

**MANUAL OF GENERAL PROCEDURES FOR BIOSAFETY,
HEALTH, AND SECURITY**

(English extended summary)



TABLE OF CONTENTS

CHAPTER	PAGE
Introductory note	2
1 - Biosafety, health, and security at FMV	3
2 - Technical Services and Maintenance Office	4
3 - Facilities	4 - 8
4 - Type of risks	8 - 14
5 - Biosafety levels	14
6 - Basic biosafety, health, and security rules	15 - 18
7 - Handling and disposal of sharp and piercing objects	18
8 - Personal protective equipment (PPE)	19 - 22
9 - Collective protective equipment (CPE)	22 - 23
10 - Hand washing	23
11 - Waste management and disposal	23 - 31
12 - Use and management of cadavers	31 - 33
13 - Internal Emergency Plan	33
14 - Signage	33 - 35
15 - Training in Biosafety, health, and security	35 - 36
16 – Useful contacts	36 - 37
APPENDICES	38
Appendix I	39 - 41
Appendix II	42
Appendix III	43 - 44
Appendix IV	45 - 47
Appendix V	48
Appendix VI	49
Appendix VII	50
Appendix VIII	51 - 53
Appendix IX	54 - 64

INTRODUCTORY NOTE

FMV has a two-volume **Manual of Procedures for Biosafety, Health, and Security**. Volume 1 considers General Procedures (72 pages) while Volume 2 discusses Specific Procedures (255 pages).

This Manual is written, and regularly updated by the **FMV Hygiene and Biosafety Committee**. This Committee is appointed by order of the President, with the mission of overseeing compliance with Biosafety, Health, and Security at the studying and workplace place.

The FMV Hygiene and Biosafety Committee acts in close coordination with the **Technical Services and Maintenance Office**.

Presently the FMV Hygiene and Biosafety Committee has the following **composition**:

- Professor Virgílio Almeida - Vice-President of the FMV, and Coordinator of the Committee.
- Professor Luísa Mateus - Coordinator of the Diagnostic Centre.
- Professor Luís Lamas - Director of the Equine Hospital.
- Professor Manuela Oliveira - Responsible for the Microbiology and Mycology Laboratories.
- Professor Marília Ferreira - Responsible for the Food Safety Laboratory.
- Professor Catarina Torres – Responsible for the Resident Animal Facilities.
- dr. Mafalda Pires Gonçalves - Manager of the Companion Animal Hospital.
- Eng. José Silvestre - Coordinator of the Technical Services and Maintenance Office.
- Eng. Carla Simão – Responsible for the Occupational Health and Safety Unit.

This team of nine people supervises on a daily basis good biosafety, health, and security practices, and monitors critical points in the main areas of activity of FMV, namely teaching, research and service provision attended by students, teachers, researchers, science technicians, veterinarians, veterinary nurses, animal health care assistants and administrative staff.

This document is an extended English summary of the Manual of General Procedures for Biosafety, Health, and Security. It was produced by the FMV Hygiene and Biosafety Committee as a request of Standard 4.9 of the European System of Evaluation of Veterinary Training (ESEVT), Standard Operating Procedure 2023.

CHAPTER 1 - BIOSAFETY, HEALTH, AND SECURITY AT FMV

Biosafety, health, and security in the teaching and workplace in institutions such as the Faculty of Veterinary Medicine (FMV), which includes many teaching, diagnostic and research laboratories, animal facilities, a Veterinary Teaching Hospital (VTH), as well as other workspaces, spread across several buildings, in which hazards are identified and chemical, physical, biological, and psycho-social risks assessed, is a collective responsibility that requires the daily cooperation of all users.

It is known that more than 90% of laboratory accidents are due to deficiencies in information about the sources of danger, as well as negligence in respecting safety standards. Therefore, a detailed Manual of Procedures for Biosafety, Health, and Security integrates the rules to be followed to maximize risk management among all participants, teachers, students, teaching support staff, and administrative staff involved in the learning environment, including the VTH (veterinarians, veterinary nurses, and animal health care assistants), and the network of laboratories supporting the VTH and research laboratories of the Centre for Interdisciplinary Research in Animal Health (CIISA) (researchers, and science technicians).

The best way to avoid the dangers associated with working with chemical, physical or biological agents is to be well aware of them, and properly trained to mitigate the risks associated with their exposure.

The measures gathered in this Manual include those relating to Biosafety, understood as procedures that lead to the prevention of the breakdown of biological integrity in the environment, human and animal health, preventing the spread of agents and their products. According to the WHO classification, basic level 1 and level 2 safety conditions are ensured in FMV teaching and research laboratories, duly equipped with primary and secondary barriers. Regarding general biosafety procedures in laboratories, and at the VTH, FMV follows the guidelines of the WHO Laboratory Biosafety Manual (2020), and WHO Occupational health - A manual for primary health care workers (2002). Over the years, FMV adapted and implemented the mandatory preventive measures resulting from the application of National Legislation, and European Union Directives considering the specificity of the Institution.

CHAPTER 2 - TECHNICAL SERVICES AND MAINTENANCE OFFICE

The FMV Statutes published in the Official Gazette, 2nd series – Nº. 216 - 7 November 2013, in Article 54, paragraph 3, state the following: *The FMV includes a Technical Services and Maintenance Office, coordinated by a senior technician, with the powers assigned to it by the President, namely in matters of management of facilities and equipment, management of hospital and urban waste, and safety, hygiene and health at work.*

The Technical Services and Maintenance Office (GSTM) is responsible for drafting documents relevant to risk prevention and process management, implementing safety and hygiene rules and monitoring compliance with good practices.

The GSTM produced several Plans and Manuals that are the basis for updating the Manual of Procedures for Biosafety, Health, and Security.

These documents include:

1. Internal Emergency Plan (2003/2004, updated in 2005)
2. Standards for the Classification of Waste in Veterinary Medicine (2003/2004)
3. Manual for Integrated Management of Hospital Waste, Special Hazardous Waste and Non-Hazardous Waste (2010 and 2017)
4. Manual of Technical Procedures for Laboratories – Chemical Agents (2007)
5. Manual of Technical Procedures for Laboratories – Biological Agents (2005)
6. Safety Procedures in Anatomy and Necropsy Rooms
7. Safety Procedures for the preparation of cytostatics, their administration and the disposal of their waste.

The GSTM also collaborated in the development of Safety Procedures in the Isolation and Biological Containment Unit (BICU) (2013) of the VTH.

TSMO is also involved in training actions aimed at teachers, students and non-teaching staff on biosafety, health, and security in the study and the workplace.

CHAPTER 3 - FACILITIES

At FMV, there are several types of facilities to consider in order to fulfil the three main purposes:

1. Teaching
2. Research
3. Animal Health Care.

In order to accomplish these tasks, the FMV has the following types of facilities:

1. Theoretical classrooms
2. Teaching laboratories
3. Dissection and necropsy rooms
4. Clinical Skills Training centre
5. Veterinary Teaching Hospital for Companion Animals:
 - a. Consultation rooms
 - b. General hospitalization
 - c. Surgery rooms
 - d. Applied Surgery Centre
 - e. Imaging:
 - o X-ray
 - o CT scan
 - o Ultrasound
6. Veterinary Teaching Hospital for Equines
 - a. Surgery room
 - b. Recovery room
 - c. Minimally Invasive Surgery centre
 - d. Imaging:
 - o X-ray
 - o CT scan
 - o Ultrasound
 - o Magnetic resonance imaging
 - e. Admission
7. Isolation and Biological Containment Unit
8. Reproduction Service:
 - a. Semen collection rooms
 - b. Embryo manipulation rooms

9. VTH Support Laboratories:
 - a. Clinical Analysis
 - b. Pathological Anatomy
 - c. Bacteriology
 - d. Endocrinology
 - e. Pharmacology and Toxicology
 - f. Mycology
 - g. Parasitology and Parasitic Diseases
 - h. Animal Reproduction
 - i. Virology and Immunology
10. CIISA Research Laboratories:
 - a. Infectious Diseases (Biological Safety - BSL3)
 - b. Glycobiology and Structural Enzymology
 - c. Microbiology and Immunology
 - d. Animal Nutrition and Production
 - e. Parasitology and Parasitic Diseases
 - f. Pathology
 - g. Tropical Animal Production and Health
 - h. Quality of Food Products
 - i. Reproduction and Development
 - j. Antibiotic Resistance
 - l. Food Technology and Safety
11. Blood Bank
12. Metabolic Pavilion
13. Bioterium Facility
14. Animal stables
15. Equestrian centre

Laboratories at FMV

The FMV has 37 teaching, VTH support, and research laboratories. These laboratories are frequented by approximately 500 people daily, including teachers, undergraduate and postgraduate students, trainees, interns, residents and non-teaching staff.

In the risk assessment and analysis carried out to prepare the Internal Emergency Plan, several critical points and risks were identified. They are presented in Table 1:

Table 1
Location of critical points and associated risks

CRITICAL POINTS	RISKS	BUILDING	LOCATION
Underground car parking	Release of gases	A and C	Floor -1 and -2
	Fire		
Thermal Power Plants and Air Conditioning	Fire and Explosion	A, C and D	Floor 0
Warehouse documents	Fire	A	Floor 0
Reprography	Fire	A and C	Floor 1 and 2
Library and Archives	Fire	A	Floor 3 and 4
Laboratories and Preparatory Labs	Chemical spills	C, D and E	Floor 0, 1, 2 , 3 and 4
	Biological contamination		
	Release of gases and vapours		
	Fire		
	Explosion		
Canteen and cafeteria	Release of gases	C	Floor 1
	Fire		
	Explosion		
Computer rooms	Fire	C	Floor 0
Dissection and	Release of vapours		

necropsy rooms	Biological contamination	G	Floor 1
Chemical waste warehouse	Release of vapours	G	Floor 1
	Chemical spills		
	Fire		
	Explosion		
Biowaste refrigeration chamber	Biological contamination	Next to G	Floor 1
Hay and straw warehouse	Fire	H	Floor 1
Medical Gas Plant	Fire Explosion	D	Floor 1
X-ray rooms	Release of ionizing radiation	D and E	Floor 1
Dormitories	Fire	D	Floor 2
Pharmaceutical services	Fire Explosion	D	Floor 2
Laundry	Fire	E	Floor 0

CHAPTER 4 – TYPE OF RISKS

“Risk is defined as the probability of encountering a hazard”. In Health, Hygiene and Safety at work (SHST), the definitions of Hazard, Risk and Prevention are:

Hazard – The intrinsic property or capacity of a work component (equipment, materials, tools, installation, physical, chemical and biological agents, work organization) to cause damage to health, property, the environment in general or a combination of these.

Risk – The probability that the potential damage of the work component will materialize under the conditions of use and/or exposure, as well as the possible extent of the damage.

Prevention – Action to avoid or reduce occupational risks through a set of provisions and measures to be adopted in all working conditions of the institution.

In the working conditions at FMV there are risks of a diverse nature that are identified.

Chemical risks are compounds or products that can be absorbed by the body through the respiratory tract (fumes, gases, vapours), through the skin or by ingestion. The degree of aggression they cause varies greatly, and the measures to be applied depend on this.

Physical risks are associated with the presence of forms of energy that can cause vibrations, excessive temperatures, radiation, excessive noise, etc., and that can interfere physically or psychologically with the well-being of a student or professional, causing discomfort or even illness.

Ergonomic risks, are factors generally associated with the environment or equipment that can interfere physically or psychologically with the well-being of a professional or student, causing discomfort or even illness and compromising their productivity. Therefore, the following are considered ergonomic risk factors:

- Inadequate manual handling of loads
- Inadequate (static) postures and movements
- Repetitive movements
- Stressful situations
- Night work
- Long working hours
- Monotony
- Direct mechanical pressure on body tissues
- Vibrations
- Discomfort from the thermal environment.

Ergonomics ensures the best adaptation of a work situation (equipment, machines) to the worker and the task they perform, in accordance with health and safety criteria.

Biological risks are bacteria, fungi, parasites, viruses or other microorganisms capable of causing adverse effects on humans, animals or the environment. Biological agents can be divided into four risk classes, from 1 to 4 in ascending order, with the classification being based on:

- Pathogenicity for humans
- Virulence
- Routes of contagion
- Existence of preventive measures
- Therapeutic efficacy.

Class 1 Biological Risk: the risk arising from contact for each individual and for the community is low. It applies to well-known agents with no or low probability of causing infections in healthy humans or animals. The potential risk for students and professionals in handling them is very low.

Class 2 Biological Risk: the risk arising from contact for each individual and for the community is moderate. It applies to biological agents that cause infections in humans and animals, with a limited risk of spreading to the community or the environment, and do not pose a serious risk to students and professionals as long as basic care is taken when handling them. They are also agents for which effective prophylactic and therapeutic measures are known (e.g.: *Microsporium canis*).

Class 3 Biological Risk: the risk arising from contact is high for each individual, but limited for the community. It applies to biological agents capable of causing serious or even fatal infections in humans and animals, and therefore their handling represents a serious threat. There is also a risk of spreading to the community and the environment, and contamination may occur from person to person or between infected animals. There are usually effective treatments or preventive measures (e.g. Leptospirosis).

Class 4 Biological Risk: the risk arising from contact is high both for the individual and for the community. This applies to biological agents that are highly pathogenic for humans and animals, as well as for the environment, and can spread easily. These agents pose a high risk

to those who handle them, and can spread by aerosol or by unknown transmission routes. There are no known prophylactic or therapeutic measures (e.g. Ebola virus).

The biological risk is determined by the handling of pathogenic microorganisms, contact with laboratory animals used in experiments, contact with biological fluids, tissues and cadavers. In order to contract an infection, a series of circumstances must coincide in relation to three elements: the microorganism, the transmission route, and the individual.

Contagion can be direct, from person to person, from animal to person (zoonoses), or indirectly through contaminated fomites. Knowing the main transmission mechanisms of different microorganisms is a very important tool for the prevention and protection of all those who must handle them. Students are trained by the teams of teachers from the various curricular units since their first day at FMV to these risks and the best practices they should always take to mitigate these risks.

Accident risks are generally unpredictable factors of a diverse nature that can put the safety of professionals or students at risk, often associated with the handling of animals and equipment.

Psycho-social risks

According to the World Health Organization, “a healthy educational establishment/workplace is one in which all members of the organization cooperate with a view to continually improving the processes of protecting and promoting health, safety and well-being”.

One of the fundamental concepts in the characterization of psycho-social risks is the concept of **stress**. The factors identified in the literature as being most associated with stress in university and work context are the following:

1. Dissatisfaction with the course/work being undertaken
2. High workload
3. Too much responsibility
4. Studying/working too many hours
5. Unclear expectations regarding desired performance
6. Missing the opportunity to participate in decision-making
7. Studying/working in dangerous conditions

8. Discussing or presenting ideas in front of colleagues
9. Facing situations of discrimination
10. Facing situations of harassment.

Management of psycho-social risks

Management of psycho-social risks at FMV contributes to create a healthier and more productive learning and professional environment, which in turn contributes to better academic performance of students and of the organization. The benefits of good management of psycho-social risks are:

1. Improved well-being and satisfaction of the student/worker in relation to the course/job and the organization.
2. Motivated and productive students and workers.
3. Overall improvement in academic and worker performance and productivity.
4. Reduction in student/worker absenteeism, staff turnover rates and costs associated with loss of quality.
5. Reduction in costs and burdens for society in general.

To assess, manage and prevent psycho-social risks, FMV created in 2018 the **Student Support Group** (GAPE) within the Pedagogical Council, composed of teachers from the Pedagogical Council and other co-opted teachers and staff, all volunteers. GAPE's mission is to meet the physical, emotional and well-being needs of students, early detection of students with signs of mental health disorder and refer them to specialized medical support.

In 2018, FMV also created the **Mentor Group** (MG), composed of volunteer students from the 2nd to 5th year of the MIVM and PhD students. The MG is the first support structure for first-year students and for identifying freshmen having difficulty adapting to FMV and/or to Lisbon. The MG works under the supervision of GAPE teachers that act as Tutors. The MG currently involves 100 student volunteers.

Psychological support for FMV students and workers is provided by ULisboa at the **Ajuda Campus Sports and Medical Complex**, located a 5-minute walk from the FMV, and at the University Stadium Medical Services located in the city center.

This psychological support is currently being expanded with the collaboration of the **Students'**

Association (AEFMV) and financial support from the FMV.

The GAPE, MG, AEFMV and the psychological support for students and workers provided by the *Ajuda Campus* Sports and Medical Complex and the University Stadium Medical Services play a fundamental role in assessing psycho-social risks, promoting health and improving well-being while studying/working at the FMV.

To assess, manage and prevent psychosocial risks, FMV uses the following tools and strategic partnerships:

1. Online surveys to assess the level of satisfaction of students, teachers and non-teaching staff with the faculty.
2. Telephone surveys to identify causes of student dropout.
3. Identify students with Special Educational Needs, monitor them through GAPE, and report annually to the Directorate-General for Education and Science.
4. Promote seminars on time management and anxiety control for students with the collaboration of clinical psychologists from the Faculty of Psychology of ULisboa.
5. Promote seminars for students on alcohol and drug abuse with the collaboration of the Public Security Police - Safe University.
6. Consult and involve students, teachers and non-teaching staff in the implementation of indoor and outdoor spaces for socializing and leisure to promote collective well-being.
7. A pilot project is underway testing two weekly teleworking (e-working) days by non-teaching staff.
8. Promote team building sessions on mindfulness, stress management and reduction, compassion fatigue and burnout syndrome for veterinarians, veterinary nurses and animal health care assistants.
9. Collaborates with AEFMV to encourage the practice of physical and cultural activities.
10. Participates in studies on health and well-being of ULisboa, namely stress, mental health, dating violence and abuse, sexual or moral harassment.
11. Promotes and encourages its teachers to attend ULisboa's training course on "Psychological Crisis in a University Context: support and guidance".

When the COVID-19 pandemic crisis emerged, FMV already had this organization and tools in

place to detect and manage possible increases in psycho-social risks. Even so, the challenge of restoring the student mental health post-pandemic is high it requires investment and concerted efforts, as it was disclosed by a study carried out in 2022 in the eighteen ULisboa schools on “Health and well-being”, whose main conclusions among the 264 participating FMV students were the following:

- 17.0% of FMV students reported a risk of **burnout** *versus* 15.3% of ULisboa students.
- 28.8% of FMV students reported **academic engagement**¹ *versus* 38.0% of ULisboa students.
- 22.7% of FMV students had severe or very severe levels of **stress**, 26.9% of **anxiety** and 18.6% of **depression** *versus* 20.5% (stress), 26.4% (anxiety) and 25.2% (depression) of ULisboa students;
- 74.2% of FMV students evaluated their **flourishing**² positively *versus* 73.7% of ULisboa students.

CHAPTER 5 - BIOSAFETY LEVELS

The biosafety levels of each laboratory or space dedicated to teaching and handling animals (VTH or stables) are stipulated in order to ensure that the handling of equipment, utensils, materials and chemical or biological products is safe for humans and animals, combining good handling practices and their use in appropriate facilities.

In the course of their activity, FMV students, teachers, and non-teaching professionals may be exposed to biological risk agents from Groups 1 and 2. **Intentional handling or contact with agents from Groups 3 or 4 is not permitted.** Some Laboratories and Services stipulate Special Safety Rules. These are included on the **Manual of Specific Procedures for Biosafety, Health, and Security.**

¹ Psychological state of positive cognitive-affective well-being, characterized by high vigor, enthusiasm, dedication and persistence in academic activity.

² High purpose in life, self-esteem, optimism, feeling of competence and ability to establish relationships.

CHAPTER 6 - BASIC BIOSAFETY, HEALTH AND SECURIT RULES

All users of FMV facilities, students and professionals must comply with the following rules and procedures at the beginning, during and at the end of each activity, in the laboratories, VTH or in the stables.

Personal goods

1. Keep their personal belongings (coats, wallet, mobile phone, etc.) in lockers (students) or in their offices (professionals).
2. Only take what is necessary for indoor work to be carried out in dissection and necropsy rooms, teaching laboratories, Clinical Skills Training Centre, VTH, or outdoors in the food animal ambulatory practice, veterinary inspection classes in abattoirs and fishing docks, and veterinary public health classes in foodstuff processing units.
4. Always use personal protective equipment (PPE) required for each specific activity. For example: in the laboratory, a white coat that reaches the knees, with long sleeves that can be rolled up, in the VTH appropriate tunic and trousers set, generally referred to as pajamas, in the dissection and necropsy room white coat or overalls, thick apron down to the ankles, rubber boots with non-slip soles, gloves and mask.
6. Wear protective goggles/mask when there is a risk of emission of particles, aerosols or droplets of potential chemical or biological agents.
7. Wear protective gloves when there is a risk of skin contact with potential chemical or biological agents.

Student supervision

8. Students cannot work in practical classes without the supervision of teachers, research fellows, veterinarians or veterinary nurses.
9. It is not allowed the consumption of food or drinks during any classes.
10. It is not allowed to smoke during any classes, in any close space of the FMV, or on the outer perimeters of the FMV.

Personal hygiene

11. Wear hair tied up securely.
12. Do not wear a watch or bracelets whenever there is a risk of these objects becoming dirty or coming into contact with potential chemical or biological agents.
13. Avoid wearing contact lenses, especially when working in the laboratory, as they can lead to the concentration of chemical or biological agents in a very sensitive area such as the eyes.
14. Do not handle solid reagents directly with your hands.
15. Use tweezers to handle hot materials.
16. Remove any splashes or aerosols of reagents from your skin using soap and water.
17. Be aware of the risks involved in handling biological samples, organic liquids, cadavers or live animals.
18. Be aware of the risks of handling potentially toxic chemical agents and drugs before using them in any task.
19. Never pipette by mouth. Always use automatic or manual pipetting systems.
20. When diluting acids, add the acid to the water while stirring carefully and never the opposite.
21. Never touch your mouth or eyes when performing bench work, dissection or with live animals.
22. Never leave reagent bottles or bottles containing biological material open after use.
23. Keep flammable reagents away from flames.
24. Wash your hands with soap and water after finishing work.

Use of equipment

25. Know the risks of handling equipment and materials that can cause damage if misused (including scalpels and knives).

Organization of the workplace

26. Always leave the classroom/ workplace as clean as possible, collaborating with **FMV's Cleaning Services**.

There are also basic safety rules, to be applied especially by teachers, teaching support staff, veterinarians, veterinary nurses, animal health care assistants, researchers, science

technicians, and administrative staff.

27. Know the location of emergency exits.
28. Know the location and operation of fire extinguishers, first aid kits, and emergency equipment against fires (shower, eyewash, etc.).
29. Know and locate all Collective Protection Equipment (CPE): ventilation points, hoods, others.
30. Be aware of waste classification, containerization and containers location, in accordance with FMV's Mandatory Waste Management Standards.
31. Be familiar with Occupational Health and Safety Standards and Technical Protocols.
32. Use equipment and devices only after having read and understood the respective handling and safety instructions.
33. Before performing laboratory, clinical and surgical work, read protocols carefully.
34. Read the Safety Data Sheets, which are filed and easily accessible.
35. Always keep benches clean and tidy, the floor clean and dry, and passages unobstructed.
36. Perform laboratory work standing up or on a laboratory bench in an ergonomic manner.
37. All bottles and containers containing products must be properly labelled.
38. Reagents and equipment must be properly stored in cabinets after they have been used.
39. Gas burners should only be lit when necessary and their operation should be monitored.
40. Always close containers after use.
41. Place broken or cracked glassware in the appropriate container.
42. Always carry out work involving the release of smoke, gases or vapours in the hotte.
43. After completing laboratory work, check that the water and gas taps are closed and that electrical appliances have been switched off.
44. If appropriate, dispose the personal protective equipment (PPE) in the waste container according to the corresponding hazard classification.
45. Store the PPE properly sanitised, such as goggles or masks for gases or chemical vapours, and remove the gown.
46. Send the gown for washing regularly or as soon as it is dirty.
47. If the gown becomes soiled with a product that may pose a chemical or biological risk, notify the Service Manager so that she/he proceeds accordingly, without putting the health of potential handlers at risk.
48. Do not walk outside the workplace wearing PPE or a lab coat.

- 49. Avoid working alone and at unusual times when the FMV is empty or has few users.
- 50. Children and unauthorized persons are not allowed to enter the technical areas and laboratories.

CHAPTER 7 - HANDLING AND DISPOSAL OF SHARP AND PIERCING OBJECTS

Instruments and materials contaminated with blood, body fluids, secretions and excretions must be handled properly to avoid contamination of the skin and mucous membranes (eyes, nose and mouth) and clothing of users and to prevent the transmission of microorganisms to people, animals and the environment.

All reusable instruments must follow a reuse protocol and must be checked to ensure that they have been properly cleaned and disinfected or sterilized.

Users are responsible for ensuring that disposable instruments and materials are effectively disposed of in appropriate containers.

How to dispose of needles and other types of sharp or piercing material

Care must be particularly rigorous when handling, cleaning, transporting and disposing of potentially contaminated or non-contaminated sharp or piercing material. These materials include needles, hypodermic syringes, scalpel blades, glass slides and coverslips, scissors, Pasteur pipettes, haematocrit tubes and broken glass.

The following biosafety rules must be respected:

1. Sharp and piercing objects must be placed in special containers with lids, resistant to puncture, which must be filled only $\frac{3}{4}$ full and which will be treated as biological waste.
2. The use of needles and syringes or other piercing objects must be restricted and only when there is no alternative.
3. Sharp objects must always be visible during use and must not be abandoned.
4. Used syringes, with or without a needle incorporated, must not be broken or bent after use, and must be discarded immediately without further handling after use.
5. Broken glass must not be handled by hand, but must be swept up using a dustpan and broom, or collected with tweezers.

CHAPTER 8 - PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE refers to items for individual use intended to prevent dirt, contamination of clothing and exposure of the skin and mucous membranes to chemical or biological agents, minimizing risks and maximizing biosafety. Regarding biosafety, PPE are the last barrier between the dangerous agent and the individual.

PPE includes work clothing (gowns, overalls, pajamas, gloves, rubber boots, aprons, masks of various types, etc.). Each Responsible for laboratory, VTH Unit or extramural practical activities defines which PPE is necessary for students and professionals.

When choosing PPE, the parts of the body to be protected are:

1. Head protection
2. Eye and face protection
3. Hearing protection
4. Respiratory protection
5. Trunk protection
6. Upper limb protection
7. Lower limb protection
8. Full body protection.

Types of PPE and general rules for use gowns

The use of gowns is mandatory whenever there is a risk of dirt, biological contamination or chemical spillage. The gown must meet the following requirements:

1. It must be the appropriate size for the user and in perfect condition.
2. It must be washed regularly.
3. It must be stored in lockers and not shared with other clothing.
4. In the case of teaching and non-teaching staff gowns, after use they must be placed in appropriate containers and delivered to and collected from the laundry.
5. Students will be responsible for washing their gowns and will receive training to avoid

contamination of other clothing.

Disposable gowns

It is mandatory to use disposable gowns whenever there is a risk of biological or chemical contamination.

The use of disposable gowns must meet the following requirements:

1. They must be the right size for the user and must be in perfect condition.
2. Their use is compulsive at the Isolation and Biological Containment Unit (BICU) of the VTH.
3. After use, they must be deposited in an appropriate container (Group III Waste).

Coveralls

The coveralls are used in the same way as the gown, that is, whenever there is a risk of dirt, biological contamination or chemical spillage. The requirements are the same as for the gown.

Hospital or surgical pajamas

Hospital tasks, including in operating rooms, require the use of pajamas (tunic and trousers set) to prevent the risk of dirt, biological contamination or chemical spillage, but also to protect sick animals. The requirements are the same as for the gown.

The washing of gowns, coveralls and pajamas, as well as other clothing of the uniform of FMV teaching and non-teaching staff, is done on the premises in industrial machines at high temperatures. The laundry staff received training from the FMV Technical Services and Maintenance Office and the Occupational Health and Safety Unit.

Gloves

The use of disposable nitrile or surgical gloves is mandatory whenever there is a risk of biological or chemical contamination. Their use must comply with the following requirements:

1. They must be the right size for the user and in perfect condition.
2. In the event of perforation or other damage, they must be removed and deposited in a suitable container (Group III Waste).
3. Hands must be washed, dried and new gloves put on.

4. In the event of any irritant and/or allergic skin reaction being observed, the gloves must be removed and the Responsible of the Service must be informed.
5. After use, they must be deposited in a suitable container (Group III Waste).

Footwear

The use of rubber boots is mandatory whenever there is a risk of intense dirt, including biological contamination or chemical spillage on the footwear (e.g. dissection classes in Anatomy or extramural practical classes in abattoirs).

The use of boots with steel toes is reserved for employees working in the necropsy room (rubber boots with steel toes) and with food animals (leather boots with steel toes).

Their use must comply with the following requirements:

1. They must be the right size for the user and in perfect condition.
2. They must be washed regularly using the appropriate equipment.
3. They must be stored in lockers, in plastic bags, avoiding contact with other clothing.

Teachers, veterinarians, veterinary nurses, and animal health care assistants of the VTH must wear footwear easy to wash and disinfect, for example clogs.

Aprons

The use of an apron over the coat, overalls or pajamas is mandatory whenever there is a risk of intense soiling with organic liquids, risk of dispersion of particles, droplets or aerosols, in addition to the existence of a risk of biological contamination, such as in the necropsy room.

Their use must comply with the following requirements:

1. They must be the right size for the user, with a length that must exceed that of the coat it covers.
2. They must be correctly placed, and must be in perfect condition.
3. The use of disposable aprons may be recommended in particular situations, when the risk of soiling is medium, and should be replaced as soon as their integrity is compromised.

Masks

Disposable masks

The use of disposable masks is mandatory whenever there is a risk of biological or chemical

contamination. Their use must comply with the following requirements:

1. They must be correctly fitted and in perfect condition.
2. The mask appropriate to the hazard/risk of the situation in question must be used.
3. They must be replaced if any damage is observed and may be reused depending on the situation.
4. After they are no longer usable, they must be deposited in an appropriate container.

Reusable masks

For multiple tasks, the use of reusable masks with replaceable filters is recommended, both full face masks and half masks.

Caps

When there is a risk of food contamination, for instance practical classes of Technology of Animal Products, or a risk of contamination of the individual, including hair, disposable caps should be used.

Glasses and/or masks with visor

The use of glasses or a mask with visor is mandatory whenever there is a risk of dispersion of particles of irritating chemicals or infectious material to the ocular mucosa.

CHAPTER 9 - COLLECTIVE PROTECTION EQUIPMENT (CPE)

CPE is any equipment designed to protect all its users from one or more risks that may threaten their health or safety at work. It may be used for a space (e.g. ventilation systems) or for a user (e.g. eyewash station). Emergency showers are also part of the CPE.

At FMV there are several pieces of collective protection equipment, such as:

1. Forced ventilation systems in several laboratories.
2. Air conditioning equipment: heating, cooling.
3. Hottes with forced ventilation in all laboratories where chemical agents are handled.
4. Biological Safety Cabinets.
5. Emergency showers in all laboratories where chemicals or biological agents are handled.

6. Eyewash stations in all laboratories where chemicals or biological agents are handled.
7. Hazardous waste containers.
8. Fire extinguishers and other first-response fire extinguishing equipment.
9. Gas and water shut-off systems.

CHAPTER 10 - HAND WASHING

Whenever possible, suitable gloves should be worn when handling materials that present a biological or chemical risk. However, this does not eliminate the need for laboratory users to wash their hands regularly and correctly.

Hands should always be washed after working with animals, materials that present a biological or chemical risk, and before leaving the laboratory, whether for a meal, another activity, or home.

In most cases, washing hands thoroughly with soap and water is sufficient to decontaminate them, but in high-risk situations the use of germicidal soaps is recommended. Hands should be completely covered in soap suds and scrubbed for at least 10 seconds, rinsed with clean water and dried using clean paper towels. If available, hot air hand dryers should be used. The duration of the hand washing procedure should take between 40 and 60 seconds.

In laboratories or workrooms where hands are frequently contaminated, even when wearing gloves, it is recommended that taps be operated with the foot or elbow. If this is not possible, a paper towel should be used to turn off the tap to avoid re-contaminating washed hands. Appropriate signs indicating how to wash hands are available in bathrooms, changing rooms and in all laboratories and rooms where it is considered particularly important to wash hands thoroughly.

CHAPTER 11 - WASTE MANAGEMENT AND DISPOSAL

The regular activities of FMV generate biological waste on a daily basis, which are disposed of in such a way as to ensure that there is no contamination of the environment and that the

handlers of this waste do not risks of contamination.

Waste produced in laboratory activities, in animal dissection and necropsy rooms, and at the VTH that may constitute biological risks are considered equivalent to what is defined as hospital waste.

Current legislation assigns the responsibility for its disposal to the waste producer.

FMV has a **Hazardous Waste Management Plan**, which details and clarifies points that will be mentioned here in a summarized manner. The Manual is based on the classification of waste resulting from human medical care as a guiding principle.

FMV runs a system for the classification, sorting, collection, transportation, storage, treatment, recovery and disposal of solid and liquid hazardous hospital waste in order to comply with current legislation. Detailed information on the management of solid and liquid waste is available in the Manual for Laboratory Technical Procedures - Chemical and Biological Agents, the Standards for the Classification of Waste in Veterinary Medicine, and the Manual for the Integrated Management of Hospital Waste, Special Hazardous Waste and Non-Hazardous Waste.

The Waste Management Plan was made known to all those involved in the teaching process, including students, as well as in research and service provision activities. The information considered most relevant for quick consultation by all interested parties has been extracted from the documents referred to this summary. The Waste Management Plan aims to:

1. Reduce waste production at source.
2. Ensure safe handling of waste by employees responsible for its removal, e.g. prevent and minimize hazards and risks.
3. Use the best waste disposal process available (sort and package properly).
4. Comply with the regulations.

The types of waste available, according to the Legal Dispatch nº 242/1996 of the Ministry of Health, are as follows:

Group I – waste equivalent to urban waste not requiring any specific treatment (paper, cardboard, plastic, stationery, etc.).

Group II – non-hazardous hospital waste that can be compared to urban waste not subject to specific treatments (paper towels not soiled with organic fluids).

Group III – hospital waste with biological risk (materials contaminated with blood and other organic fluids, unidentifiable body parts).

Group IV – specific hospital waste that requires mandatory incineration (needles, catheters, invasive materials, chemicals, identifiable body parts, placentas, cadavers of experimental animals, cadavers used in dissection and necropsy classes, cytostatics and all materials used in the handling and administration of drugs).

The FMV Integrated Management Plan for Hospital and Special Hazardous Waste was adapted from the legislation, and tables with the classifications of hazardous waste produced at the Faculty are available in all services.

At FMV, the waste that requires special treatment is the following:

1. Hazardous Hospital Waste of Groups III and IV.
2. Special Hospital Waste - cytostatic medications.
3. Hospital Waste Equivalent to Urban Waste.
4. By-products of animal carcasses not included in the food chain.
5. Liquid Chemical Hospital Waste.
6. Ferrous metal waste.
7. Electrical, electronic and wood material.
8. Light bulbs, batteries.
9. Printer and photocopier ink cartridges.
10. Glass, packaging, paper and cardboard.

The Hazardous Waste Management Plan considers, with the necessary adaptations, the management rules foreseen for all stages of the process: sorting, packaging, transport, storage, treatment, recovery and disposal (final destination). Sorting is the key to minimize the impact of waste, contributing for the protection of public and environment health. The sorting/packaging of the different types of waste is done at the source of production, so they can be easily identified.

Containers

There are two types of containers in use at FMV: single-use containers and reusable, multiple-use containers.

Multiple-use containers are lined with plastic bags that comply with the specifications of current legislation:

1. Black plastic bags, for Group I and II waste, to be treated as urban waste.
2. White plastic bags for Group III waste (this group includes cattery litter).
3. Red plastic bags for Group IV waste.

The containers also follow colour codes:

4. Black containers for Group I and II waste.
5. Yellow containers with a red lid for Group III waste.
6. Red or black containers with a red lid, with 30 and 60 litres for Group IV waste.
7. 240 litre containers for collecting corpses.

There are also:

8. Yellow containers for sharp objects (single use);
9. Containers (jerrycans) for liquid waste.

Waste collection and storage

Employees responsible for collecting Group III and IV waste received specific training for this purpose, provided by the Technical Services and Maintenance Office, and the Occupational Health and Safety Unit. The use of PPE is mandatory when carrying out their duties.

To comply with legislation, FMV has a temporary waste warehouse, with limited and controlled access, in building G, in a location away from the circulation of students, professionals, and resident animals, with an area of 224 m². Inside the warehouse there is a refrigeration chamber at 4°C in which the waste containers of Groups III and IV are stored until collection. The chamber was sized according to the production and frequency of waste collection/disposal, with a maximum storage period of seven days. External collection is carried out by a company certified by the competent authorities for this purpose.

Groups I and II

The employees responsible for cleaning FMV collect this waste daily, and placed it in rows in

containers of the Lisbon City Council (CML) for collection.

Animal waste from the stables is collected by the support staff and placed in the CML containers for collection.

Group III

This waste is collected by the same employees that collect Group IV waste. Group III waste is stored in yellow containers in the space reserved for this purpose (warehouse of Building G).

Group IV

Waste removal of laboratories and VTH. Waste is collected from laboratories daily or twice a day depending on production, and the containers are replaced by others of the same colour, containing a red bag. In the temporary waste storage room, the containers previously identified at the place of origin (sealed bags with the code of the production site and date) are weighed and stored in the cold room, by date, until external collection by the contracted company.

The collection of perforating containers from the laboratories is carried out by FMV employees whenever they are full to $\frac{3}{4}$ of their capacity. The same employees ensure that they are replaced immediately. These containers are stored in the same room as the other waste until they are collected.

Removal of waste in the dissection and necropsy rooms

Waste is collected at the end of dissection and necropsy practical classes in 240-litre containers, which are stored at 4° in one of the refrigerators attached to the necropsy room, until collection. This disposal complies with the flowchart of the Animal Products Disposal Plan - Products that do not enter the food chain, approved by the General Directorate for Food and Veterinary (DGAV).

Handling, storage and disposal of cytostatics

The storage of cytostatic drugs requires compliance with the following rules:

1. All drugs used in chemotherapy are stored in the Pharmaceutical Services in a specific box in a refrigerator with a key. If a refrigerator is not required, the drugs are stored in a properly identified cabinet in the Pharmaceutical Services.
2. Access to these substances is restricted and is only authorized by the Responsible for Pharmaceutical Services and the veterinarian and nurses assigned to the Oncology Service.

3. Every week, the veterinarian Responsible for the Oncology Service requests the Pharmaceutical Services for the cytostatics she/he needs to administer to patients with treatment scheduled for that week.
4. The substances that are not fully used after each treatment are stored by the veterinarian Responsible for the Oncology Service in a refrigerator specially reserved for this purpose, in the room where the cytostatics are applied, the key to which is kept by the veterinarian Responsible for the Oncology Service.
5. The Pharmaceutical Services have a list of the medicines and respective quantities that are stored, available by QVET, the veterinary hospital management software.
6. The use of Personal Protective Equipment is mandatory, namely:
 - a. Nitrile gloves or, if these are not available, two pairs of latex gloves.
 - b. Mask with visor.
 - c. Disposable surgical cap
 - d. Disposable surgical gown, or low-permeability fabric, with fitted sleeves and cuffs.

Mandatory procedures for the preparation of cytostatics

The preparation of cytostatic drugs is carried out inside a class II, type B vertical laminar air flow chamber, with the aim of:

1. Ensuring effective protection of the operator in relation to contact with the drug.
2. Avoiding all microbial contamination of the solution, which constitutes a great danger to sick animals, which are often immunosuppressed.

The procedures are as follows:

1. Wash hands before and after contact with the drug with soap and water, and dry thoroughly.
2. Wash hands with alcohol-based disinfectant (70%).
3. Restrict access to the drug preparation area.
4. Keep the drug marking kit labelled, close to the preparation area.
5. Use aseptic techniques when preparing cytostatics.
6. Do not eat, drink, smoke, chew gum, apply cosmetics or store food in or near the drug preparation area.
7. Use the refrigerator where cytostatics are stored only for this purpose.

8. Place absorbent pads on the work surface.
9. Use “Luer-lok” equipment.
10. Pay attention to the pressure balance of the vials and ampoules, avoiding the release of aerosols.
11. Always open the vials and ampoules of the substances inside the laminar flow chamber.
12. Carefully aspirate the medication from the original vials with a needle and syringe, respecting the pressures, in order to avoid the release of aerosols and droplets on the work surface. It is used a device with a Mini-Spike® filter (Braun) for this purpose, which allows air to enter and prevents aerosols from escaping.
13. Open the vials with a needle with a hydrophobic filter to prevent the vaporization of the drug. When opening an ampoule, wrap it with gauze to prevent the release of aerosols, skin contamination and accidental cuts.
14. If it is necessary to add diluent, inject it slowly into the wall of the ampoule.
15. Discard the unused amount of drug into the vial itself.
16. Change gloves every 30 minutes of preparation.
17. Label all chemotherapy agents.
18. Clean up any liquid spills immediately.
19. Place the residues from the drug preparation inside the red single-use container for Group IV waste (mandatory incineration), which should be inside and next to the laminar flow chamber.
20. Close the waste container and place it for disposal with the appropriate label (red colour code).
21. Transport the medications to the patient application area in a leak-proof container.

The procedures during and after the administration of cytostatics must be as follows:

1. All cytostatic treatments are applied exclusively in room D1.15.
2. Access to the room is restricted, with the key being in the exclusive possession of Responsible for the Oncology Service.
3. Once the treatment is finished, the animals are kept under observation in individual cages until the absence of adverse reactions is confirmed. They are handed over directly to their owners.
4. The owners are informed by the Responsible of the Oncology Service about the precautions

to be taken when handling the treated animals and their waste, including restrictions on contact with children, pregnant women, etc.

5. After administration, do not recap the needle or separate it from the syringe or infusion system.

6. Place the following in the red single-use container for Group IV waste (mandatory incineration):

a. All material involved in the administration of cytostatics, user by user, is placed in a sealed red plastic bag.

7. Material containing secretions, vomit and excretions from animals undergoing chemotherapy, up to 48 hours after the chemotherapy, taking care to avoid the risk of contamination through aerosols.

8. Systems containing drugs, gauze and contaminated cotton, gloves, ampoules and vials are placed in a closed and properly identified single-use container (toxic and hazardous waste) and send it for incineration (Group IV).

9. Once the containers are filled to $\frac{3}{4}$ of their capacity, they must be placed for disposal with the appropriate label (red colour code).

Hazardous liquid chemical waste

Hazardous liquid waste produced at FMV are packaged in high-density polyethylene jerrycans, with the identification of the products contained therein, the Service/Production site and dated. The jerrycans are packaged separately according to the characteristics of the waste. Once removed from the laboratories, the jerrycans are stored in the same place as solid waste.

The following are the groups of liquid chemicals used by FMV:

1. Solvents and organic solutions without halogens (e.g. acetone, methanol, ethyl alcohol, xylol, formaldehyde, etc.).

2. Solvents and organic solutions with halogens (e.g. ether, chloroform, etc.).

3. Inorganic salts and solutions with metals (e.g. iron sulphate, silver nitrate, zinc sulphate, etc.).

4. Basic solutions, acidic solutions.

5. Solutions with cyanide.

6. Solutions with chromium.
7. Solutions with dyes.
8. Solutions with ethidium bromide.
9. Solutions with mercury.

FMV has contracts with the following entities for waste removal (Table 2):

Table 2
Contracted entities for waste removal

Type of waste	Entity that collects	Collection frequency
Groups I and II	Lisbon City Council	Twice a week
Group II and IV (sharps, hospital waste and animal experimentation waste)	AMBIMED	Weekly
By-products (cadavers)	ETSA	Weekly
Liquids (solvents, dyes, etc.)	AMBIMED	Weekly
Batteries	AMBIMED	On request
Electrical and electronic material; non-inventoried waste	AMBIMED	Fortnightly
Printer and photocopier ink cartridges	ECOPARTNER	On request, usually 1 to 2 times/year

The control of annual waste production for the purposes of registration on the platform (accountability to official entities) of the Portuguese Environment Agency (APA) is the responsibility of the FMV Technical Services and Maintenance Office.

CHAPTER 12 – USE AND MANAGEMENT OF CADAVERS

This chapter describes the procedures for receiving, forwarding and disposing of cadavers, whether they are sent for immediate incineration or first used in practical classes in the curricular units of Anatomy I, II and III, Pathological Anatomy I and II, Anaesthesia and Analgesia, Surgical Semiology and Operative Techniques, Pathology and Clinical of Parasitic Diseases, Pathology and Clinical of Infectious Diseases II and Reproduction and Obstetrics I and II, and only then incinerated.

The objectives of planning the cadaver circuit are:

1. Maximizing the use of cadavers available for teaching.
2. Mitigating the risks of handling potentially hazardous waste, in compliance with the legislation in force.

All cadavers of animals who died at FMV are sent for incineration³, which may or may not be immediate. The only cases in which the cadavers are not immediately sent for incineration is when they are used in practical classes (the animal owners having declared that they do not object to such use) or if a necropsy has been requested.

Requests for incineration or necropsy of cadavers of animals that died outside the FMV must be submitted by the owners or their representatives (chief veterinarians of Veterinary Medical Care Centres - CAMV) at the Reception of the VTH. Registration of cadavers at FMV are intended for incineration without a necropsy requires the completion of a specific form by the attending veterinarian of the VTH, indicating the cause of death, which allows to separate the following situations:

1. Cadaver of an animal that underwent chemotherapy less than six months ago.
2. Other cause of death, with a summary of the process that caused the death.

The cadavers of the animals indicated in 2 may be used for teaching purposes, with the exception of those whose owners have objected to this in a written statement.

The cadavers of animal victims of infectious diseases are managed by BICU and are never used for practical classes.

³ The exception is the case of cadavers whose owners requested the services of companies authorized by DGAV to carry out individual incineration. In these cases, the cadavers are collected exclusively by the contracted companies.

When the boxes indicating that chemotherapy occurred less than six months ago or that death was due to an infectious disease are marked, or if a teaching necropsy is not authorized, the cadavers are immediately placed in 240-liter red containers and sent for incineration.

The necropsy of cadavers of animals that underwent chemotherapy less than six months ago or that death was due to an infectious disease must always be performed outside of practical classes, by the pathologists on duty, ensuring the appropriate protection to each case of pathologists and support staff.

CHAPTER 13 - INTERNAL EMERGENCY PLAN

The FMV Internal Emergency Plan (PEI) is a document prepared by the FMV Technical Services and Maintenance Office that identifies situations requiring immediate and organized action by a group of people specifically trained to act in critical situations. The PEI establishes procedures for managing emergency situations, ensuring the safeguarding of human lives, the operation of the FMV, assets and the environment.

The PEI and its Annexes assemble the following aspects:

1. Identification of hazards and risks in FMV facilities.
2. Organization of Internal Security Structure – Organization Chart of the Structure.
3. Organization of Internal Security Structure – Stakeholders in the PEI (identification of employees).
4. Security Instructions (Annex I1 – General Instructions (GI), Annex I2 – Specific Instructions (PI), Annex I3 – Special Instructions (IE).
5. Meeting Points.

The measures to be taken in cases of emergency are shared to students and all professionals working in FMV.

CHAPTER 14 - SIGNAGE

Signage is crucial to alert students, workers, visitors and customers to the presence of these

risks in the various teaching, research and VTH facilities. The signage at FMV is abundant, placed in strategic locations, complies with regulations, uses international hazard signs, is translated into English and plays a fundamental role in the safety of occupants in the event of an accident or natural disaster.

The FMV Technical Services and Maintenance Office, in collaboration with the responsible of all laboratories, the VTH and of other learning and working areas, defines the necessary signage for each space so that it is appropriate, complete, and clearly visible.

The designs to be used in safety signs are standardized in Legal Order nº 1456-A/95 of December 11 and Legal Order nº 178/2015 of June 15.

The Responsible for each Service are responsible for ensuring compliance with the established rules.

Safety Signage is understood as the signage related to a specific object, activity or situation, providing an indication or instruction regarding safety and health at learning/work, or both, by means of a sign, a colour, a light or acoustic signal, a verbal communication or a signal.

Safety colours

A safety colour is a colour to which a specific meaning is attributed. The safety colours are: red, blue, yellow or orange-yellow and green. Table 3 shows the meaning and applications of each of the safety colours.

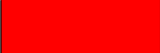

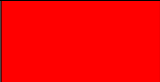









Table 3
Meaning and applications of each of the safety colours

Colour	Meaning and Form	Indications and specs
Red	Prohibition sign	Dangerous attitudes.
	Danger - Alarm	Stop, pause, emergency cut-off devices. Evacuation.
	Fire-fighting equipment and materials	Identification and location.
Yellow or orange-yellow	Warning sign	Attention, precaution. Verification.
Blue	Mandatory sign	Specific behaviour or actions. Obligation to use personal protective equipment.

Green	Rescue or distress sign	Doors, exits, routes, material, posts, specific locations.
	Security situation	Return to normality.

Legal Order nº 1456-A/95 of December 11 requires the use of the following colour coding (Table 4):

Table 4
Colour coding

COLOURS	FORMS	MEANING	COLOUR PICTOGRAM
		Fire alarm and firefighting equipment	WHITE
		Prohibition	BLACK
		Danger (Sign)	BLACK
		Information	WHITE
		Obligation	WHITE
		Evacuation routes and emergency equipment	WHITE

CHAPTER 16 - TRAINING IN BIOSAFETY, HEALTH, AND SECURITY

Every year, with the arrival of new students, the FMV Technical Services and Maintenance Office provides 5 hours of lecturing on the guidelines, standards and regulations for promoting the biosafety, health, and security of students against the risks of exposure to physical, chemical and biological agents within the scope of the curricular units

Complementary Activities III and IV:

1. Prevention of exposure to biological agents (2 hours);
2. Prevention of exposure to chemicals and basic safety rules in laboratories and other FMV services (3 hours);
3. Training actions are also provided on:

- a. Fire safety instructions (Emergency PEI);
- b. Management of waste production at FMV for employees in general, with variable workload according to needs;
- c. Basic rules for promoting health and well-being in the place of learning.

The FMV Technical Services and Maintenance Office annually supports students of the **Veterinary Public Health** curricular unit in the development of written essays about on Waste Management in veterinary hospitals and clinics, a subject covered in the programme of this curricular unit.

The **Student Guide** also provides guidelines on the subjects of biosafety, health, and security rules to be followed by the students. Freshmen are given a brief document with the basic rules included in the Manual of Procedures for Biosafety, Health, and Security.

The Heads of each Laboratory are responsible for providing training to new postgraduate students, trainees, researchers, residents, etc., on the rules for using the spaces, equipment and materials, as well as how to deal with waste in order to ensure its proper removal.

The FMV Technical Services and Maintenance Office periodically organizes training activities for teachers and non-teaching staff, on general and specific topics, whenever it deems it necessary to refresh knowledge, adopt new rules due to legislative changes, or to better adapt behaviours to the spaces and specific needs of the FMV.

CHAPTER 17 - USEFUL CONTACTS

Table 5 shows the numbers of the Emergency Agencies, authorities responsible for search, rescue, assistance, protection and safety of people and property, members of the Technical Services and Maintenance Office team, and the Occupational Health and Safety Unit.

Table 5
Emergency Contacts

DESIGNATION		Telephone Nº
	SOS - SINGLE EU EMERGENCY NUMBER	112
	FIRE DEPARTMENT (AJUDA)	21 093 9949
	POISON INFORMATION CENTER	800 250 250
	CIVIL PROTECTION	21 817 3100
	FORESTRY POLICE	808 202 036
	26 th POLICE SQUAD OF BELÉM	21 361 9626
	SAFE UNIVERSITY - 4 th Police Division	21 361 9600
	NATIONAL GUARD (AJUDA)	21 361 2000
	HOSPITAL SÃO FRANCISCO XAVIER	21 043 1000
	VTH PHARMACEUTICAL SERVICES	21 365 2892 (extension 431536)
SECURITY OFFICER		21 365 2808 (extension 431009)
TECHNICAL SERVICES AND MAINTENANCE OFFICE:		
Eng.º José Silvestre		965 577 932
Maintenance Technician (Electricity and HVAC)		965 680 550
Maintenance Technician (Water and Sewers)		961 045 017
Maintenance Technician (Waste)		969 195 722
OCCUPATIONAL HEALTH AND SAFETY UNIT:		
Eng.ª Carla Simão		968 200 524
In case of interference risks:		
	WATER (ruptures in public roads)	800 201 600
	ELECTRICITY (failures)	800 506 506
	GAS (failures)	800 200 343



APPENDIX I

Responsible for the units of the Veterinary Teaching Hospital, Services, Laboratories and Animal Facilities for the purposes of promoting biosafety, health and security in the learning and work place

1. VETERINARY TEACHING HOSPITAL AND OTHER CLINICAL SERVICES	Responsible
1.1 Companion Animal Hospital	António Ferreira
1.2 Equine Hospital	Luís Lamas
1.3 Food Animals Outpatient Service	George Stilwell
1.4 Diagnostic Centre	Luísa Mateus
1.5 Pharmaceutical Services	Berta Braz
1.6 Blood Bank	Teresa V. Brito
1.7 Biological Isolation and Containment Unit	Solange Gil
1.8 Reproduction Centre	Luísa Mateus
1.9 Centre for Applied Surgery	Liza Mestrinho
1.10 Centre for Imaging and Minimally Invasive Surgery	Luís Lamas
2. SUPPORT LABORATORIES FOR THE VETERINARY TEACHING HOSPITAL	
2.1 Clinical analysis	José H.D. Correia
2.2 Pathological Anatomy	Jorge Correia
2.3 Pharmacology and Toxicology	Berta Braz
2.4 Bacteriology	Manuela Oliveira
2.5 Mycology	Manuela Oliveira
2.6 Parasitology and Parasitic Diseases	Isabel Fonseca
2.7 Virology and Immunology	Solange Gil
2.8 Endocrinology	Luísa Mateus
2.9 Animal Reproduction (LabRepA)	Luís Costa

3. TEACHING LABORATORIES	
3.1 Biochemistry	José Prates
3.2 Histology	Mário Pinho
3.3 Plant Biology, Agriculture and Environment	Maria João Fradinho
3.4 Physiology	Graça Dias
3.5 Microbiology and Immunology	Luís Tavares
3.6 Parasitology and Parasitic Diseases	Luís Carvalho
3.7 Pathology and Pathological Anatomy	Jorge Correia
3.8 Nutrition and Animal Feed	Rui Bessa
3.9 Medical Propaedeutic	Teresa V. Brito
3.10 Pharmacology	Berta Braz
3.11 Infectious Diseases	Virgílio Almeida
3.12 Obstetrics and Animal Reproduction	Luís Costa
3.13 Toxicology	Anabela Moreira
3.14 General Technology and Technology of Animal Products	Maria J. Fraqueza
4. SALAS DE DISSEÇÃO E DE NECRÓPSIA	
4.1 Necropsy rooms	Jorge Correia
4.2 Dissection rooms	Graça Pires
5. RESEARCH LABORATORIES (CIISA)	
5.1 Animal Genetic Resources	Catarina Ginja
5.2 Animal Production and Nutrition	Rui Bessa
5.3 Antibiotic Resistance	Constança Pomba
5.4 Food Technology and Safety	Maria João Fraqueza
5.5 Glycobiology and Structural Enzimology	Victor Alves
5.6 Infectious Diseases	Fernando Boinas
5.7 Microbiology and Immunology	Luís Tavares
5.8 Parasitology and Parasitic Diseases	Isabel Fonseca
5.9 Pathology	Jorge Correia
5.10 Quality of Animal Products	José Prates

5.11 Reproduction and Development	Luís Costa
5.12 Tropical Animal Health and Production	Alexandre Leitão
6. EXTRAMURAL CLASSES	
6.1 Food Animal farms	George Stilwell
6.2 Slaughterhouses, Cutting Plants, Food Industries, Fishing Docks, Catering Units, Butchers, Markets and Supermarkets	Miguel Cardo
7. ANIMAL PREMISES	
7.1 Cattle	Catarina Torres
7.2 Equine	Maria João Fradinho
7.3 Bioterium	Berta Braz
7.4 Metabolic Pavilion	Rui Bessa
7.3 Animal Health	Fernando Boinas
8. TECHNICAL SERVICES AND MAINTENANCE OFFICE	
8.1 Technical Services and Maintenance	José Silvestre
8.2 Occupational Health and Safety Unit	Carla Simão

APPENDIX II

General instructions for action in the event of accidents that endanger the physical integrity of the building's occupants and the building itself

In the event of a serious emergency that endangers the physical integrity of its occupants and/or the building, such as a fire, explosion or release of dangerous gas, the building must be evacuated. In this case, you must:

1. Activate the alarm using the pushbuttons if the alarm has not been activated automatically.
2. Call the Fire Department and/or the emergency national helpline (112).
3. Alert the FMV Technical Services and Maintenance Office. They will act in accordance with the Internal Emergency Plan.
4. Evacuate the premises or building if applicable.
5. Follow the Internal Emergency Plan evacuation procedures.

APPENDIX III

General instructions for action in the event of an accident involving chemical agents

With regard to accidents involving chemical products, rapid intervention at the scene of the accident is often essential, even before specialist support arrives.

In the event of spills involving hazardous substances:

1. Respond using appropriate Personal Protective Equipment.
2. Remove sources of ignition and avoid contact.
3. Contain the spread of the spill using absorbents and barriers.
4. Try to neutralise the spilled substance.
5. In the case of a corrosive product, immediately wash the affected areas with water.
6. Prevent the liquid from going down the drain or, if this is not possible, inform the Technical Services and Maintenance Office Manager.
7. Place waste and used absorbents in separate and identified containers.
8. Check the Safety Instructions of the Internal Emergency Plan.

In the event of a gas or vapor release:

1. Eliminate the leak by closing the source valves.
2. Extinguish any flames that are burning.
3. Do not turn switches or circuit breakers on or off.
4. Ventilate the area by opening windows.
5. Evacuate the area to a ventilated area.
6. Immediately notify the Responsible of the Laboratory or Service.
7. Also notify the Technical Services and Maintenance Office Manager.

In the event of a cytostatic spill on the worker(s) or animal being treated:

1. Restrict the area of the spill with compresses and, after the spill has been absorbed, with a towel for cleaning.
2. Immediately remove protective clothing if it is contaminated by placing it in the laundry bag, together with the towel.

3. Wash the affected area of skin thoroughly with soap and water or saline solution.
4. If eye exposure has occurred, immediately rinse the affected eye thoroughly with running water or saline solution for approximately 15 minutes and consult an ophthalmologist as soon as possible.
5. Place all materials used to absorb the spill in the red bags for Group IV waste and place them in the red single-use container for Group IV waste (mandatory incineration).

You must also:

1. Record all procedures carried out to control the drug spill, including identification of the location of the spill;
2. Notify the animal's owner and the Hospital Director of the accident.

General instructions for action in the event of a fire

All users of the Laboratory must be fully aware of the procedures recommended by the Internal Emergency Plan (PEI), the location and operation of fire-fighting equipment and how to use them in an emergency.

All laboratories are equipped with:

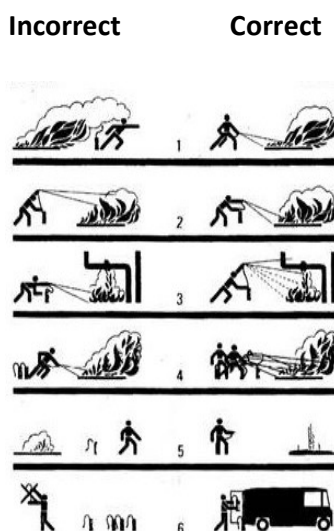
1. Suitable fire extinguishers.
2. Buckets of sand.
3. Fire blankets.

What to do in the event of a fire?

1. Stay calm.
2. Give the alert by pressing the nearest alarm button, ask for help and provide quick and efficient assistance, first helping people and then extinguishing the fire.
3. All people not involved in fighting the fire must be removed from the area.
4. Never put yourself in danger.
5. Close the main gas taps.
6. Keep flammable materials and combustible solvents away.
7. Turn off the electrical panel.
8. In all fires, fight against the natural tendency of the fire: apply extinguishing agents from the bottom up (Figure 2).
9. Use appropriate extinguishing agents:
 - a. If the fire involves oils, flammable liquids or electricity, do not use water.
 - b. Fire extinguishers have a label attached indicating the class of fire for which they are intended (Table 5).
 - c. If possible, use an extinguishing blanket to cover the burning object and remove other combustible materials that are nearby.
 - d. In most laboratory fires, carbon dioxide extinguishers are sufficient. They do not leave residue and do not cause material damage to instruments.

- e. Metal fires should only be extinguished with fire-fighting sand.
- f. Fires on clothing should be extinguished in the shower or with fire blankets.

Figure 2



- 10. If toxic gases are likely to form, wear suitable masks.
- 11. If flames catch on your clothes, stop immediately, throw yourself on the ground and roll around (this will put out the flames).
- 12. People with burning clothes tend to act uncontrollably. If necessary, take them down and extinguish the flames with fire blankets or towels.
- 13. If you are unable to put out the fire, or if you notice that there is a lot of smoke, leave the area, crouching down as you walk to avoid breathing the smoke.
- 14. If you are trapped in a room full of smoke:
 - a. Stay close to the ground where the air is more breathable.
 - b. If possible, open a door or window.
 - c. Try to signal your presence.
 - d. When leaving the area, close all windows and doors without locking them.
 - e. Notify the Technical Services and Maintenance Office Manager or the Fire Department.
 - f. Follow the procedures recommended by the Internal Emergency Plan for fire and evacuation situations
- 15. Once the fire is out, thoroughly ventilating the area.

There are different types of fire extinguishers that are used for different types of fires. Depending on the fuel of the fire, there are specific extinguishers that are indicated to put out the flames. For this reason, it is important to know the different fire classes (Table 6):

Table 6
Fire classes

Fire Classes	Extinguishing method	Extinguishing agent
A - Result of the combustion of solid materials, generally of an organic nature, paper, wood, straw, textiles, coal, etc.	Inhibition Asphyxiation Cooling	Water, foam, ABC chemical powder, suitable blanket
B - Result of the combustion of hydrocarbons and flammable liquids - ethers, alcohols, acetone, varnishes, oils, waxes, resins, paraffins.	Inhibition Asphyxiation Cooling	Water spray, foam, BC and ABC chemical powder, CO2
C - Result of the combustion of gases or liquefied gases under pressure - methane, propane, butane, acetylene (ethyne), electrical and electronic material.	Inhibition Asphyxiation	BC and ABC chemical powder, CO2
D - Result of pulverized metals and their alloys - sodium, potassium, magnesium, uranium, plutonium	Asphyxiation Cooling	Suitable chemical powder

APPENDIX V

General instructions for action in the event of an elevator stopping

If the elevator you are using suddenly stops:

1. Do not panic.
2. Activate the alarm in the cabin.
3. Try to signal your presence by knocking on the walls and calling loudly.
4. Help to reassure people who have more difficulty maintaining emotional control.
5. Wait for help.

APPENDIX VI

General instructions for action in the event of earthquakes/seaquakes

During an earthquake:

1. Stay calm.
2. Do not rush to the exits. Stairs and doors are places that can easily become filled with debris and become blocked.
3. Stay where you are, if possible sheltered next to a pillar or under a doorway, to avoid objects falling on you.
4. Stay away from glass, especially if it is large.
5. Help people who have difficulty moving.
6. Help reassure people who may be close to you who have difficulty staying calm.

After the earthquake has stopped:

1. Follow the instructions of the Internal Emergency Plan Coordinator.
2. If you receive instructions to evacuate the area where you are and you do not have any assigned duties, follow the instructions of the evacuation team.
3. Do not run.
4. Do not use elevators.
5. Provide any assistance you can if you find someone in difficulty.
6. When outdoors, stay away from buildings and tall structures and go to the local assembly area indicated to you, and wait, as long as it is safe, for instructions from the Internal Emergency Plan Coordinator.

APPENDIX VII

First aid procedures

The general principles to follow in the event of serious or potentially serious accidents are as follows:

1. Call for help immediately.
2. If you have to start first aid procedures, some instructions are given below for the most common accident cases.
3. In the case of **poisoning**, get instructions from the Poison Information Centre so that immediate measures can be applied.
4. **Large cuts** should be treated by a doctor. In the meantime, apply an emergency bandage (do not use cotton).
5. Cool **small burns** with ice water. Do not apply oils, ointments, fats or powders.
6. **Large burns**: Seek immediate medical emergency at the national helpline (112).
7. Body areas affected by **caustics**: wash immediately with plenty of water, for at least 10-15 minutes. In the case of alkaline agents, wash with 1% acetic acid. In the case of acidic agents, wash with 1% sodium bicarbonate. Consult a doctor.
8. **Eyes**: protect the unaffected eye. Wash thoroughly in the eyewash station. Consult a doctor urgently.
9. **Dangerous inhalation**: Immediately move the injured person to fresh air, ensuring complete rest and, if necessary, keeping them warm, until the doctor arrives.
10. In the event of **chemical products spilling** on clothing, remove clothing immediately to avoid skin absorption. Consult a doctor.
11. In the event of **swallowing poisonous substances**, force the injured person to drink very salty water and induce vomiting by touching the epiglottis area (putting your fingers in the mouth). This measure should only be used if the injured person is conscious.
12. **Do not induce vomiting in the case of solvents, acids or bases**. Call the medical emergency at the national helpline (112).

APPENDIX VIII

Reporting accidents

All accidents that occur on FMV premises or during trips made for teaching or faculty purposes by teachers, students and non-teaching staff and that require hospital admission must be immediately reported to the President of FMV or to whoever she/he delegates for this purpose.

In the case of students, accidents are regulated by the insurance contract/policy signed following a public tender with national companies, in accordance with the following:

1. The contract is intended to provide school insurance services, intended to cover accidents suffered by students during academic activities.
2. In the event of an accident, the student, or whoever represents her/him, must complete a claim form, which is validated by FMV, in this case represented by its President.
3. The student may go to any hospital to receive healthcare, subject to the coverage table provided for in the contract.

In the event of an accident involving state employees (teaching and non-teaching staff), the following procedures must be followed:

1. The employee, either personally or through a third party, must report the accident in writing or verbally within 2two working days to her/his superior, unless the latter witnessed the accident.
2. The superior must report the accident on a specific form to the President of the FMV, within one working day from the date on which he/she became aware of the accident.
3. The President of the FMV will classify the accident within a maximum period of thirty consecutive days from the date on which he/she became aware of it.
4. When going to the hospital, the injured party must be accompanied by the “Medical Follow-up Report” provided by the FMV.
5. The health service (in the case of the FMV, it is the Hospital São Francisco Xavier) that aided the injured party must report the incident to the FMV within one day in the most expeditious manner.

The FMV must report the accident:

1. To the Instituto para a *Higiene e Segurança no Trabalho* (Institute for Health and Safety at Work) within twenty-four hours if the accident is fatal or if a particularly serious situation is evident.
2. To the Public Health Delegate of the Area.
3. To the Statistics Department of the *Ministério do Emprego e da Segurança* (Social Ministry of Employment and Social Security).
4. To the *Instituto de Proteção e Assistência na Doença* (ADSE) (Institute for Disease Protection and Assistance) within six working days of becoming aware of the incident.
5. To the *Caixa Geral de Aposentações* (General Pensions Fund) after the injured party has been discharged and if it is recognised that he or she has acquired a permanent disability or if the temporary disability has lasted more than 36 months.
6. The President of the FMV must report the accident to the FMV's Occupational Health and Safety Unit, with a view to ensuring that it is recorded and that corrective measures are taken, when necessary, and in the case of an accident resulting in disability lasting more than three days, that the respective report is drawn up.

These procedures are in accordance with Decree Law nº. 503/99, which establishes the legal framework for accidents at work and occupational diseases occurring in Public Administration.

In the event of an accident involving ACIVET employees with a private employment relationship, coverage in the event of an accident is guaranteed by the mandatory Personal Accident Insurance. The procedure is as follows:

1. In the event of an accident, the employee or services must complete a claim form, validated by the employer.
2. They may then go to any hospital to receive healthcare, or to medical clinics with a contract with the insurer (according to the terms of the policy).
3. If they are considered temporarily incapable of working, they must go on sick leave, with the payment of remuneration in this situation being due to Social Security.
4. This situation can only be changed through the medical discharge prescribed by the

attending physician, and the worker must report to work on the date of discharge and resume her/his activity.

APPENDIX IX

Signage to be displayed in laboratories and general emergency signs



PROCEDIMENTOS DE SEGURANÇA EM LABORATÓRIO *SAFETY RULES IN THE LABORATORY*

A NOSSA SEGURANÇA DEPENDE DA COLABORAÇÃO DE TODOS!

OUR SAFETY DEPENDS ON EVERYONE'S COOPERATION

CONTAMOS CONSIGO PARA:

WE COUNT ON YOU TO:



USAR A BATA EXCLUSIVAMENTE NO LABORATÓRIO. NUNCA EM INSTALAÇÕES SANITÁRIAS, REFEITÓRIOS, ESCRITÓRIOS, BIBLIOTECAS, ETC.

Wear your laboratory coat exclusively in the lab. Never use it in public toilets, cafeteria, offices or libraries.



NUNCA ABRIR PORTAS, NEM ATENDER O TELEFONE USANDO LUVAS.

Never open doors or answer the phone if wearing safety gloves.



PLANEAR SEMPRE AS SUAS ACTIVIDADES ANTES DE AS REALIZAR.

Plan your activities before start working.



NÃO FUMAR, APLICAR COSMÉTICOS OU PENTEAR OS CABELOS.

Do not smoke, never apply makeup, or comb your hair.



TENHA SEMPRE NO LABORATÓRIO UM LUGAR APROPRIADO PARA A BATA. NUNCA A DEIXE JUNTO DOS OBJETOS PESSOAIS

Always have a suitable place in the lab for the laboratory coat. Never keep it next to your belongings.



NÃO COMER, BEBER OU MASTIGAR PASTILHA ELÁSTICA.

No eating, drinking or chewing gum in the lab.



USAR LUVAS E ÓCULOS DE PROTEÇÃO SEMPRE QUE NECESSÁRIO.

Wear your Personal Protective Equipment (PPE) (mask, eye and hand protection), whenever necessary.



MANTER AS UNHAS CORTADAS. OS CABELOS COMPRIDOS DEVEM ESTAR DEVIDAMENTE AMARRADOS.

Keep your fingernails cut. Long hair has to be tied up.



USAR SEMPRE CALÇADO FECHADO.

Always wear suitable footwear in the lab. Never use sandals or slippers.



NÃO USAR ANÉIS, PULSEIRAS, RELÓGIOS E FIOS OU COLARES LONGOS DURANTE AS ACTIVIDADES DE LABORATÓRIO.

Do not wear rings, bracelets or long necklaces during laboratory activities.



LAVAR AS MÃOS, ANTES E APÓS A ANÁLISE. É UMA MEDIDA EXTREMAMENTE IMPORTANTE PARA EVITAR ACIDENTES E A DISSEMINAÇÃO DE CONTAMINAÇÕES.

Wash hands before and after your analysis. It is an important measure to prevent accidents and dissemination of contaminants.



NÃO COLOCAR OBJECTOS NA BOCA.

Never lick labels or put any objects in your mouth.



ZELAR SEMPRE PARA QUE NO AMBIENTE DE TRABALHO HAJA ORGANIZAÇÃO, HIGIENE E LIMPEZA.

Make sure that your workplace is organized and clean.



NÃO UTILIZAR FRIGORÍFICOS, CONGELADORES OU ESTUFAS PARA GUARDAR ALIMENTOS.

Do not use laboratory fridges, freezers or ovens to store food.

PEÇA ORIENTAÇÃO SEMPRE QUE TIVER DÚVIDAS. PODEM EVITAR-SE ACIDENTES SE VOCÊ:

PERGUNTAR, OUVIR E PENSAR!



Always ask for guidance whenever you have doubts.

Accidents may be avoided if you:

Ask, listen and think!



NÃO COÇAR O NARIZ, NEM COBRIR A BOCA PARA ESPIRRAR, SE USAR LUVAS.

Do not touch your nose or cover your mouth before sneezing, if wearing safety gloves.



NÃO USAR LUVAS FORA DA ÁREA DE TRABALHO.

Never use the same safety gloves outside your workplace.

USO OBRIGATÓRIO DE:

Mandatory use of:



Bata de proteção

Laboratory coat



Luvas de proteção

Safety Gloves*



Máscara de proteção

Safety mask*



Proteção ocular

Eye Protection*

* Depende da tarefa a realizar/Depends on the task to be performed



INSTRUÇÕES GERAIS DE SEGURANÇA

GENERAL SAFETY INSTRUCTIONS

Em caso de EVACUAÇÃO (IG1 – PEI)	In case of EVACUATION
--	------------------------------



Logo que soe o alarme, deve iniciar a evacuação do edifício.	As soon as the alarm sounds, you must begin evacuating the building.
Após verificar que não está mais ninguém no interior, feche as portas do local em que se encontra.	After checking that there is no one else inside, close the doors of the place you are in.
Siga as instruções de evacuação e oriente-se pelos sinais de emergência afixados ao longo dos caminhos de fuga.	Follow evacuation instructions and be guided by emergency signs posted along escape routes.
Nunca utilize os elevadores e nunca volte para trás.	Never use lifts/elevators and never go back.
Permaneça no ponto de encontro até outras indicações.	Stay at the meeting point until further notice.



INSTRUÇÕES GERAIS DE SEGURANÇA

GENERAL SAFETY INSTRUCTIONS

Em caso de INCÊNDIO (IG2 – PEI)	In case of FIRE
---	------------------------



Acione uma botoneira de alarme.	Activate the fire alarm button.
Tente extinguir o incêndio com os extintores portáteis, mas sempre acompanhado por alguém e sem correr riscos.	Try to extinguish the fire, with the portable fire extinguishers, but always be accompanied by someone and do not take risks.
Caso não seja possível extinguir o fogo, abandone o local, baixando-se enquanto caminha.	If it is not possible to extinguish the fire, leave the area, crouching down as you walk.



INSTRUÇÕES GERAIS DE SEGURANÇA

GENERAL SAFETY INSTRUCTIONS

Em caso de SISMO (IG3 – PEI)	In case of EARTHQUAKE
--	------------------------------



Durante o SISMO	During the EARTHQUAKE
Afaste-se de janelas, estantes, armários e objetos pesados que possam cair.	Step away from windows, shelves, cabinets and heavy objects that could fall.
Coloque-se debaixo de uma mesa, ombreira da porta ou no canto da sala.	Place yourself under a table, doorframe, or the corner of the room.
Permaneça no edifício até terminar o sismo.	Stay in the building until the earthquake is over.
Após o SISMO	After the EARTHQUAKE
Não fume, não acenda fósforos ou isqueiros.	Do not smoke, light matches or lighters.
Em caso de réplicas, proteja-se da mesma forma que durante o sismo.	In case of replicas, protect yourself in the same way as during the earthquake.
Verifique se existem vítimas próximo de si, preste auxílio se puder e souber.	Check if there are victims near you, and aid if you can and know how.



INSTRUÇÕES GERAIS DE SEGURANÇA

GENERAL SAFETY INSTRUCTIONS

Em caso de DERRAME (IG5 – PEI)	In case of CHEMICAL SPILLING
--	-------------------------------------



Se possível, limite a fuga utilizando os meios de contenção disponíveis na zona.	If possible, stop the leak using containment measures available in the area.
--	--



INSTRUÇÕES GERAIS DE SEGURANÇA

GENERAL SAFETY INSTRUCTIONS

Em caso de INUNDAÇÃO (IG5 – PEI)	In case of FLOODING
--	----------------------------



Se possível, efetue o corte geral da água.	If possible, cut off the water supply.
Se possível, efetue o corte geral de energia na zona.	If possible, cut off the power to the area.



INSTRUÇÕES GERAIS DE SEGURANÇA

GENERAL SAFETY INSTRUCTIONS

Em caso de FUGA DE GÁS (IG5 – PEI)	In case of GAS LEAKAGE
---	-------------------------------



Se possível feche a válvula de corte de gás.	If possible, close the gas shut-off valve.
Se possível, areje o local, abrindo portas e janelas.	If possible, air the place by opening doors and windows.
Não fume, não acenda fósforos ou isqueiros.	Do not smoke, light matches or lighters.
Não ligue nem desligue interruptores.	Do not turn switches on or off.



INSTRUÇÕES GERAIS DE SEGURANÇA

GENERAL SAFETY INSTRUCTIONS

Em caso de EMERGÊNCIA MÉDICA (IG5 – PEI)	In case of MEDICAL EMERGENCY
---	-------------------------------------



Primeiro telefone para a Portaria (extensão nº 431009).	First telephone to the Security Officer (phone extension nº 431009).
Diga que se trata de uma emergência médica, se a vítima está ou não consciente e informe o local exato da ocorrência.	State that it is a medical emergency, whether or not the victim is conscious, and provide the exact location of the incident.
Se necessário, telefone diretamente para o 112 e responda a todas as questões.	If necessary, call 112 directly and answer all questions.