



2. EQUINE HOSPITAL

2.1. General considerations regarding appropriate attire and conduct at the Equine Hospital

The FMV advocates the use of specific professional attire to be worn exclusively within the facilities associated with the Equine Teaching Hospital (HE-EQ), to control the potential dissemination of pathogenic agents to and from the external environment. Accordingly:

- All personnel must wear specific and clean professional attire, as well as footwear appropriate to the functions to be performed and Personal Protective Equipment (PPE).
 - a. Students must wear their blue hospital scrubs and steel-toe boots (Poster 1). Scrubs must be washed in hot water after each use.
 - b. Clinicians have available on a daily basis work clothing and laboratory coats washed on the FMV premises.
 - c. Nurses have available on a daily basis work clothing and laboratory coats washed on the FMV premises.
 - d. Animal handlers and auxiliary staff have available on a daily basis work clothing and laboratory coats washed on the FMV premises.
- Footwear must consist of resistant, water-washable boots, preferably with steel toe caps, waterproof and with non-slip soles. The use of lightweight footwear, high-heeled shoes, footwear made of porous and water- and biological-fluid-permeable materials, or flip-flops/slippers is not allowed. Footwear must be clean and free of mud or manure.
- Jewellery or adornments on the hands or arms are not allowed. Watches are permitted, provided they can be disinfected by complete immersion in a disinfectant agent.
- Any equipment that enters and exits the hospital (e.g. a stethoscope) must be disinfected with an alcohol-based disinfectant (e.g. Promanum, available at the door of each stall and throughout the HE-EQ facilities).
- Long hair must be tied back and secured away from the face.
- All horse owners and visitors wishing to access the HE-EQ facilities must be accompanied by a staff member who ensures their compliance with biosafety protocols.
- The HE-EQ includes facilities for animals in Intensive Care, Hospitalisation, Intermediate Care, and Isolation.

Poster 1 details the instructions that HE-EQ students must comply with whenever they have practical classes within the hospital facilities. This poster is displayed at the entrance of the HE-EQ.



Poster 1

Instructions for Students on the Standard Operating Biosafety Procedures in Force at the Equine Teaching Hospital



EQUINE TEACHING HOSPITAL

INSTRUCTIONS FOR STUDENTS

- 1 – Store your personal belongings in a locker at the Equine Teaching Hospital and secure it with your own padlock.
- 2 – Tie back long hair.
- 3 – Proceed to the CHANGING ROOM of the Equine Teaching Hospital. Remove your shoes and place them underneath the wooden benches.
- 4 – Put on your blue hospital scrubs and wear your steel-toe boots.
- 5 – Follow the designated entry and exit routes of the Equine Teaching Hospital.
- 6 – Disinfect your hands upon entering and leaving the Equine Teaching Hospital.
- 7 – Proceed to the Equine Teaching Hospital and wait for the lecturer, who will assign students to consultation rooms / general hospitalisation areas / diagnostic imaging facilities, etc.
- 8 – After the class, return to the CHANGING ROOM of the Equine Teaching Hospital, remove your blue hospital scrubs and store them, together with your steel-toe boots, in a clean bag, and put your shoes back on.
- 9 – Remove your personal belongings from the locker at the Equine Teaching Hospital, store your padlock, and leave the locker open.
- 10 – If you have any questions, scan the QR code on the poster to access more detailed information.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

- A - Personal, clean blue hospital scrubs.
- B – Personal, clean steel-toe boots.
- C – All other PPE, e.g. gloves, are provided by FMV.



2.2. Meals: food and beverages

- The consumption of food and beverages is not allowed within the HE-EQ facilities.
- Food and beverages may only be stored and consumed in areas of the faculty specifically designated for this purpose, namely cafeterias, leisure areas, and designated offices.
- The consumption of food or beverages in the UICB-EQ is strictly prohibited.

2.3. General considerations regarding cleaning and hygiene practices

2.3.1 Detergents and disinfectants approved for use at the HE-EQ

- **For hand asepsis**
 - Promanum
 - Hibiscrub
 - Soap.
- **For disinfection of floors, walls, surfaces, and equipment**
 - Hypochlorite solution
 - Quaternary ammonium compounds
 - Bleach
 - Virkon.

2.3.2 Patient hygiene

- For hygiene reasons and to reduce the risk of infection, it is essential that HE-EQ patients are housed in clean stalls. Animal handlers must prepare the bedding (remove faeces and soiled shavings) and clean the aisles daily.
- If a stall becomes dirty outside the animal handlers' working hours, students, interns, nurses, or clinicians must remove faeces and soiled bedding and add clean bedding material if necessary.
- After a horse is discharged, the stall must be cleaned, washed, and disinfected before another horse is admitted to the same stall.
- In the case of neonatal foals, hygiene is even more critical; therefore, animal handlers, students, and interns must remove faeces and urine whenever they are produced.
- Water buckets and/or automatic drinkers must be cleaned and disinfected between use by different patients.
- Whenever a horse is hospitalised, it must be confirmed that the drinker is clean and functioning properly, and the owner must be asked how water is normally provided to the horse (automatic drinker or bucket). If the horse is accustomed to using a bucket, it must be cleaned and refilled regularly.
- Feed bowls and hay nets must be cleaned regularly throughout the patient's hospitalisation period and must be washed and disinfected between patients.
- Any feed provided that has not been consumed must be removed from the stall prior to the admission of a new patient.
- Aisles within the stables must be kept clean, free of obstacles, and properly organised.
- Medications and medical materials must not be left outside their designated storage areas.
- Soiled bedding material must be removed from the floor.
- Clothing items, backpacks, or personal belongings can not be left on the floor of the stables.
- All members of the clinical staff, students, and employees must assist in cleaning and tidying up the equipment used and the area before leaving it.
- Whenever a horse defecates outside the stall, faeces must be removed immediately and the contaminated area must be cleaned.



- Shovels and brooms must be made available in the different areas where horses circulate.
- If a horse presents with diarrhoea, faecal material must be removed and the floor must be washed and disinfected. If a horse urinates inside a building, e.g. the Intensive Care Unit (ICU), stocks area, X-ray room, or corridors, the urine must be removed and the floor must be washed.

2.3.3 Cleaning and hygiene

Maintaining the facilities clean and adopting appropriate personal hygiene practices are the responsibility of all individuals working at the HE-EQ, including technical staff, clinical staff, and student.

2.3.4 General cleaning and disinfection protocol

Whenever disinfectants are applied, gloves and appropriate protective clothing must be worn. When there is a likelihood of fluid splashing during the disinfection process, additional PPE must be used, e.g. masks, face shields or protective goggles, waterproof garments, etc.

- All bedding material and faeces must be removed prior to stall disinfection. The presence of large amounts of organic matter and urine inactivates most disinfectants. If the use of a hose is necessary to remove persistent debris, measures must be taken to minimise aerosol formation and the potential spread of pathogenic agents.
- The stall, including walls, doors, drinkers, and feed troughs, must be washed with water and detergent or soap. Mechanical action (scrubbing with a brush or broom) may be required to remove films or persistent debris that may prevent or inhibit the action of the disinfectant.
- The washed area must be thoroughly rinsed to completely remove detergent residues. Note: multi-purpose alkaline detergents (RBS) and bleach may be inactivated in the presence of detergents or soap; therefore, careful rinsing prior to disinfectant application is essential.
- Allow the washed area to drain and dry completely to avoid dilution of the disinfectant solutions to be applied.
- A disinfectant, e.g. 2% bleach or Umonium Master, must be applied to all surfaces of the stall, including walls, doors, drinkers, and feed troughs. Manufacturer's instructions must always be followed, as some disinfectants must remain in contact with surfaces for at least 15 minutes, particularly when a contagious agent is suspected.
- Bleach must be completely rinsed off surfaces before the stall is used for the hospitalisation of a new patient.
- After disinfection, protective equipment must be removed and hands must be washed.
- Extraordinary disinfection measures, e.g. in horses with Class 3 and 4 diseases, must be carried out only by trained and authorised personnel equipped with appropriate PPE.
- All areas of the HE-EQ where horses are examined or treated, e.g. stocks area, X-ray room, and ICU treatment area, must be cleaned, tidied, and disinfected after use, regardless of the infectious risk category associated with the animal. Cleaning equipment must also be disinfected, including broom and shovel handles.

2.3.5 Footbaths

- Footbath solutions (Virkon) must be replaced daily by interns during the morning period.
- Footbaths must be cleaned and the solution renewed whenever excessive accumulation of bedding material or dirt is observed. This task must be carried out by any member of the HE-EQ team working in the area where the footbath is located.
- All HE-EQ staff and students must use the footbaths available within the facilities. NOTE: Footbath solutions may damage footwear, particularly if it is not waterproof.



2.3.6 Instrument and equipment disinfection protocol

- All instruments and equipment, such as nasogastric tubes, dental rasps, mouth gags, muzzles, twitch devices, endoscopes, brushes, clippers, and clipper blades, must be cleaned and disinfected between use on different patients.
- Materials that are sterilised between uses (surgical instruments and equipment) must be cleaned and washed with soap and disinfected with a 0.5% chlorhexidine solution immediately after use.

Autoclave sterilisation protocol for surgical instruments

- **Initial cleaning of instruments**

- Before sterilisation, all instruments must be carefully cleaned to remove organic matter (blood, tissues, secretions) and inorganic residues:

- **Initial immersion:** place the instruments, immediately after use, in a container with enzymatic detergent or an appropriate neutral solution;

- **Manual brushing:** carefully brush all surfaces, hinges, and grooves with a soft brush under running water;

- **Ultrasonic cleaning (optional):** place instruments in an ultrasonic bath with cleaning solution for 10–15 minutes;

- **Final washing:** in a dishwasher located in the instrument room or manually;

- **Drying:** dry instruments completely using a clean cloth or compressed air. Wet instruments must not be sterilised.

- **Inspection and preparation**

- Visually inspect all instruments for remaining debris, corrosion, mechanical defects, or wear.

- Lubricate joints with an appropriate surgical lubricant (water-based and autoclavable).

- Group instruments by type or surgical procedure, avoiding overlap of blades or tips.

- **Packaging**

- Use self-sealing surgical-grade paper or perforated sterilisation containers with internal and external chemical indicators to package the material.

- Avoid overly tight packaging and allow steam circulation.

- Include an internal chemical indicator (strip or label) and an external indicator (on the package) to monitor sterilisation effectiveness.

- **Autoclave loading**

- Arrange packages in the chamber to allow free steam circulation.

- Ensure that the autoclave drain valves are clean.

- *Do not mix instruments with fabrics, gauze, or liquids.*

- **Sterilisation parameters**

- **Cycle for plastic materials:**

- Temperature: 121 °C

- Pressure: ~1 bar (15 psi)

- Exposure time: 30 minutes.

- **Pre-vacuum cycle (recommended):**

- Temperature: 134 °C

- Pressure: ~2 bar (30 psi)

- Exposure time: 3–5 minutes.

Attention: Always verify the recommendations of the autoclave in use.

- **Drying**

- Use the autoclave drying cycle (15–30 minutes).

- Never remove packages while still damp. Allow them to cool completely before handling.

- **Storage**

- Store sterilised packages in a clean, dry, closed, and well-ventilated cabinet.



- Label materials with the sterilisation date and expiry date (generally 30 days in sealed packaging).
- **Record keeping and monitoring**
- Maintain records of each sterilisation cycle (date, type of material, temperature, time, indicator results).
- Validate sterilisation effectiveness weekly using **biological indicators**.

Stethoscopes

- Must be cleaned with damp paper and disinfected with an alcohol-based solution (Promanum).
- The use of personal stethoscopes is permitted for patients with low to moderate infectious risk; these must be cleaned and disinfected regularly, including at the beginning and end of the working period.
- In the UICB-EQ, one stethoscope is assigned to each hospitalised animal. These stethoscopes remain allocated to the animal until discharge, staying in the stall during this period, and must be cleaned and disinfected before being used on another animal.

Thermometers

- Must be cleaned and/or washed with soap to remove faecal matter and subsequently disinfected with alcohol.
- Glass thermometers are not used to eliminate risks associated with broken glass and mercury exposure. Only digital thermometers are used.
- The use of personal thermometers is permitted in patients with low to moderate infectious risk and must be cleaned and disinfected after each use.
- Any visibly soiled thermometer must be cleaned immediately.
- In the UICB-EQ, one thermometer is assigned to each hospitalised animal. These thermometers remain allocated to the animal until discharge, staying in the stall during this period, and must be cleaned and disinfected before being used on another animal.

Hoof picks

- One hoof pick is assigned to each hospitalised horse.
- Hoof picks must be washed weekly with soap to remove dirt and subsequently disinfected.
- Hooves must be cleaned before horses leave the stalls.
- Hoof picks must be cleaned and disinfected immediately after use on horses with bacterial or fungal hoof infections.
- Hoof picks must be cleaned and disinfected at the end of each horse's hospitalisation period before being used on another animal.

Brushes

- One brush is assigned to each hospitalised horse.
- Brushes must be cleaned to remove excessive dirt. Brushes used on horses with external parasites (e.g. mange) must be disinfected with an antiparasitic compound; brushes used on patients with fungal infections must be treated with an antifungal compound (e.g. Imaverol) before being disinfected again with a biocidal compound.
- Brushes must be disinfected by immersion in alcohol or in a chlorhexidine solution.
- Horses must be brushed regularly by clinical staff or students.
- In the UICB-EQ, one brush is assigned to each hospitalised animal in this unit. These brushes remain allocated to the animal until discharge, staying in the stall during this period, and must be cleaned and disinfected before being used on another animal.



Twitch devices

- Twitch devices must be washed with soap to remove coarse dirt.
- Twitch devices must be disinfected weekly by immersion in a chlorhexidine solution.
- Twitch devices used on high infectious-risk patients must be cleaned and disinfected immediately.

Other instruments

- Other instruments, such as haemostatic forceps or scissors, may be used on different patients, but must be cleaned and disinfected with an alcohol-based solution (Promanum) between patients.

2.3.7 Cleaning and disinfection protocols for HE-EQ facilities

2.3.7.1 External horse admission area, external area surrounding the stables, and trailer parking area

- These areas must be cleaned daily by animal handlers and the HE-EQ maintenance team using shovels and brooms.

2.3.7.2 Hospital lobby, outpatient horse stalls, and stocks area

2.3.7.2.1 Lobby

- The lobby must be cleaned, washed with detergent, and disinfected weekly, or whenever it is visibly dirty.
- This cleaning must be carried out by the maintenance team or, if necessary, by other members of the HE-EQ team.

2.3.7.2.2 Outpatient horse stalls

- These stalls must be completely cleaned, washed, and disinfected between horses, in accordance with the general cleaning and disinfection protocol (see 2.3.4).
- Reduced quantities of shavings must be used for bedding in these stalls in order to minimise waste.
- Buckets and feed bowls used in these stalls must be cleaned, washed, and disinfected between patients, in accordance with the general cleaning and disinfection protocol (see 2.3.4).

2.3.7.2.3 Stocks area

- The stocks area must be cleaned and washed by the clinical staff after each use, in accordance with the general cleaning and disinfection protocol.
- Cleaning of the stocks area must be performed by the respective users immediately after completion of medical procedures.
- The stocks area must be washed and disinfected weekly by the HE-EQ cleaning and maintenance team, or whenever necessary.
- The container intended for faeces collection in the stocks area must be emptied at least every two days by the HE-EQ cleaning and maintenance team. After emptying, the container must be washed with water and detergent.

2.3.7.3 Cleaning of stalls in the Equine Hospital

- Disinfectants must be applied at the dilutions recommended by the manufacturer, ensuring optimal disinfectant action and not promoting the dissemination of resistant strains.
- To ensure effectiveness, disinfectants must be applied to clean surfaces.
- During stall cleaning, measures must be adopted to avoid contamination of equipment or other areas, e.g. when cleaning bedding, avoid contaminating floors outside the stalls with manure.



Cleaning procedures for stalls housing hospitalised horses

- Bedding must be cleaned daily by animal handlers. New bedding must be added whenever necessary.
- Appropriate protective clothing and/or equipment must be used when carrying out these procedures, e.g. in the case of equids housed in Intermediate Care.
- Faeces and shavings removed from the HE-EQ must be discarded in the daily collection containers. Faeces and bedding shavings from the ICU, inpatient stalls, outpatient stalls, and the faeces collection container in the stocks area may be discarded in the general waste container.
- Debris removed from UICB-EQ stalls must be placed in biobox bags and disposed of in the specific container for incineration.
- During stall cleaning, any contact between horses and the lift bucket used for the collection of faeces and soiled bedding must be avoided.
- Equipment used for bedding cleaning in ICU stalls, inpatient stalls, and outpatient stalls must be cleaned, washed, and disinfected weekly, or whenever visibly dirty (particularly handles). Equipment used for bedding cleaning in UICB-EQ and Intermediate Care stalls must be cleaned, washed, and disinfected after each use.
- Heavy equipment or materials used in ruminant facilities must not be used in HE-EQ facilities and vice versa.
- The central corridor of the ICU must be washed and disinfected at least daily.
- The central corridor of the Inpatient Unit must be washed and disinfected at least weekly.
- All stable corridors and areas surrounding the stables must be cleaned, washed, and disinfected whenever contaminated with diarrhoeic faeces, wound secretions, nasal discharge, blood, or other secretions. This cleaning is the responsibility of all members of the clinical staff, who may contact the HE-EQ cleaning and maintenance team if necessary.

General procedure for cleaning a stall after discharge of a hospitalised horse

- Stalls must be cleaned, washed, and disinfected as soon as possible after being vacated, e.g. following medical discharge or euthanasia.
- In the case of the UICB-EQ, the stall must be marked with a red card bearing the message “Disinfect”, which may only be removed after authorisation by the clinician responsible for the case, so that the clinician has the opportunity to assess the need for collection and analysis of environmental samples for relevant infectious agents, e.g. *Salmonella* spp. If the hospitalised patient is suspected or confirmed to be carrying a specific pathogen, the following disinfection protocols must be applied:
 - See the general cleaning and disinfection protocol in section 2.3.4.
 - Routine disinfection protocol: 2% bleach.
 - Foals with *Rhodococcus equi* infection: the stall must be washed with detergent and subsequently disinfected with RBS, Foglyam, or a quaternary ammonium compound.
 - Horses with parasitic skin diseases: the stall must be washed with detergent and subsequently disinfected with Sarnacuran (active ingredient: phoxim) and bleach.
 - Foals with rotavirus diarrhoea: the stall must be washed with detergent and subsequently disinfected with a quaternary ammonium compound and bleach.
- Removal of bedding material and washing and disinfection of UICB-EQ stalls must be carried out by animal handlers as soon as possible, preferably after cleaning stalls occupied by horses without infectious disease.
- Admission of horses to UICB-EQ stalls is not permitted without authorisation from the clinician responsible for the case and removal of the red “Disinfect” card.
- Bedding from stalls occupied by horses with low infectious risk, e.g. ICU, Inpatient Unit, and outpatient stalls, must be completely removed and the stall area must be washed with detergent and disinfected with bleach after use by each patient.



Weekly routines

- The floors of the ICU hay/concentrate feed room, the equipment storage area used in the Inpatient Unit, and the equipment storage area located near the outpatient stalls must be cleaned weekly and disinfected prior to the receipt of new deliveries of concentrate feed.
- Washbasins in the ICU and the stocks area must be washed and disinfected at least weekly by nurses or by the HE-EQ cleaning and maintenance team.

Monthly routines

- Areas that are difficult to access, e.g. high walls and stable windows, must be cleaned monthly by the HE-EQ cleaning and maintenance team to prevent dust accumulation.
- Walls that are dirty or affected by mould must be washed and disinfected monthly with bleach by the HE-EQ cleaning and maintenance team.

Biannual routines

- Stable windows and walls must be washed and disinfected twice a year by the HEEQ cleaning and maintenance team, specifically at the beginning of May and at the beginning of September, to allow adequate drying of the walls.

2.4. Rules for the Admission and Management of Patients

2.4.1. Outpatients (patients admitted for consultation, not hospitalised)

- Upon arrival, the client must report to reception and complete the check-in process before unloading the horse.
- After check-in, a preliminary physical examination must be performed by a member of the clinical staff to determine the infectious risk category assigned to the animal.
- According to the assigned risk category, clinical history, and the circumstances of the case, the horse may be directed to:
 - One of the outpatient stalls located in the atrium;
 - The stocks room;
 - The X-ray room.
- In exceptional situations, if there is no availability in the designated outpatient areas, the patient may be temporarily housed in one of the hospitalisation stalls.
- If the clinical staff considers that the horse presents a high infectious risk that prevents admission (e.g. suspicion of strangles without imminent risk to life), the animal may be sent back to its home premises. This decision must be recorded.
- After check-in, the horse's passport must be requested from the client and kept at the reception desk for the entire period of hospital stay.

2.4.2. Hospitalised patients

- Upon arrival, the client must report to reception and complete the check-in process before unloading the horse.
- After check-in, a preliminary physical examination must be carried out by a member of the clinical staff to determine the animal's infectious risk category.
- According to the assigned risk category, clinical history, and the circumstances of the case, the horse may be directed to:
 - The stocks room;
 - Sala de raio-X;
 - The Intensive Care Unit (ICU);



- The Hospitalisation Unit (UICB-EQ).

- If, during the clinical evaluation, an unexpected high infectious risk is identified that prevents safe hospitalisation, the clinical staff may decide to return the horse to its home premises. This decision must be justified and recorded.
- After check-in, the horse's passport must be requested from the client and kept at the reception desk throughout the entire hospitalisation period.

2.4.2.1 Stall allocation

- The allocation of animals to stalls is the responsibility of the clinical staff and grooms. Students must confirm with the responsible clinician or the grooms which stall has been assigned to each newly admitted patient.

Stalls for outpatients

- These stalls must be used exclusively for outpatients, during the waiting period for consultation or medical procedures, or while recovering from sedation prior to discharge.

Stalls for patients in Risk Classes 1 and 2

- Patients to be directed to the ICU:
 - Horses diagnosed with medical colic and horses in the postoperative period following colic surgery;
 - Horses with laminitis;
 - Neonatal foals requiring intensive care;
 - Patients with non-infectious medical conditions requiring continuous care and fluid therapy, and without infections caused by multidrug-resistant bacteria.
- Patients to be directed to the Hospitalisation Unit:
 - Patients undergoing elective orthopaedic or ophthalmological surgeries;
 - Patients with non-infectious medical conditions (e.g. equine asthma, neoplasia);
 - Patients under perinatal monitoring.
- Patients to be directed to the Hospitalisation Unit with sanitary filtering:
 - Horses with suspected or confirmed contagious or zoonotic diseases;
 - Horses with bacterial infections caused by multidrug-resistant bacteria (e.g. *Klebsiella pneumoniae*, *Escherichia coli*, MRSA) may, exceptionally and upon indication of the responsible clinician, be housed in the Hospitalisation Unit instead of the UICB-EQ when the latter is fully occupied;
 - These animals should be housed, whenever possible, in the stalls located at the northern end of the Hospitalisation Unit (large stalls). The movement of animals and people in this area must be restricted using physical barriers, isolating stalls in pairs by blocking the adjacent corridor.
- Patients to be directed to the UICB-EQ:
 - Horses with suspected high infectious risk or with a confirmed diagnosis of an infectious or zoonotic disease caused by a high-risk infectious agent.

2.4.2.2 Medical records and medication

- Daily physical examination and medication administration sheets must be available on the clipboard affixed to the door of each stall. Once duly completed, these sheets must be filed by the reception desk in the individual drawer corresponding to each horse. Each sheet must include the main differential diagnosis.
- Medication and other medical materials used for each patient must be stored in the pharmacies of the respective clinical units:
 - ICU pharmacy;
 - Stocks room pharmacy;
 - Hospitalisation Unit cabinets;



- UICB-EQ pharmacy.

- All medication or equipment assigned to a horse must be clearly labelled with the animal's name and stored in an individual box in the pharmacy of the unit where the animal is hospitalised (e.g. ICU, Hospitalisation Unit, or UICB-EQ).
- Medical records must be transcribed into digital format (QVET or another electronic platform) at the end of each day. This task is the responsibility of the interns.

2.4.2.3 Feeding and water

- All concentrated feeds and/or other supplements, including those provided by owners, must be stored in containers with lids.
- Only a limited quantity of hay, concentrated feed, and bedding material should be stored at the HE-EQ to avoid contamination and the attraction of pests (e.g. rodents and birds).
- The floor of the hay and feeding room for ICU patients, as well as the feed and equipment storage areas for outpatient stalls, must be cleaned and disinfected before any restocking (see General Cleaning and Disinfection Protocol – Section 2.3.4).
- The feeding schedule and type of diet assigned to each horse must be clearly displayed, legible, and kept up to date on the door of the respective stall.
- For further information on the cleaning of waterers, buckets, feed bowls, and hay nets, consult Section 2.3.2 on patient hygiene.

2.4.2.4 Bedding

- Outside working hours, the preparation of bedding in stalls, as well as the provision of feed and water to newly admitted patients, is the responsibility of students, interns, or members of the clinical staff. During working hours, these tasks are performed by the grooms.
- Occupied stalls, including those of Class 3 (Intermediate Care) and Class 4 (UICB-EQ), must be cleaned daily by the grooms, with the addition of bedding material (shavings or straw). If a stall becomes particularly dirty or wet during the day, responsibility for cleaning and replenishing bedding is shared between students, grooms, and clinical staff.

2.4.2.5 Medical discharge

- Prior to discharge, clients must be informed about any infectious risks associated with their horse upon returning home, as well as the recommended control measures to minimise the risk of transmission to people and other animals.
- Grooms must be notified in advance of the expected discharge of patients to avoid unnecessary use of time and materials in cleaning stalls that will be vacated.
- At the time of discharge, all medical records must be collected at reception and archived according to internal procedures.
- Stalls used by horses in Classes 1 and 2 (low infectious risk) must be cleaned, washed, and disinfected in accordance with the General Cleaning and Disinfection Protocol (see Section 2.3.4).
- Stalls used by horses in Intermediate Care (Class 3) or Isolation (Class 4) must be marked with a red card labelled “Disinfect”. These stalls may only be reused after complete disinfection and express authorisation from the clinician responsible for the previously hospitalised patient.
- Students, nurses, and members of the clinical staff are responsible for ensuring the cleaning, organisation, and/or disinfection of all objects and materials in the area surrounding the stalls, and must ensure appropriate disposal or hygiene of used items, as applicable.

2.4.2.6 Halters, lead ropes, rugs, and bandages

- Equipment belonging to owners must not be left at the HE-EQ, with the exception of halters.
- All equipment required during the horse's stay at the HE-EQ (e.g. muzzles, rugs, lead ropes) must be provided by the HE-EQ.



- Each horse's individual equipment must be stored near the respective stall whenever not in use.
- In front of each stall, a lidded, washable, and reusable container (e.g. biobox or rigid plastic container) must be placed, with sufficient capacity to store all patient equipment, including, if necessary, a rug. Containers must be easy to clean, resistant to disinfection, and securely closed in order to ensure organisation and prevent cross-contamination.
- All hospital equipment used for each patient must undergo thorough cleaning, washing, and disinfection, preferably by immersion in an appropriate disinfectant solution.

2.4.2.7 Walking and grazing

- Students are authorised to walk horses, provided this is always done in pairs and that one of the pair carries a mobile phone for safety reasons.
- The only horses that may be walked are those:
 - have a clinical condition that allows it, according to prior indication from the clinical staff;
 - are classified as low infectious risk (Classes 1 and 2).
- Horses in Intermediate Care (Class 3) must not be walked and may only leave the stall for essential medical procedures.
- It is strictly forbidden to walk horses hospitalised in Isolation (Class 4), except if the risk level is reviewed and reclassified to Class 3 or lower following clinical evaluation.
- Horses must always be handled by experienced personnel familiar with equine management.
- Horses may be walked in the following areas:
 - Area surrounding the ICU;
 - Exterior of the admission atrium;
 - Exterior of the Hospitalisation Unit;
 - Peripheral area of the paddock with green pasture.
- Horses may only graze in the paddock specifically designated for this purpose, located near the entrance of the HE-EQ.
- If a horse defecates or releases secretions during walking, these must be cleaned and disinfected as soon as possible.

2.4.3. *Salmonella* spp. surveillance protocol.

- Stalls that have housed horses with positive faecal culture results for *Salmonella* spp. must undergo two complete rounds of cleaning and disinfection, in accordance with the General Cleaning and Disinfection Protocol (see Section 2.3.4), with a minimum interval of 24 hours between each round.
- After the second disinfection, environmental cultures for *Salmonella* spp. must be performed, sampling the stall drain and the interior door handle of the respective unit. The stall may only be reused for hospitalisation after negative results are obtained from these cultures.
- An updated record must be maintained at the HE-EQ reception desk identifying animals hospitalised in Isolation and the history of environmental culture results associated with post-*Salmonella* disinfection.
- The results of environmental cultures performed as part of post-*Salmonella* surveillance must be communicated biannually to the CHB (by email to: biosseguranca@fmv.ulisboa.pt).

2.4.4. Routine environmental surveillance for *Salmonella* spp.

- Routine environmental surveillance cultures must be carried out every 6 months by sampling smooth floors, door and cabinet handles, taps, and light switches in the following HE-EQ areas:
 - X-ray room;
 - Outpatient stalls;



- Surgery and recovery room;
- Hospitalisation Unit.
- Surveillance must be more frequent in the ICU and the UICB-EQ, with sampling carried out every 3 months.
- A detailed record of sampled locations and corresponding laboratory results must be kept at the HE-EQ reception desk.
- The results of routine environmental cultures must be reported biannually to the CHB (by email to: biosseguranca@fmv.ulisboa.pt).

2.5. Management of Patients with Suspected Infectious Disease

- Strict precautions must be applied during the assessment, hospitalisation, and treatment of patients suspected or confirmed to be carriers of contagious pathogenic agents. Due to the increased risk of nosocomial infections, animals with acute gastrointestinal disease (e.g. diarrhoea), acute respiratory infections, acute neurological disease, abortions, or infections caused by multidrug-resistant bacteria are of particular concern.
- High-risk patients (Class 4) must be admitted exclusively to the UICB-EQ and should be discharged as soon as possible. Initial assessment must be carried out in the UICB-EQ stall designated for this purpose, followed by direct admission to a UICB-EQ stall.
- During contact with Class 4 patients, clinical staff must wear the PPE available in the UICB-EQ.
- When patients with moderate infectious risk are hospitalised in the ICU or in a dedicated area of the Hospitalisation Unit, prophylactic/barrier containment measures (Intermediate Care) must be implemented. These measures include:
 - Installation of functional footbaths at the entrance of each stall;
 - Physical delimitation of the intermediate care stall area using barriers and an additional footbath at the exit;
 - Avoidance, whenever possible, of hospitalising horses in adjacent stalls (opposite/side).
- In cases of detection of multidrug-resistant bacteria, mandatory registration must be made at the HE-EQ administrative office, including the animal's name, sample origin, and laboratory culture result, which must be immediately communicated to the CHB (email: biosseguranca@fmv.ulisboa.pt).
- All HE-EQ cases involving multidrug-resistant bacteria must be reported biannually to the CHB (email: biosseguranca@fmv.ulisboa.pt).

2.5.1. Classification of Patients with Suspected or Diagnosed Infectious Disease

- Infectious diseases diagnosed in hospitalised animals must be classified according to their transmissibility and zoonotic potential, and assigned to one of the following infectious risk categories (Classes 1–4).

Class 1: Standard Stabling – green

- Includes non-infectious diseases or infectious diseases caused by pathogens that are not transmissible to other animals and have no zoonotic potential.
- The following criteria must be met: absence of fever and respiratory signs at admission, and no compatible clinical history within the previous two weeks.
- Includes the following conditions:
 - Patients with trauma or wounds;
 - Pre- or post-operative patients;
 - Patients with colic without contagious complications;
 - Patients with ophthalmic disease;
 - Neonates without contagious disease;



- Other conditions of similar risk.

Class 2: Standard Stabling – green

- Includes infectious diseases caused by pathogens with low transmissibility and bacterial infections caused by antibiotic-susceptible strains.
- Includes the following conditions:
 - Patients with infected wounds caused by antibiotic-susceptible bacteria;
 - Patients with bacterial pneumonia or pleuropneumonia without suspicion of contagion;
 - Patients with corneal ulcers infected by susceptible bacteria;
 - Other conditions of similar risk.

Class 3: Intermediate Care – orange

- This class is subdivided into two subclasses:
 - Subclass A: animals with infections caused by multidrug-resistant bacteria, confirmed by culture and antimicrobial susceptibility testing (TSA);
 - Subclass B: animals with infectious diseases caused by pathogens with moderate transmissibility and/or potential zoonotic risk.
- Whenever possible, Class 3 animals should be hospitalised in stalls located at the north end of the Hospitalisation Unit or in the ICU.
- Indications for intermediate care hospitalisation include:
 - Fever and/or leukopenia of unknown origin;
 - Viral respiratory disease with recent clinical signs (< 2 weeks): cough, nasal discharge, associated with fever;
 - *Rhodococcus equi* infection in foals under 10 months of age with respiratory signs and fever;
 - Acute diarrhoea with or without fever and/or leukopenia;
 - Non-surgical digestive disease with haemorrhagic or non-haemorrhagic reflux associated with fever and/or leukopenia;
 - Infections caused by MRSA or other multidrug-resistant bacteria;
 - Contagious dermatological infections, including:
 - Dermatophytosis;
 - Dermatophilosis (*Dermatophilus congolensis*);
 - Chorioptic mange;
 - Pediculosis;
 - Other transmissible cutaneous parasitoses.

Class 4- Isolation – Red

- Includes infectious diseases caused by highly contagious pathogens and/or those with high zoonotic potential.
- Class 4 patients must be hospitalised exclusively in the UICB-EQ.
- Exceptionally, when the Isolation Unit is at full capacity, patients may be housed in the north end of the Hospitalisation Unit, provided that the area is physically isolated and equivalent protocols to those applied in the UICB-EQ are implemented (use of PPE, strict cleaning and disinfection routines for the area and equipment).
- Indications for Class 4 hospitalisation include:
 - Strangles (strong suspicion or confirmed case): submandibular lymphadenopathy, nasal discharge, cough, fever, or suspected guttural pouch empyema/chondroids;
 - Salmonellosis: acute diarrhoea associated with leukopenia and/or fever;
 - Acute, rapidly progressive neurological disease, or acute neurological disease with fever (e.g. suspected EHV-1 encephalomyelitis);
 - Abortion between 150 and 300 days of gestation;



- Perinatal death (>300 days of gestation) not attributable to dystocia, premature placental separation, congenital anomaly, or twin pregnancy;
- Notifiable zoonotic diseases, e.g. Rabies, Glanders (*Burkholderia mallei*), Brucellosis, Anthrax, and Tuberculosis caused by *Mycobacterium bovis* or *M. tuberculosis*.
 - Horses that have had direct or indirect contact with an animal suspected or diagnosed with an infectious disease must be considered potentially contagious until laboratory testing excludes the diagnosis or the maximum incubation period has elapsed without clinical signs.
 - It must be considered that some horses may be asymptomatic carriers and continue to shed pathogens in the absence of clinical signs (e.g. *Streptococcus equi* subsp. *equi*, *Salmonella* spp.).

2.5.2 Exclusion Criteria for Admission and/or Hospitalisation

- Notifiable animal diseases in Portugal must be reported to DGAV, in accordance with national legislation.
- When the risk of pathogen transmission to other patients or people outweighs the health risk to the animal itself, admission or hospitalisation may be refused. This decision lies exclusively with the clinical staff and cannot be made by interns.
- Refusal criteria include, but are not limited to:
 - Suspected viral respiratory infection (cough, nasal discharge, fever within the previous 2 weeks) without life-threatening risk;
 - Suspected strangles (submandibular lymphadenopathy, nasal discharge, cough, fever), suspected guttural pouch empyema and/or presence of chondroids without surgical indication or imminent life-threatening risk;
 - Suspected neurological form of EHV-1 (acute ataxia with fever or recent history of fever or contact with confirmed/suspected cases), without life-threatening risk;
 - Abortion without life-threatening risk to the mare. In these cases, placenta and fetus should, whenever possible, be submitted for pathological examination.

2.5.3 Communication Requirements for Intermediate Care, ICU Isolation, and Hospitalisation

- All stalls housing Class 3 (Intermediate Care) or, exceptionally, Class 4 (Isolation) animals must be clearly marked with an **orange** card “Intermediate Care” or a **red** card “Isolation”.
- Signage must be placed visibly on the stall door and removed only after complete disinfection and explicit authorisation from the responsible clinician.
- All clinical staff and students involved in hospital activities must be immediately informed of the infectious classification of hospitalised patients.
- Animal handlers, cleaning staff, and maintenance teams must also be informed of the risk level associated with each patient and reminded of mandatory precautions.

2.5.4 Handling and Treatment Rules for Patients with Suspected or Diagnosed Infectious Disease

- Strict compliance with hygiene rules, correct use of PPE, and adherence to UICB-EQ regulations is essential for effective control of contagious pathogens.
- Hands must be washed with soap and water and disinfected with an alcohol-based solution (Promanum) before and after examining each patient.
- Any surface or equipment contaminated with faeces, secretions, blood, or other biological fluids must be immediately cleaned and disinfected by the clinical staff or students responsible for the patient.
- Contamination of objects and surfaces with dirty hands, gloves, or boots must be avoided.
- All footbaths must be used obligatorily, respecting the correct entry/exit sequence.



- Environmental hygiene is the responsibility of all professionals and students working in the UICB-EQ or intermediate care areas, and all must participate in general cleaning and maintenance.
- In the UICB-EQ, contamination of anterooms with straw or manure must be strictly avoided.
- Students and interns responsible for Class 3 and 4 patients must ensure daily cleaning and organisation of the anteroom, including cleaning and disinfection of counters, door handles, replacement of footbaths as needed, and verification/restocking of disinfectant materials. A HE-EQ staff member must perform a daily inspection of cleanliness and replace missing materials.
- Consumption of food is prohibited in all HE-EQ areas, including the UICB-EQ, due to zoonotic risk.
- When working in the UICB-EQ, anterooms, and isolation stalls, the use of clean examination gloves at all times is mandatory, with compulsory glove changes between patients.

2.5.5 Access Control Rules for Intermediate Care Areas and the Isolation Unit (UICB-EQ)

- Access to the UICB-EQ and to intermediate care areas must be strictly limited to situations that are absolutely necessary.
- Entry into stalls should only occur when direct contact with the patient is indispensable. Clinicians may, exceptionally and for pedagogical purposes, authorise student entry; such access must be kept to the minimum necessary and carried out in full compliance with personal protective equipment (PPE) and biosafety measures.
- Only clinicians, students, nurses, and cleaning staff specifically assigned to the care of isolation patients are authorised to enter the unit.
- Whenever possible, dedicated teams should be assigned exclusively to isolation and intermediate care areas in order to avoid crossover with other hospital sectors (ICU, general hospitalisation, ambulatory care, surgery).
- If it is necessary to provide care in different hospital areas, professionals and students must:
 - Strictly follow the movement sequence, attending first to Class 1 and 2 patients and lastly to Class 3 and 4 patients;
 - Avoid contact with immunocompromised patients (leucopenic animals, neonates, very young or elderly animals) after interacting with infectious cases;
 - Change PPE between areas and strictly comply with hand and footwear hygiene rules;
 - The clinician responsible for the case is accountable for ensuring that all appropriate care measures and precautions are fully implemented.

Class 3: Intermediate Care

- The rules concerning protective equipment and safety barriers apply to the entire intermediate care area, not only to individual stalls:
 - Mandatory footbaths at the entrance and exit of the isolated area and of each individual stall;
 - Hand washing and disinfection upon entry and exit of the isolated area and each individual stall;
 - Disposable gown (single use);
 - Examination gloves (single use).
- PPE must be stored in washable and disinfectable containers positioned at the entrance of each stall.
- Only direct owners (not friends, farm staff, or referring veterinarians) may visit horses, only under specific circumstances and always under supervision of the responsible clinician. Entry into the stall is not permitted.
- Owners must be informed of the risk of contagion to other animals in their usual environment.
- Owners are not permitted to access other areas of the HE-EQ.



Class 4 - Isolation

- The following measures are mandatory for any person entering the UICB-EQ:
 - Change clothes upon entry in the unit's changing rooms, donning a clean burgundy surgical scrub suit;
 - Use the external footbath of the anteroom;
 - Perform hand washing and disinfection in the anteroom;
 - Put, in the anteroom, a water-resistant disposable coverall;
 - Put, in the anteroom, examination gloves (single use);
 - Wear, in the anteroom, dedicated boots covered with disposable plastic boot covers;
 - Put, in the anteroom, a respiratory mask and safety goggles, when indicated.
- Owners are not permitted to enter the UICB-EQ, except in exceptional cases with explicit authorisation from the lead clinician and must always be accompanied by a staff member throughout their stay.

2.5.5.1 Equipment and Materials

- Materials used in isolation areas (Class 4) or intermediate care areas (Class 3) must be cleaned and disinfected locally whenever possible.
- Materials used in the isolation unit (Class 4) must not be transferred to other hospital areas, except in exceptional circumstances in which a strict disinfection protocol can be followed. In such cases, a first on-site disinfection is mandatory, consisting of a 24-hour immersion in Umonium prior to any movement outside the unit.
- Equipment or materials not used or not discarded within the UICB-EQ (e.g. medication vials, intravenous fluids) intended for use in other hospital areas must undergo complete disinfection, including the initial 24-hour Umonium immersion.
- Any material that enters an anteroom (Class 4) or an intermediate care stall (Class 3) must be dedicated exclusively to the corresponding patient and, if not used, must be discarded.
- Introduction of non-essential equipment or materials into isolation or intermediate care areas should be avoided whenever possible.
- Medications that enter an anteroom or intermediate care stall and are not used before the patient's discharge or euthanasia must be discarded (cannot be reused) and charged to the client.
- All medications dispensed for home use must be supplied in appropriate containers with a complete prescription label.
- Additional cleaning products and disinfectants are stored in the UICB-EQ.
- PPE, syringes, needles, and miscellaneous consumables are stored in the UICB-EQ pharmacy and are regularly replenished in the anterooms as needed.

Class 3: Intermediate Care

- Each Class 3 patient must be assigned the following individual-use instruments: thermometer, hoof brush, and hoof pick.
- These instruments are HE-EQ property and are stored during hospitalisation in an individual, identified bag placed in front of the corresponding stall.
- After patient discharge, all equipment must be carefully cleaned and disinfected before storage or reuse.
- Personal stethoscopes belonging to clinicians or students may be used, provided they are rigorously disinfected after each use on Class 3 patients.

Class 4: Isolation

- Each Class 4 patient must be assigned the following individual-use instruments: stethoscope, thermometer, stocks, hoof brush, and hoof pick.
- These instruments are property of the UICB-EQ and are stored during hospitalisation in an individual, identified box located in the corresponding stall anteroom.



- Equipment must remain within the UICB-EQ throughout hospitalisation and be thoroughly cleaned and disinfected after patient discharge.

2.5.6 Entry and Exit Procedures for Staff and Students in Isolation Areas

- Cleaning staff and/or handlers must strictly comply with all institutional policies regarding clothing and PPE use when working in intermediate care (Class 3) or the UICB-EQ (Class 4).
- Frequently touched surfaces, such as door handles and automatic blind cords, must be disinfected regularly.
- When entering a Class 3 stall or Class 4 box, all necessary materials must be taken in a single entry to minimise the number of movements.
- Procedures with higher contamination risk (e.g. contact with mucous membranes, MRSA-infected wounds, rectal temperature measurement, rectal palpation, drainage of *Streptococcus equi* subsp. *equi* abscesses) must be performed last, after other patient care activities.
- Dragging straw, faeces, or other contaminated materials into corridors or anterooms when exiting a Class 3 or Class 4 stall must be avoided. This is particularly important for handlers during waste removal.
- Sharps and biological waste must be disposed of appropriately in designated contaminated waste containers (yellow containers).

Class 3: Intermediate Care

- Sequence of procedures for entry into the intermediate care area:
 - Use the footbath located at the entrance;
 - Put on a clean disposable gown stored near the patient's stall.
- Sequence of procedures for entry into an intermediate care stall:
 - Put on and fasten a clean disposable gown;
 - Wash and disinfect hands with an appropriate biocidal agent;
 - Put on a new pair of disposable gloves;
 - Use the footbath located in front of the stall.
- Anyone handling, examining, or feeding more than one patient in intermediate care stalls must change disposable gowns, replace examination gloves, and thoroughly wash hands with soap and water followed by disinfection with an appropriate biocidal agent.
- Sequence of procedures for exit from an intermediate care stall:
 - Use the footbath at the stall entrance;
 - Clean and disinfect with Promanum any equipment not exclusively assigned to the patient;
 - Wash hands with soap and water followed by disinfection with Promanum;
 - Complete clinical documentation and process biological samples only with clean hands and outside the stall.
- Sequence of procedures for exit from the intermediate care area:
 - Remove and discard the disposable gown in the appropriate waste container located at the stall entrance;
 - Discard examination gloves in the appropriate waste container;
 - Use the footbath at the entrance of the intermediate care area.

Class 4: Isolation Unit

- The UICB-EQ door must remain locked, with access restricted to clinical staff and handlers.
- Entry must be limited to the minimum necessary to ensure biosafety.
- Whenever possible, treatment times should be synchronised between cases to minimise entries and exits.
- Clinical procedures in the UICB-EQ must be carried out after procedures on other hospitalised patients, as well as after stall cleaning.



Entry Procedures for the UICB-EQ

- Upon entry, changing clothes and footwear to burgundy surgical scrubs and UICB-EQ-dedicated footwear is mandatory.
- Watches, jewellery, and personal accessories must be removed.
- Mobile phones may only enter the UICB-EQ pharmacy; their entry into anterooms, stalls, and examination rooms is prohibited.
- The UICB-EQ provides surgical scrubs and coveralls in appropriate sizes and quantities for all team members.
- Each changing room has lockers for clean clothing and bags for dirty laundry to mitigate cross-contamination.

UICB-EQ Pharmacy

- Medications and clinical records for each patient must be prepared in advance in the pharmacy before accessing stalls.
- The pharmacy must permanently contain frequently used equipment (glucometer, lactate meter, microcentrifuge, refractometer, I-Stat, ultrasound unit, refrigerator, microwave, freezer or ice machine).
- Adequate PPE stock must be available for systematic replenishment of anteroom supplies.

Entry and Stay in the Anteroom of a UICB-EQ Stall

- Upon entering the anteroom, PPE must be donned, including a disposable isolation gown or white disposable coverall depending on clinical risk. In suspected or confirmed EHV-1 or strangles cases, the white disposable coverall is mandatory.
- Disposable examination gloves and disposable footwear protection must then be donned.
- Each anteroom must be equipped with: a waste container dedicated to the stall, a washable/disinfectable UICB-EQ clock, a sink with antiseptic soap (Hibiscrub, BBraun), examination gloves (S, M, L), disposable gowns/coveralls, and footwear protection. Supplies should be limited to short-term needs to avoid waste.
- Each anteroom must contain a limited supply of syringes, needles, and sampling tubes (EDTA tubes, plain tubes, urine cups), replenished daily.
- After treatment, all disposable materials must be discarded in the anteroom container.
- Prepared medication not used must be discarded locally and not returned to the pharmacy. Unopened vials or fluid bags are exceptions and must be disinfected before return.
- All electronic equipment (e.g. ultrasound, ECG, portable X-ray) must be disinfected before leaving the anteroom.
- Protective barriers (e.g. plastic probe covers) should be used whenever possible.
- Protective equipment for electronic devices is stored in the UICB-EQ pharmacy.

Exit from the Isolation Stall and Anteroom

- Blood, faecal, or other biological samples must be disinfected with Promanum and placed in a clean ziplock bag before leaving the anteroom.
- Feeding equipment, blankets, halters, leads, bandages, or horseshoes must not exit directly to the corridor. They may only leave after cleaning, washing, disinfection, bagging, and direct transport to appropriate areas.
- Clipboards and pens must be non-porous and disinfected before leaving the anteroom.
- Upon exiting the stall to the anteroom, disposable footwear covers must be removed and discarded unless re-entering the same stall. Gloves must be removed and hands washed before handling clean material.



- Upon exiting the anteroom to the main corridor, disposable gowns/coveralls and gloves must be removed and discarded. Hands must be washed with Hibiscrub and the footbath must be used.
- Under no circumstances may PPE be worn from a stall into the main UICB-EQ corridor.
- Footbaths must be cleaned and replenished daily or whenever contaminated with organic matter.

2.5.7 Protocols for Transfer of Horses to Intermediate Care or the UICB-EQ

- Facilities must be fully prepared before admission of any intermediate care or isolation patient.
- Functional footbaths with appropriate disinfectant (e.g. Virkon) must be prepared.
- PPE appropriate to the patient's risk class must be prepared.
- Transfers should minimise contact with other hospitalised equines and involve two people whenever possible:
 - One wearing full isolation PPE to prepare the stall and receive the patient;
 - One accompanying the horse from its original location.
- Any surface contaminated during transport must be immediately cleaned and disinfected.
- A **red** "Disinfect" marker card must be placed at the entrance of the horse's original location.
- The responsible person must ensure complete organisation and disinfection of the original space before reuse.

Class 3: Intermediate Care

- Personal protective equipment (PPE) must be stored and readily available in the pharmacy of the stocks and the ICU.
- Whenever possible, horses admitted for intermediate care should be directed straight to the Class 3 stall, avoiding contact with other areas of the HE-EQ, people, or other horses.

Class 4: Equine Hospital Isolation Unit

- The specific PPE for the anterooms of the UICB-EQ (e.g., disposable coveralls or gowns, gloves, and footwear protection) are available in the unit's storage room.
- Whenever possible, horses that need to be isolated should be transported directly to the UICB-EQ, preferably using the transport provided by the owners themselves.

2.5.8. Cleaning of Stalls and Feeding of Horses in Intermediate Care (Class 3) and Isolation (Class 4)

2.5.8.1. Stall Cleaning

- Handlers must clean bedding daily and walls whenever contaminated with diarrhoeic faeces, blood, or other secretions.
- Footbaths must be changed daily in the morning by handlers and additionally throughout the day as needed.
- Feeding may be performed by clinical staff or students as required.
- Students and interns responsible for a case must clean the area in front of their patient's stall whenever necessary.

Class 3 – Intermediate Care

- Each stall must have dedicated cleaning tools (minimum: pitchfork, broom, shovel), stored in front of the stall.
- Bedding must be cleaned daily, preferably in the morning.



Class 4 – Isolation

- Each stall must have dedicated cleaning tools stored in the anteroom, as well as a hose with pressurised water.
- Bedding must be cleaned daily, preferably at the end of the day.
- Walls must be cleaned immediately when contaminated.
- A lidded waste container dedicated to bedding waste must be placed outside each occupied stall.

2.5.8.2 Feeding of horses in the UICB-EQ

- The preparation of feed for each horse (hay and/or concentrated feed) must be carried out in the hay/feed room by a clinician, nurse, or handler, after putting on the unit-specific clothing and footwear.
- Hay and/or concentrated feed must be pre-packaged individually for each horse in clean plastic bags or in rectal palpation sleeves and taken to the anteroom of the respective stall.
- The preparation of soaked hay or mash must be carried out exclusively in the anteroom of the stall where the horse for which it is intended is housed.
- Any leftover feed (hay or concentrate) that has not been consumed must be discarded at the time of the daily stall cleaning and must not be reused or transferred between horses.

2.5.9 Protocols for the movement of contagious patients from intermediate care or from the UICB-EQ in cases of discharge or need for diagnostic tests or treatment

- Before leaving the stall, the horses' hooves must be properly cleaned.
- Whenever patients are taken to the stocks room, X-ray room, or surgery, the hooves must be washed and scrubbed with a 0.5% chlorhexidine solution, previously prepared in buckets dedicated to the UICB-EQ.
- All team members involved in moving the patient must wear appropriate PPE according to the patient's risk class.
- During patient transport, staff must avoid touching doors, gates, or other surfaces with contaminated gloves. When unavoidable, those surfaces must be disinfected immediately.
- It is the responsibility of the clinical team to ensure that the animal's handlers/owners receive clear information regarding the risks of zoonotic infection or transmission between animals, as well as practical guidance on mitigating these risks during contact with the animal.
- Horses hospitalized in intermediate care (Class 3) or in the UICB-EQ (Class 4) must not be walked or exercised.

Class 3: Intermediate Care

- Patients housed in intermediate care stalls (Class 3) must not move through the hospital corridors, except in strictly necessary situations, e.g., access to surgical rooms.
- When corridor movement is absolutely necessary, those responsible must take strict measures to avoid contact with other patients and people.
- When intermediate care patients are housed in the Hospitalization Unit, exit must be through the North gate, avoiding crossing the entire sector and contact with other hospital areas.
- Diagnostic or therapeutic procedures to be performed outside the stall, e.g., in stocks, X-ray, or the surgical suite, should preferably be scheduled for the end of the day.
- After these procedures are performed, all potentially contaminated surfaces and floors must be immediately cleaned and disinfected to reduce the risk of nosocomial transmission.

Class 4: Equine Hospital Isolation Unit (UICB-EQ)

- All diagnostic and therapeutic procedures must be performed within the unit, unless it is absolutely necessary to carry them out elsewhere.



- If a surgical intervention is required, it will be performed in the UICB-EQ (Class 4) whenever possible or, exceptionally, in the HE-EQ operating theatre.
- Procedures for removing a horse from the UICB-EQ:
 - The patient must be groomed and cleaned in the stall before leaving, by the responsible person, with special attention to removing feces and bodily excretions/secretions;
 - Before leaving the stall, the animal's coat must be carefully cleaned from head to tail using a cloth soaked in chlorhexidine solution, and the hooves must be washed and scrubbed with a 0.5% chlorhexidine solution, previously prepared in buckets dedicated to the unit;
 - The person responsible for moving the patient must wear all PPE appropriate to the associated biological risk;
 - During transport, contact of contaminated gloves or hands with surfaces such as doors, gates, or handrails must be avoided;
 - All surfaces and floors contaminated with feces, urine, or other bodily fluids during transport must be cleaned and disinfected immediately;
 - The floor of all indoor areas of the HE-EQ traversed by the horse must be sprayed with a surface disinfectant solution immediately after its passage.

Surgery

- Whenever possible, surgeries for patients coming from the UICB-EQ should be scheduled for the end of the day.
- Throughout the surgical procedure, all persons present in the operating theatre must wear appropriate PPE.
- Return to the UICB-EQ after surgery:
 - Before leaving the anesthesia recovery box, the patient's hooves must be washed and carefully scrubbed with a 0.5% chlorhexidine solution, previously prepared in buckets dedicated to the isolation unit;
 - The person responsible for transporting the patient must wear full appropriate PPE.
 - During the return journey, all persons involved must avoid contaminating doors, gates, handles, and other surfaces with contaminated gloves or hands;
 - Surfaces and floors contaminated with organic fluids or feces during patient transport must be cleaned and disinfected immediately;
 - The floor of all indoor areas of the HE-EQ traversed by the horse must be sprayed with a surface disinfectant solution immediately after its passage;
- After the procedure, both the anesthesia recovery box and the operating theatre must be considered contaminated areas. Their cleaning and disinfection must be complete and rigorous before any further use;
- It is expressly forbidden to perform any new surgical procedure in these areas before their decontamination.

Poster 2 summarises the instructions that HE-EQ students must comply with whenever they have practical surgical classes. This poster is displayed at the entrance to the HE-EQ surgery suite.



Poster 2

Instructions for Students on the Standard Operating Biosafety Procedures in Force at the Equine Teaching Hospital Surgery Centre



EQUINE TEACHING HOSPITAL – SURGERY CENTRE

INSTRUCTIONS FOR STUDENTS

- 1 - Store your personal belongings in a locker at the Equine Teaching Hospital and secure it with your own padlock.
- 2 - Long hair must be tied back and secured.
- 3 - Proceed to the Equine Teaching Hospital changing room carrying a bag containing your blue hospital scrubs and your hospital clogs. Remove your shoes and place them under the wooden benches.
- 4 - Put on your blue hospital scrubs and your hospital clogs.
- 5 - Follow the designated entry and exit circuits of the Surgery Suite.
- 6 - Disinfect your hands upon entry to and exit from the Surgery Suite.
- 7 - Proceed to the Surgery Suite and wait for authorisation from the supervising clinician before entering.
- 8 - After the class, return to the Equine Teaching Hospital changing room, remove your blue hospital scrubs and store them together with your hospital clogs in a clean bag. Put on your shoes.
- 9 - Remove your belongings from the locker, store your padlock, and leave the locker open.
- 10 - If you have any questions, scan the QR Code on the poster to access more detailed information.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

- A - Blue hospital scrubs, personal, clean.
- B - Hospital clogs, personal, clean.
- C - All other PPE, e.g. gloves, are provided by FMV.

2.5.10. Protocol for Performing Diagnostic Tests and Surgical Treatments in Patients with Suspected Infectious Disease

- Performing diagnostic tests for the isolation and identification of pathogenic agents (including zoonotic agents) is essential for the appropriate clinical management of infected patients. These tests provide direct benefits to patients and owners by enabling effective management of other animals and protection of the household. They also contribute to the safety of the HE-EQ team and patients by enabling adequate risk management.
- Diagnostic testing of hospitalised patients is strongly recommended whenever infection with a contagious or zoonotic pathogen is suspected. Diagnostic testing is an essential part of case management and will therefore be charged to the client.



- The Clinical Director or a veterinarian with delegated authority responsible for the patient must ensure that appropriate samples are collected and submitted for analysis, and that adequate biosafety precautions are implemented during patient handling.
- The CHB Coordinator must be notified as soon as possible whenever a hospitalised patient has, or is suspected of having, a Class 3 or Class 4 infectious disease (biosseguranca@fmv.ulisboa.pt). For this purpose, a Class 4 occupancy log is available through the HE-EQ administrative office, where the suspected or confirmed disease must be duly recorded for each patient.
- Whenever possible, diagnostic, surgical, or other procedures should be carried out in the facilities where high-risk patients are housed, avoiding transfer to common areas.
- All procedures required for patients isolated in the UICB-EQ (Class 4) must be performed in the unit's treatment room, unless it is not feasible to perform them in the stall itself.
- During all diagnostic or therapeutic procedures, all team members and students must strictly comply with UICB-EQ biosafety rules.
- If the patient requires examinations or treatments that can only be performed in the main hospital facilities (e.g. computed tomography, magnetic resonance imaging, or surgery), these procedures should be scheduled for the end of the day whenever possible.
- The responsible clinician must report the suspected infectious agent and indicate the containment measures to be implemented, including cleaning and disinfection after procedures.
- In general, all isolation precautions applicable to the patient's stall must be applied whenever the patient is handled.
- Instruments, equipment, and the environment must be thoroughly cleaned and disinfected after each procedure, regardless of where it was performed.
- The responsible clinician must ensure that all team members involved in procedures are fully informed about the confirmed or suspected pathogen and the specific precautions to be taken, including correct PPE use and isolation procedures.
- In patients with diarrhoea, one person must lead the animal while another accompanies it to collect any faecal material and immediately clean and disinfect contaminated areas.
- The responsible clinician is also accountable for ensuring that the environment and equipment are properly cleaned and disinfected after procedures, including anaesthetic induction areas, the operating theatre, the recovery box, and any other involved areas

2.5.11. Ultrasound, Endoscopy, Radiography, and ECG in Intermediate Care (Class 3) and UICB-EQ (Class 4) Patients

- ECG examinations must be performed using the Televet system. The device and electrode cables may be taken into the anteroom and the designated procedure box of the UICB-EQ. However, the transport case, disposable electrode packaging, and protective pouch must remain in the unit pharmacy (Class 4) or outside the intermediate care area (Class 3 in Hospitalisation or ICU).
- After ECG acquisition, electrode cables must be cleaned and disinfected with gauze soaked in 0.4% chlorhexidine solution and Promanum before leaving the anteroom or intermediate care area. The Televet device must likewise be disinfected with Promanum-soaked gauze and dried before leaving these areas.
- After endoscopy, the endoscope and endoscopy tower must be cleaned and disinfected in the UICB-EQ treatment room.
- Upon return to the stocks room, the endoscope and tower must be disinfected again according to the recommended protocol.
- Portable X-ray equipment should preferably be used in horses with confirmed or suspected infectious disease.
- For radiographic examinations, the cassette must be placed in a plastic bag, which must be removed by a person with clean hands prior to processing.



- The X-ray unit and cassette must be disinfected with gauze soaked in alcohol-based disinfectant (Promanum) before leaving the UICB-EQ anteroom, treatment room, or intermediate care area.
- For ultrasonography, the Vscan probe must be used, protected with a disposable glove. After use, the probe must be carefully disinfected. The ultrasound display must be kept inside a ziplock bag and disinfected (with Promanum-soaked gauze) before leaving the isolation anteroom. The ziplock bag must be immediately discarded.
- Only strictly necessary material must be taken into intermediate care (Class 3) and UICB-EQ (Class 4) areas. Alcohol and ultrasound gel must be kept within the respective units.

2.5.12. Biological Samples from Suspected or Confirmed Infectious Disease Patients

- Samples from high-risk patients must be properly identified and labelled and placed in a ziplock bag (preferably double-packaged).
- Samples must be placed carefully inside the bag, avoiding contamination of the exterior surface.
- The suspected disease or pathogen must be clearly identified on submission forms.
- Samples from patients with zoonotic disease must be double-packaged, and the suspected disease or pathogen must be clearly identified on all submission forms.

2.5.13. Preparation of Intermediate Care (Class 3) and UICB-EQ (Class 4) Areas for Disinfection

- Cleaning staff must be contacted immediately after patient discharge so that stall cleaning and disinfection can be performed before admission of another patient.
- Prior to disinfection, cleaning staff must be informed of the specific pathogen involved and the associated PPE precautions.
- To allow complete cleaning and disinfection of the area, the responsible clinician, intern, and assigned student are responsible for:
 - Placing all disposable materials in yellow biohazard waste containers;
 - Closing all waste bags, which must remain in the UICB-EQ until removed by cleaning teams;
 - Cleaning and disinfecting all medical equipment before removal from the unit (e.g. stethoscope, thermometer, watch, nasogastric tube) and subsequently storing it appropriately;
 - If admission of another patient is required before the stall has been disinfected by handlers, this procedure becomes the responsibility of the intern, responsible clinician, or technical staff assigned to the case.
- No other patient may enter the stall unless it has been adequately disinfected.

2.5.14. Downgrading of Patients in Intermediate Care (Class 3) or Isolation (Class 4)

- In general, horses isolated in the UICB-EQ (Class 4) remain in the unit until the end of hospitalisation.
- Horses in intermediate care (Class 3) may, on a case-by-case basis, be transferred to lower risk classes according to clinical evolution.
- The decision to reclassify Class 3 patients lies with the responsible clinician and, when necessary, the CHB Coordinator.

2.6. Management of Patients with Multidrug-Resistant Bacterial Infections

- Patients infected with multidrug-resistant bacteria represent a potential risk to human and animal health. They are therefore classified as Class 3 patients, and reinforced biosafety precautions are implemented to prevent dissemination of these microorganisms within the facilities, including mandatory PPE use and footbaths.



- Treatment of wounds infected with multidrug-resistant bacteria (e.g. MRSA) must take place in low-traffic areas that can be easily cleaned and disinfected after each procedure.
- Whenever a clinician receives a positive culture result for multidrug-resistant bacteria (e.g. *E. coli*, *Klebsiella* spp.), this must be recorded in a logbook kept at the HE-EQ administrative office, including patient details, stall, hospitalisation date, and culture results

2.7. Biosafety Precautions for Mares and Foals

- Neonatal foals hospitalised at the HE-EQ are frequently at high risk of infection due to concurrent disease or compromised immune status. Additionally, foals and their dams may shed enteric pathogens during the periparturient period.
- If foals or mares show signs of contagious disease, or originate from premises with infectious disease outbreaks, they must be hospitalised in intermediate care or the UICB-EQ, with full compliance with mandatory protocols.
- Animals without clinical signs of contagious disease, or originating from premises without reported outbreaks, may be housed in the ICU or Hospitalisation, according to the following protocols:
 - Foals ≤ 21 days of age: mandatory use of disposable gloves and footbaths at stall entry for all persons entering or contacting the animals;
 - Examination gloves must be discarded immediately upon exiting the stall to prevent contamination of other areas;
 - Access to stalls must be restricted to essential care. Responsible clinicians may authorise student entry for pedagogical purposes, but this should be minimised;
 - All persons entering the stall must use appropriate precautions.

2.8. Surgery and Anaesthesia

- The operating theatre is considered a clean area, with specific biosafety and professional conduct rules. Its access, use, and maintenance require rigour, responsibility, and adherence to established standards to ensure patient, staff, and student safety.
- **Access and Authorisation**
Access to the operating theatre is restricted to authorised personnel. Students may only participate with prior authorisation from the responsible clinician, and all access must be recorded.
- **Hygiene and Preparation**
Appropriate surgical attire is mandatory, including clean green surgical scrubs, cap, mask, and boots or clogs with boot covers. Entry with external clothing is prohibited, except in emergencies where patient welfare is prioritised. Hands must be washed according to the surgical asepsis protocol displayed in the theatre.
- **Equipment Organisation**
All surgical material must be prepared and checked before the horse enters. Instrument, drug, and consumable lists must be verified in advance. After procedures, used materials must be washed, immersed in enzymatic solution, and disinfected or sterilised according to protocol. Nurses and assistants are responsible for monitoring these processes.
- **Patient Handling**
Horses must be prepared according to the surgeon's instructions, including fasting, clipping, and washing. Handling of sedated or anaesthetised horses is restricted to trained personnel. Anaesthetic induction, positioning, and recovery phases are critical and require silence, focus, and concise communication.
- **Prohibitions**



Eating, drinking, or food storage in the operating theatre is strictly prohibited. Unnecessary movement, crossing sterile zones during procedures, and the use of adornments (e.g. rings, earrings, watches, painted or long nails) by those directly involved in surgery are forbidden.

- **Cleaning and Closure**

After each surgery, the theatre must be fully disinfected, including floors, tables, and equipment. Each user is responsible for leaving the space clean and organised. Any damage or equipment malfunction must be reported immediately.

- **Contamination Monitoring**

Quarterly swabbing of critical surfaces (e.g. surgical table, lights, monitors, door handles) must be performed, as well as after septic surgeries. Samples must be submitted for microbiological analysis and results archived. If clinically relevant positive cultures are detected, disinfection protocols must be reinforced and sampling repeated.

2.9. Colic Cases

- Colic cases represent increased risk due to the likelihood of *Salmonella* carriage.
- Colic patients must be hospitalised in the ICU or, depending on clinical evolution (diarrhoea, fever, leukopenia, positive *Salmonella* sample, surgical wound with multidrug-resistant bacteria or MRSA), placed in intermediate care (Class 3) or transferred to the UICB-EQ (Class 4).

2.9.1. Equipment Used in Colic Patients

- If the patient has a nasogastric tube, all necessary equipment (including pump, tubing, and bucket) must be placed beside the stall.
- Once the equipment is no longer required, it must be carefully cleaned, washed, disinfected by immersion in a biocidal solution, rinsed, and dried.

2.9.2. Walking and Grazing of Colic Patients

- If the horse defecates during walking, faeces must be immediately collected and the affected surface cleaned.

2.9.3. Visiting Hospitalised Colic Patients

- Clients must remain with their own horse and must not circulate within the hospital or interact with other patients.
- The number of visitors per patient must be limited.
- Clients must strictly comply with all biosafety procedures, including correct use of footbaths and hand washing and disinfection

2.10. Management of Deceased Patients

- Handlers must be informed as soon as possible when a patient dies or is euthanised.
- The patient's medical records must be archived at the HE-EQ administrative office.
- All patient equipment must be properly bagged and stored for later return to the owner. For intermediate care or isolation patients, equipment must be washed and disinfected according to the specific risk class protocol.
- The stall must be cleaned and disinfected according to the procedures defined for the patient's risk class.



2.10.1. Carcass Disposal

- If the horse dies or is euthanised in the stall/box, the carcass must be removed as soon as possible.
- If euthanasia occurs in the general anaesthesia induction room, the carcass must be removed promptly, and the induction room cleaned and disinfected.
- During euthanasia and carcass removal, the unit must be closed to limit visibility to nearby owners.
- The carcass must be transported as soon as possible to the Pathology Unit using the freight lift:
 - During working days and hours, immediate transport is mandatory;
 - Overnight or at weekends, transport must occur the following morning. Carcasses must be stored in the Pathology cold room.
- A Class 3 or Class 4 patient carcass must remain in the stall/box until direct transport to Pathology.
- A Class 4 patient carcass with a notifiable disease must be stored in the Pathology cold room and subsequently removed according to DGAV instructions.
- After carcass transport, the freight lift must be carefully cleaned and disinfected at the entrance to the Pathology Unit.

2.11. Recommendations to Break Transmission Cycles at the HE-EQ

- HE-EQ visiting hours are from 14:00 to 18:00 on weekdays and from 10:00 to 12:00 on weekends and public holidays. Under no circumstances are owners allowed to stay overnight at the HE-EQ with their horses.
- All visitors must check in at HE-EQ reception upon arrival. Clients must be accompanied to their horse's stall by a student, clinician, or nurse.
- Clients must strictly comply with all biosafety measures applicable to their animal if they enter the stall or touch the horse.
- All visitors must be informed that hand washing and disinfection are mandatory after leaving hospitalisation areas.
- Clients may visit their animals but must not circulate freely within the facilities. Touching other patients or consulting clinical records displayed on stall doors is strictly prohibited. All information regarding other patients, including diagnoses, is confidential and must not be disclosed.
- General public access to HE-EQ hospitalisation areas is not permitted. Guided visits may be organised in special circumstances with prior authorisation.
- Visits to hospitalised patients are reserved exclusively for their owners. Third parties may not visit animals without explicit owner consent.
- For horses housed in intermediate care (Class 3), owners may only visit from outside the stall perimeter. Entry into the stall and visits by other associated persons are not permitted. Owners must be informed of the risk of pathogen transmission to other equines outside the hospital. As with any other client, owners are not authorised to circulate in other hospital areas.
- Client visits to patients hospitalised in the UICB-EQ (Class 4) are only permitted in exceptional circumstances, such as prolonged hospitalisation or imminent euthanasia. In such cases, visitors must fully comply with established biosafety procedures and must always be accompanied by the responsible veterinarian.
- Entry of dogs or other companion animals into the HE-EQ is not permitted.

2.12. Access and Exit Routes of the UICB-EQ and Rules for Patient Movement

- The infectious diseases area, where the Equine Biological Containment and Isolation Unit (UICB-EQ) is located, is intended for the hospitalization and monitoring of horses with suspected or confirmed risk of contamination to other patients or hospital areas and has therefore differentiated and mandatory physical routes designed to ensure separation between patients, personnel, and functional flows, thereby minimizing the risk of cross-contamination.

2.12.1. Access and exit of all personnel to the UICB-EQ

- Access for students and staff to the UICB-EQ is through the front door at the end of Building H, after the lifting barrier.
- Once you pass the barrier, you are entering a restricted access area limited to authorized personnel only.
- Circulation to the UICB-EQ is carried out wearing regular clothing or hospital surgical scrubs.
- All clinical equipment must enter through this door and be received by a member of staff inside the unit.
- In the first changing room, red scrubs must be worn. Upon entering the orange zone, after the separating bench, personnel must wear the plastic clogs available in the unit. Street shoes must under no circumstances cross the dividing barrier (see infographic displayed on the wall).

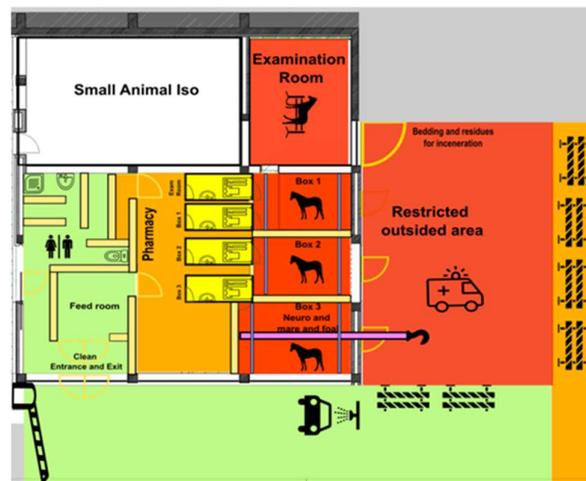


Figure 1. Equine Biological Containment and Isolation Unit

2.12.1.1. Contact with patients

- Entry into stalls and the examination room must be made through the respective decontamination antechamber.
- In each antechamber (yellow areas), the appropriate Personal Protective Equipment (PPE) for the required isolation level must be worn (disposable green gown, full-body PPE suit, face shield or goggles, if indicated). Gloves must be worn in all cases, as well as the available orange rubber boots.
- Exit from each decontamination area must be carried out by discarding the used PPE in the designated containers, followed by appropriate hand washing and disinfection. The orange rubber boots must remain in the antechamber.

2.12.2. Patient access and exit routes

- Patients admitted under isolation criteria must be directed to the UICB-EQ via the route indicated in the map below.

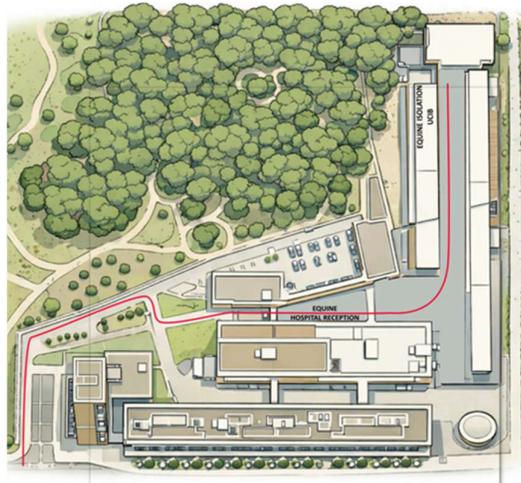


Figure 2. Patient access circuit to UICB-EQ (red line)

2.12.2.1. Route and Access Rules to the UICB-EQ

- Only vehicles with a trailer and a maximum height of 2.7 meters are authorized to transport and deliver horses to the UICB-EQ.
- Only horses presenting one or more of the following clinical signs should be directed to the UICB-EQ: fever, diarrhoea, nasal discharge, or acute neurological symptoms, namely ataxia.
- Vehicles, owners, and drivers must proceed directly to the UICB-EQ, strictly following the route indicated on the map, without intermediate stops or circulation through other areas of the Faculty.
- Patients are unloaded in the outside restricted area by the clinician or member of staff on duty.
- After unloading the patient, all wheels of both the vehicle and the trailer must be washed and disinfected using the hose with disinfectant solution available at the unit.
- Strict compliance with these rules is mandatory and essential to prevent contagion and disease spread, thereby protecting other animals, professionals, students, and visitors.

2.12.3. Rules for the movement of patients for complementary examinations and surgeries

- All animal movements outside the restricted area of the UICB-Equines must be authorized by the Clinical Director of the Equine Hospital. Such movements must be kept to an absolute minimum and only considered in exceptional circumstances, as they may lead to the closure of several hospital areas for prolonged periods.

2.12.3.1. General Provisions

- 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 regulations and must be reported to the coordination of the UICB-EQ.
- Circulation routes and areas are subject to regular cleaning and disinfection in accordance with institutional protocols and the associated biological risk level.