or higher, if indicated)
4º Cap (hair fully covered)
5º Protective goggles/face shield whenever there is risk of splashes or aerosols or zoonotic agent risk
6º Disposable gloves

7. After fully donning PPE, **EMEAs** must step on the **disinfectant footbath** at the entrance of each hospitalisation/inpatient room and only then enter the room.
8. Each **EMEA** must strictly comply with **PPE change rules between patients**, as well as hand hygiene and disinfection of equipment used, according to prior training and the instructions of the supervising lecturer.

9. Circulation between rooms or handling more than one patient without **complete PPE change** is prohibited.
10. **At the end of the activity, inside the hospitalisation room**, remove PPE in the following order and discard it in the container located next to the room exit (**Contaminated Zone**):
    1º Disposable gloves
    2º Disposable gown or disposable coverall if zoonotic agent risk
    3º Perform hand hygiene
    4º Shoe covers.

Then leave the room, step on the disinfectant mat, remove goggles and face shield (to be disinfected), and discard the following PPE, in this order, in the container located outside the room (**Clean Zone**):
    1º Cap
    2º Mask

Perform hand hygiene in the UICB preparation area.
11. Go to the changing room to collect your belongings and leave the UICB following the **exit route**.
12. In case of doubt, always follow the instructions of the lecturer or the person responsible for the UICB, consult the signage, or scan the **QR Code** on the poster for more detailed information.

PERSONAL PROTECTIVE EQUIPMENT (PPE)
All PPE is provided by the UICB:
- Surgical scrubs and medical clogs
- Surgical masks or FFP2/FFP3, according to risk level
- Caps
- Disposable gowns
- Disposable coveralls
- Goggles or face shields
- Disposable gloves
- Shoe covers.

4.9. Surgery and anaesthesia of companion animals

4.9.1. Clothing for the clean areas of the Surgical Centre

• Clean green surgical scrubs, caps, clogs, and masks are required to access areas designated as “clean” within the surgical facilities, including scrub rooms and operating theatres, delimited by blue lines.

• Poster 7 summarises the instructions students must follow when attending practical classes in the HE-AC Surgical Centre. This poster is displayed at the entrance to the ground floor changing room of the HE-AC

Poster 7

Instructions for students on the Biosafety Standard Operating Procedures in force in the HE-AC Surgical Centre

SURGICAL CENTRE OF THE COMPANION ANIMAL TEACHING HOSPITAL (HE-AC)

INSTRUCTIONS FOR STUDENTS

1 - Store your belongings in a locker on floor 0 of the HE-AC, take a clean bag with your hospital clogs, and lock the locker with your padlock.
2 - Tie back long hair.
3 - Go to the Changing Room on floor 0. Remove your shoes and place them under the wooden benches.
4 - Take a green surgical scrub set from the cabinet, put it on, and wear your hospital clogs.
5 - Follow the entry and exit routes of the Surgery Room.
6 - Go to the Surgery Room and wait for the lecturer's permission to enter.
7 - Disinfect your hands when entering and leaving the Surgery Room.
8 - After class, return to the Changing Room on floor 0, remove the green surgical scrub set and place it in the designated container. Store your clogs in a clean bag and put on your shoes.
9 - Remove your belongings from the locker on floor 0 of the HE-AC, store your padlock, and leave the locker open.
10 - If in doubt, scan the QR Code on the poster to consult more detailed information.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

A - Green surgical scrubs, provided by FMV.
B - Personal hospital clogs, clean.
C - Other PPE, e.g., gloves, are provided by FMV.

- Green surgical scrubs must only be worn in the "clean area" of the Surgical Centre. They may not be worn in other areas of the Surgical Centre unless protected by a closed white gown.
- Outside the "clean areas" of the Surgical Centre, all students and staff must wear a clean white coat over the green surgical scrubs. They must also remove clogs whenever leaving the "clean areas."
- All persons, including cleaning and maintenance staff, are required to adhere to all relevant clothing policies in the surgical facilities.

For Class 3 and Class 4 patients:

- The set of bedding dedicated to patients in the hospitalisation wing (in the cage for Class 3 animals and in the antechamber for Class 4 patients) must be used when transporting animals to the clean area.
- A different set of the same outer clothing must be worn in the "clean" zones of the small animal surgical facility.

• After the procedure, this final set may be left with the animal in the cage if still in good condition.

4.9.2. Hygiene for peri-operative animal management

• High standards of cleanliness and hygiene must be maintained throughout the operating block.

• The surgical team and the patient's surgical site must be prepared aseptically. Aseptic technique must be maintained throughout surgery.

• Movements of anaesthesia students and team members between the anaesthesia preparation area, the operating theatre, and the veterinary hospital must be minimised.

• The presence of non-essential persons is prohibited

For Class 3 and Class 4 patients:

• Whenever possible, clipping and surgical preparation should be carried out in the cage in the UICB-AC (Class 3 and 4). For this purpose, a brief surgical preparation will be performed in the clean area of the surgical facility.

• All waste must be disposed of immediately in appropriate waste containers and all surfaces must be immediately cleaned, disinfected, and dried

4.9.3. Guidelines for peri-operative animal management

• Peri-operative patient management can greatly influence the likelihood of infection occurring in the Surgical Centre or other hospital-acquired infections. Therefore, basic management procedures must always emphasise the use of barrier nursing precautions and maximise separation between patients. Hygiene standards for people, patients, and the environment in surgical and peri-operative areas must be among the highest at the FMV.

• Hands must also be washed and disinfected after contact with the patient to avoid contaminating hand-contact surfaces (e.g., doors, counters, equipment). Examination gloves must be used as a nursing precaution whenever necessary (e.g., contact with surgical sites) and discarded after each patient. The use of gloves does not replace hand washing and disinfection after removal.

• Hands must be washed and disinfected with an alcohol-based solution between patients.

• Faeces must be immediately removed from the anaesthesia preparation area or other operating block areas. If necessary, the floor must be washed between patients and disinfected.

• Equipment must be cleaned and disinfected after use.

• Routine environmental cleaning and disinfection (e.g., daily) must be carried out rigorously following prescribed protocols.

For Class 3 and Class 4 patients:

• The patient must be premedicated in its cage in the UICB-AC (Class 3 and 4).

• Transport to anaesthetic preparation must occur immediately before induction. A stretcher or transport cage must be used to minimise hospital contamination.

• A remote induction and preparation table must be used.

• All contaminated instruments and equipment must be cleaned and disinfected and then placed in a plastic bag labelled with the pathogen before being returned for sterilisation.

4.9.4. Anaesthesia induction area

- All suspected or confirmed contagious diseases/pathogens must be recorded on the anaesthetic form.
- The surgical site must be clipped immediately before surgery. Clipping the surgical site one day before surgery predisposes to colonisation by potentially pathogenic bacteria.
- Unless the responsible clinician decides otherwise, surgical patients will be transferred to the anaesthesia preparation area one hour before scheduled procedures (i.e., scheduled table time) and placed there until induction.
- Aseptically prepare the intravenous catheter site and place the catheter using aseptic technique.
- Class 1 and 2 dogs may recover in the anaesthesia preparation room.
- Patients must recover from anaesthesia in their own cage whenever possible (Class 3 and 4).
- The table used to transport the patient must be cleaned and disinfected (allowing a 15-minute contact time) and then thoroughly rinsed with water between uses.
- The oxygen insufflation tube used during recovery must be cleaned and sprayed with a chlorhexidine solution (allowing a 15-minute contact time). The distal end of the tube must be cleaned of debris with soap and water, soaked in chlorhexidine solution (allowing a 15-minute contact time), and washed between patients.

4.9.5. Other routine cleaning and disinfection procedures

- The operating theatre must be cleaned and disinfected immediately after surgery.
- All contaminated areas must be cleaned and disinfected immediately after the procedure.
- For Class 3 and 4 patients, all contaminated instruments and equipment must be cleaned and disinfected and then placed in a plastic bag labelled with the suspected pathogen before being returned for sterilisation.
- For Class 3 and 4 patients, all individuals in contact must carefully wash their hands, use alcohol gel, and remove contaminated clothing before handling other animals
- **Endotracheal tubes (ET)**

- Clean the inside and outside of the ET with water and neutral soap using a brush.
- Immerse the ET in a large container of chlorhexidine solution for at least 15 minutes.
- Rinse the ET thoroughly with warm water, taking care not to place it in the sink.
- Hang the ET to dry in the designated cabinet in the anaesthesia induction area.
- ET tubes are stored in this cabinet until needed.
- Any ET placed on the floor must be disinfected before use.

- Environmental samples should be regularly collected in recovery rooms and operating theatres and processed to detect the presence of pathogenic bacteria and quantify them.

4.9.6. Management of surgical patients with infectious disease

- It is the responsibility of the lead clinician to inform the anaesthesia and surgical team about imminent surgeries in animals with possible infectious diseases (particularly respiratory, gastrointestinal, and multidrug-resistant bacterial infections).
- An operating room with minimal cross-traffic must be selected.
- Surgery in animals with suspected infectious diseases should be avoided whenever possible. If absolutely necessary, surgery must be scheduled at the end of the day to minimise exposure of other patients.

- Students and clinicians assigned to surgical cases are responsible for identifying and communicating patients suspected/confirmed to be contagious.
- Students and clinicians assigned to these cases are responsible for ensuring that induction and recovery areas have been properly identified as potentially contaminated and that they have been properly decontaminated before being used by other patients.
- If the patient presents a high risk of transmission of a contagious pathogen, bathing with an antibacterial body soap (e.g., chlorhexidine soap) may be required, at the surgeon's discretion.

4.10. Biosafety in the Intensive Care Unit

4.10.1. General considerations for animal handling in the Intensive Care Unit

- Due to the intensive nature of nursing care provided in the Intensive Care Unit (ICU), it is essential to adhere strictly to hand hygiene and barrier nursing protocols.
- Thermometers must be cleaned and disinfected after each patient and stethoscopes must be cleaned and disinfected frequently, to minimise the risk of nosocomial transmission of pathogens.
- Minimise the number of staff and students who manage the cases.
- Whenever possible, students assigned to infectious patients should have no contact with immunosuppressed patients in other areas of the FMV (e.g., leukopenic patients, young animals, animals under immunosuppressive treatment, and diabetic patients). When the number of cases requires contact with suspected/confirmed infectious patients, treat other patients first.
- Class 3 or Class 4 animals requiring hospitalisation in the ICU (e.g., in the event of full capacity at the UICB-AC) will be placed in cages as far away as possible from other patients, insofar as the number of cases allows.
- A sanitary barrier around the animal housing area will be demarcated with adhesive tape placed on the floor in front of the cage.
- A footbath mat will be placed within the perimeter for use by anyone entering the Class 3 or 4 isolation area.
- Disposable protective gowns, a dedicated box containing gloves, a dedicated thermometer and a stethoscope will be available within the perimeter.
- Hospitalised patients with suspected or confirmed infectious diseases should urinate and defecate in the cage whenever possible.
- Waste must be promptly removed and contaminated surfaces must be appropriately cleaned and disinfected as quickly as possible.

4.10.2. General considerations for housing infectious/zoonotic patients in the ICU

- Patients with known gastrointestinal or respiratory disease must be identified at admission and communicated to ICU nurses and clinicians.
- Patients with confirmed canine parvovirosis, suspected/clinical signs of rabies, suspected/confirmed feline leukaemia, suspected/confirmed canine distemper, suspected/confirmed tularaemia, feline upper respiratory disease complex, or canine infectious tracheobronchitis (kennel cough), must be housed in the UICB-AC.
- Only the ICU supervisor may grant exceptional permission to house a Class 4 patient in the ICU (e.g., temporary closure of the UICB-AC for complete disinfection under sanitary void). In this case, the same level of biosafety will be applied.

4.10.3. Cleaning, disinfection and waste

- Immediately clean and disinfect any hospital equipment, stretchers and examination tables after contact with patients suspected/confirmed of infection and follow general hygiene/cleaning guidelines.
- Clean and disinfect scales and examination tables used during the treatment of these patients immediately after the procedure. Every effort must be made to weigh and treat other animals before using shared equipment for potentially infectious patients.
- Staff and students must change any contaminated clothing after handling infectious patients.
- A separate mop and mop bucket will be provided for infectious patients.
- After handling the infectious patient, remove the barrier nursing gown and discard it as soiled. Remove and discard gloves, use the adhesive mat, disinfect clogs with Klorkleen, and then wash and disinfect hands.
- Appropriate waste containers must be used to collect all disposable materials that have been in contact with suspected infectious disease cases.

4.10.4. Additional disease-specific information

- It is strongly encouraged that all hospitalised patients undergo diagnostic testing if infection with a specific contagious or zoonotic agent cannot be excluded. Diseases for which testing is strongly encouraged include canine distemper, kennel cough, cryptosporidiosis, giardiasis, leptospirosis, parvovirosis and rabies. Diagnostic tests are considered essential for case management at the FMV and, therefore, patients will be classified as Class 4 if the owner refuses testing.

- **Patients carrying important antimicrobial-resistant bacteria (Class 3):**

- The CHB must be notified as quickly as possible of any bacterial infection showing an unusual antimicrobial resistance pattern, including surgical site infections, catheter-related infections and gastrointestinal infections.

- Whenever possible, these patients should be hospitalised in the UICB-AC. In an emergency, if ICU hospitalisation of patients with multidrug-resistant bacteria becomes necessary, they must be placed in cages distant from other patients, must be managed with strict barrier nursing precautions, and every effort must be made to discharge them as early as possible

4.11. Breaking transmission cycles

4.11.1. Visitors at the FMV

- Visiting hours for the General Hospitalisation service are from 15:30 to 20:00 daily. All visitors must check in at reception and remain in the waiting room to be escorted to their companion animal.
- All visitors must strictly adhere to biosafety precautions, if necessary.
- All visitors must be instructed to wash and disinfect their hands carefully after leaving hospitalisation areas.
- The public is not authorised to visit hospitalisation areas for patients with multidrug-resistant bacteria. Special arrangements may be made to provide visits to visiting scientists by contacting the Head of Department or the HE-AC Director.

4.11.2. Clients at the FMV

- A student, clinician or nurse must escort clients to the animal's cage.
- Clients must comply with all applicable barrier nursing requirements in case of direct contact with their animal.
- Clients may visit their animals but are not authorised to circulate around the facilities and, specifically, are not authorised to touch other patients or read other animals' cards or treatment orders. Information about other patients is confidential, including diagnoses, and must not be disclosed.
- Owners may visit hospitalised patients. Other interested parties are not authorised to visit hospitalised patients without the owners' express authorisation.

4.11.3. Children at the FMV

- Children may not, under any circumstances, be left alone in the HE-AC.
- To avoid accidents and infectious risks, children must always be supervised by an adult.

4.11.4. Pets at the FMV

- Companion animals are not authorised under any circumstances to visit hospitalised patients.

4.12. Cadavers

4.12.1. Hygiene and disinfection of cages

- After a patient's death, the cage must be cleaned and all records collected.
- Cages used to house Class 1 and 2 patients must be cleaned and disinfected before housing a new patient.
- Cages used for Class 3 and 4 patients must be marked with a sign: "To be disinfected". No other animal is allowed to enter these cages before complete cleaning and disinfection, and verification by technical support staff, a nurse, or the responsible veterinarian.
- Students, nursing staff and clinicians are responsible for removing items around cages and ensuring they are discarded, filed, or cleaned and disinfected (fluids, brushes, protective aprons).

4.12.2. Cadaver storage

- If the animal dies or is euthanised in the cage, the cadaver must be removed as quickly as possible.
- Dead Class 3 or 4 patients must be stored in a sealed, waterproof and clearly identified bag to be transported to necropsy or cremation services.

4.12.3. Destination of cadavers

4.12.3.1. Anatomy and Pathology

- The cadaver must be taken to the Necropsy Service as quickly as possible, even during the night or weekends. Cadavers must not be stored in the HE-AC refrigerator.
- The animal will be placed:

- In the Pathology refrigerator if necropsy is required. The necropsy request form must be clearly present and attached to the cadaver. The patient status (Class 1–2, 3 or 4) must be clearly mentioned on the outside of the request form.

- or in the appropriate collection container if necropsy is not requested (no request form present). However, it must be clearly stated if the case has Class 3 or 4 status.

4.12.3.2. Cremation

- If the owner requests a cremation service for their animal, they may choose between individual or collective cremation.
- The company is authorised to transport cadavers. No other means of transport is accepted.
- While awaiting transport, the cadaver must be stored in the refrigerator.

4.13. Biological Isolation and Containment Unit (UICB-AC)

4.13.1. Introduction

- The Biological Isolation and Containment Unit (UICB-AC) is a specialised facility intended for the hospitalisation, diagnosis and treatment of patients with Class 3 and 4 diseases and plays a key role in controlling infectious risks in the HE-AC hospital environment.
- The UICB-AC operates under a negative-pressure system with HEPA filters, with restricted access to trained staff and strict compliance with biosafety protocols. All hospitalisation rooms have video surveillance. Patient flow occurs exclusively via a signposted route, to direct these patients straight to the UICB-AC, reducing contact with other areas of the FMV and avoiding contact with resident animals.
- The UICB-AC is organised into two distinct areas: an area dedicated to hospitalisation of Class 3 patients (designated Intermediate Area), and another area reserved for hospitalisation of Class 4 patients (designated Infectious/Contagious Area).
- The UICB-AC has 4 hospitalisation rooms, two for hospitalising patients with Class 3 diseases (Intermediate Area) and two for patients with Class 4 diseases (Infectious/Contagious Area):

- Room G0.29: cats with retroviruses (FIV and FeLV) without another concomitant Class 4 infectious disease. Feline Infectious Peritonitis. cats with doubtful health status. Class 3 diseases.
- Room G0.30: reserved for dogs with multidrug-resistant bacterial infections. Leptospirosis. Class 3 diseases.
- Room G0.28: cats with various infectious diseases such as Panleukopenia, Feline Infectious Upper Respiratory Disease. Class 4 diseases.
- Room G0.31: reserved for dogs with infectious gastroenteritis (e.g., canine parvovirosis) and other gastrointestinal diseases. Class 4 diseases.

- The UICB-AC also has a dedicated preparation room, a storage room and a work room for veterinarians, nurses and students.

4.13.2. General Biosecurity and Infection Control Guidelines

- Protect staff, students and visitors from zoonotic and nosocomial infections.
- Minimise cross-transmission between patients.
- Train students in infection control measures.
- Inform patient owners about infectious disease control in animals

4.13.3. Access and authorised personnel

- Access limited to authorised professionals trained in biosafety:

- Veterinarians, nurses and assistants on duty in the UICB-AC.
- Students under direct teaching supervision.

- Entry procedure:

- Entry through the sanitary facilities area.
- Changing from personal clothing into surgical scrubs provided by the UICB-AC.
- Before leaving the UICB-AC, surgical scrubs must be placed in a specific and clearly marked location, washed and disinfected

4.13.4. Personal Protective Equipment (PPE)

• To enter any hospitalisation room, PPE must be worn over the surgical scrubs (in order):

- Disposable cap.
- Surgical mask or FFP2 (or FFP3 in zoonotic cases).
- Protective goggles.
- Disposable gown or disposable coverall.
- Disposable gloves.
- Disposable shoe covers.

• PPE change is mandatory between patients:

- PPE must be fully discarded after each patient.
- Perform hand hygiene and put on new PPE before interacting with new patients.
- Immediately disinfect surfaces and instruments used with approved biocides

4.13.5. Isolation and cage distribution

• All cages are individual and are disinfected before use.
• In each hospitalisation room there is a minimum safety distance between cages.
• All hospitalisation rooms operate individually with negative pressure and HEPA-filter ventilation systems that ensure biocontainment of aerosols with microorganisms.

4.13.6. Cleaning, disinfection and quarantine

• In each hospitalisation room there are individual instruments per patient: thermometers, stethoscopes and others, with disposable protective covers.
• Daily cleaning of the floor throughout the UICB-AC is carried out with an appropriate disinfectant.
• After monitoring each patient, contact surfaces and any non-disposable instruments used are disinfected with a biocide, with an appropriate contact time.
• High-contact areas (handles, counters, sinks) are disinfected at the end of each shift and whenever necessary.
• Cage quarantine: after the patient is discharged, cages remain in quarantine for 72 hours, marked as “In quarantine”. After this period, deep disinfection is carried out before re-use and the cage is marked as disinfected.
• Annual disinfection and fumigation. The UICB-AC is closed one week per year for fumigation and disinfection of surfaces, equipment and storage areas. This operation is supervised by the OSH responsible, Eng. Petra Morgado (pmorgado@fmv.ulisboa.pt.

4.13.7. Microbiological monitoring

• Monthly testing is carried out using contact plates on critical surfaces.
• Results are analysed by the UICB-AC Coordinator (Professor Solange Gil).
• Positive results require validation and, if necessary, immediate corrective action and reassessment of protocols.

4.13.8. Protocol for Wastewater Disinfection at the Exit of the UICB-AC

• At the exit of the Biological Isolation and Containment Unit (UICB), a specific wastewater disinfection point is installed, intended to prevent the release of potentially contaminated effluents into the public sewage system. All liquid effluents originating from the unit must undergo chemical disinfection with sodium hypochlorite prior to discharge, through the injection of 80 mL of 5% sodium hypochlorite into the unit's drainage pipe, resulting in 200 ppm of free chlorine to eliminate pathogenic microorganisms.

• This routine is based on the results obtained in the experimental studies by Rutala et al. (1998), who, using the AOAC Use-Dilution Method, inactivated 10^6–10^7 CFU/mL of *Staphylococcus aureus*, *Salmonella* Choleraesuis, and *Pseudomonas aeruginosa* with 100 ppm of free chlorine in less than 10 minutes. Chlorine concentrations varied from 40% to 50% for 1:50 or 1:100 dilutions after 30 days.

• Disinfection must be performed daily during periods of active hospitalization and additionally after the discharge of Class 4 patients, after procedures involving high contamination, or whenever there is suspicion of contamination of liquid waste. The disinfection point and associated drainage surfaces must also be cleaned and disinfected at least once per day using the approved institutional biocide.

• Chlorine levels must be verified periodically using appropriate test strips to confirm dosing efficacy.