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GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

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I. GENERAL PART



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

Table of contents:

1. Definitions and terms
2. Duties and powers
3. General and special requirements for laboratories and practicums
 - 3.1. Use of protective clothing
 - 3.2. Accommodation and environmental conditions
 - 3.3. Equipment and supplies
 - 3.4. Waste disposal
 - 3.5. Hazardous substances
 - 3.6. Procedures in case of accident
4. General and special requirements for dissection halls and rooms for exenteration
5. General and special requirements for field classes
6. General and special requirements for stables
7. General and special requirements for outpatient and in-patient clinics
8. General and special requirements for operating rooms



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

1. DEFINITIONS AND TERMS

Basic safety and health protection measures employed to protect workers exposed to biological agents whilst undertaking work are set out in the **Ordinance on the protection of workers from risks related to exposure to biological agents at work** (OG no. 155/08), and Labour Act.

These guidelines establish minimum requirements for protection of workers and students from risks to their health and safety arising or likely to arise from exposure to biological agents at work, including the prevention of such risks.

Biological material- includes blood, serum, plasma, tissue, tissue fluid, urine and lyophilized materials of animal and human origin.

Biological agents - indicate microorganisms, including those that have been genetically modified, cell cultures and endoparasites affecting people, that can cause an infection, allergy or poisoning, and which are divided into four groups based on the level of risk of infection.

Microorganism - indicates microbiological cellular or non-cellular entity, which is capable of reproduction or transferring genetic material.

Biological safety level– a level of safety in laboratories that use microorganisms which do not cause disease in healthy adults. Group 1 biological agent is the one which is unlikely to cause disease in healthy adults.

Biological safety level 2 – a level of safety in laboratories that use microorganisms that are of varying degrees of pathogenicity. Group 2 biological agents are present in the environment and can cause clinical disease of varying severity in people. The potential spread of these microorganisms via aerosol is low. Biological safety level includes clinical/ diagnostic laboratories where infectious status of clinical/diagnostic material is unknown. Group 2 biological agent is the one that can cause disease in humans and could be dangerous for workers, but it is not likely to spread into the environment and effective prophylaxis or treatment is usually available.

Biological safety level 3 – a level of safety in laboratories that use microorganisms that are unusual for the area in which the laboratory is located, and which have the potential to spread via aerosol. Group 3 biological agent is the one that can cause severe disease in



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

humans and presents a serious hazard to workers; it may present a risk of spreading to the surroundings, but effective prophylaxis or treatment is usually available.

Biological safety level 4 - a level of safety in laboratories that use highly pathogenic microorganisms that are unusual for the area in which the laboratory is located. Group 4 biological agent is the one that causes severe, often lethal disease in humans; it spreads via aerosol and represents a serious hazard to workers. It is likely to spread to the environment and there is usually no effective prophylaxis or treatment available.

Compliance with the Act and the implementation of safety at work according to the Ordinance reduces the harmful effects of biological agents to an acceptable level.

2. DUTIES AND POWERS

The Faculty's employees and students are obliged to act in accordance with the general principles of prevention and perform work in a safe manner, be aware of their obligations and responsibilities, inform about the changed work conditions and warn their superiors of the specific deficiencies of the protection.

Superiors are obliged to ensure all conditions, as well as funds for the implementation of occupational safety, health surveillance and training of employees.

The possible presence of biological agents in animals or samples for analysis imposes the need for preventive measures of disinfection, decontamination and the proper disposal of biological waste.

In case of suspicion of contamination with biological agents, it is mandatory to ensure adequate isolation, according to the provisions of the Ordinance in Annex V. Isolation refers to laboratories and test facilities or premises in which work with a possibly infected animal or its sample is performed.

Exposed workers are subject to periodical medical examinations and preventive health checkups before starting to work with biological agents.

In case of an accident while working with biological material, it is mandatory to contact the head of the laboratory immediately, who recommends further proceedings. In case of spill of infectious material, rinsing with water and removing contaminated clothing are recommended.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

If an employee becomes ill because of exposure to hazardous biological agents, other employees who could have come into contact with the agent will be referred for a medical examination. In this case, the employer is obliged to start preparing the review of risks in accordance with the rules and inform the competent labour inspection authority, the Croatian Institute for Health Insurance and the Croatian Institute for Health Protection and Safety at Work.

In order to ensure the protection of people (minors and pregnant women, and female workers who are breastfeeding), referred to in Paragraph 1 Article 2 of the Act on Amendments to the Act on Safety at Work (Official Gazette 143/12), from the hazards and harms, the employer shall:

- adapt conditions and work schedule in order to eliminate any hazard or harm to their safety and health
- provide other appropriate jobs or workplace if adjustments are not possible or reasonable.

Adapting the conditions and work schedule and workplace shall not bring about salary reduction for pregnant workers or workers who have given birth or who are breastfeeding.

If it is not possible to provide additional safety at work in accordance with Paragraph 4 of this Article, a pregnant worker, worker who has given birth or who is breastfeeding is entitled to leave with salary compensation according to the special regulation.

An assessment of risks and harms that could affect the safety and health of workers referred to in Paragraph 3 of this Article, as well as the assessment regarding which jobs are appropriate, is given by the chosen specialist in occupational medicine in accordance with a special regulation, taking into account the hazard assessment.

According to a special regulation, pregnant workers and workers who gave birth or who are breastfeeding, cannot perform work that endangers their or their child's life or health.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

3. GENERAL REQUIREMENTS FOR LABORATORIES AND PRACTICUMS

3.1. Use of protective clothing

- Before starting work, personnel is required to become familiar with precautionary and safety measures in the laboratory, and strictly adhere to them. Because of the constant danger of fire, each student at the beginning of the semester shall learn where the fire extinguisher is and how to use it, where the main electrical switches are, and where the main gas and water valves are.
- Standard student/personnel protective equipment in the microbiological laboratory includes: protective white gown (long-sleeved, buttoned up coat to the knee), sterile protective gloves or disposable ones, safety goggles, mask for mouth and nose.
- When entering the laboratory, a protective coat kept in the place designated for that purpose must be worn. The same protective gown must not be worn outside the laboratory. Employees' protective gowns are sent to the laundry service with which the organization has signed a contract. If there is a possibility that coats are contaminated, they must be decontaminated before they are sent to the laundry.
- Protective gloves must be changed after contamination and leaving the room. The same coat must not be worn outside the laboratory premises.
- It is required to use protective gloves when handling toxic or hazardous chemicals that can damage the skin or enter the body through the skin.
- Gloves are disposable and must not be washed.
- Gloves must not be used on surfaces which people who do not wear gloves can have contact with (door handles, bells, mobile phones, elevator buttons, etc.).
- Use of protective gloves is not recommended when working with burners - open flame.
- Shoes must protect feet from all sides: it is not allowed to wear sandals, slippers, clogs in the laboratory.
- Shoes that are used in the laboratory must have rubber soles to avoid a possible fall. Also, shoes must be closed to avoid dripping of chemicals on your toes.
- Long hair must be tied up.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Eating, drinking and storing food and drinks, smoking, putting in contact lenses, applying make-up, except barrier cream, are strictly prohibited in the laboratory rooms.
- Employees/students must wash their hands after handling potentially infectious material and before leaving the laboratory.
- Before commencing work in the laboratory, students wash and disinfect their hands and then put on disposable gloves. After completing the exercise, students dispose of gloves in a bin with infectious waste and re-wash and disinfect their hands.
- If students' protective clothing becomes soiled, a spare coat is provided in the laboratory.
- Safety goggles and mask are obligatory when aerosol formation is expected or if working with liquid nitrogen or a freezer at -80 ° C.

3.2. Accommodation and environmental conditions

- Laboratories must be constructed and equipped so as to allow easy cleaning and disinfection. The use of carpets and mats in the laboratory is prohibited.
- Floor and work surfaces are watertight and easy to clean and disinfect. Work surfaces are resistant to acids, alkalis, solvents and disinfectants.
- Laboratory furniture must be such that it allows for easy cleaning and disinfection. Chairs must be upholstered with non-porous material that is easy to clean and disinfect.
- Laboratories must have doors that allow limited access.
- Opening windows is not recommended.
- Laboratories must have at least one wash basin for washing hands.
- After completing work, work surfaces must be cleaned and disinfected.
- When surfaces are contaminated due to shedding, smashing, smearing, etc., they must be immediately rinsed, cleaned, wiped, disinfected and dried.
- The possible presence of biological agents in animals or samples for analysis imposes the need for preventive measures - disinfection and decontamination of



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

laboratory work surfaces and laboratory equipment as well as proper disposal of biological waste.

- Access to the laboratory is allowed only to the employees of the laboratory. If a person who is not an employee has the access to the laboratory, s/he must constantly be under the supervision of an expert, the laboratory employee.
- Plants and/or animals that are not associated with the work being performed must not be permitted in the laboratory.
- Work surfaces are cleaned, washed and disinfected prior to the start of work and after work/exercises.
- When remediation of contaminated site is in progress, students are escorted from the work area into the laboratory hallway where they wait for the continuation of work.
- When working with burners in the laboratory it is necessary to make sure that there are no flammable items and/or liquids nearby. Hair must be tied up in a ponytail. If the flame catches clothes: pour plenty of water, and if it is not available, wrap the affected part using non-synthetic cloth.
- When burners are lit, they should be kept on the desk so that the flame cannot catch the shelf above the desk or anything else nearby. After use, burners should be carefully closed using a tap.
- When heating a solution in a test tube, the tube should be held with a wooden clip and eyes should be protected with goggles. When heating the solution until the point of boiling there is a possibility of hot liquid splashing which is why the tube opening must be directed toward the wall, and not toward you or neighbours. Also, in the process of heating, the tube with a solution must be constantly shaken above the burner, and after heating, it should also be shaken for some time outside the reach of the burner in order to avoid spill of hot solution from the tube.
- All chemicals should be handled carefully and cautiously. Chemicals should never come into contact with the skin or be placed in the mouth to examine flavour. When determining the smell of a substance, carefully breathe in a small amount of vapours through the nose not allowing them to enter the lungs.
- Reactions should not be run near the face.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- If the analytical procedure is not carried out on the same day, the received material should be properly stored to preserve required properties of the sample when doing the analysis.
- Marked samples can be stored in the designated place in the refrigerator at + 4°C or, if they are to be stored for a longer time period, at -80°C.
- Access to refrigerators is limited to the laboratory personnel. Records on stored samples shall be kept.
- The storage room must be locked. Reagents that are stored at room temperature are kept in a room with limited access.

3.3. Equipment and supplies

- If laboratory supplies that were in contact with infectious material are to be reused, then they should be properly decontaminated. Supplies to be transported outside the laboratory premises should be disposed of and transported in a sealed container on which the sticker designating biologically hazardous materials is visible.
- Disposable laboratory supplies that have been in contact with infectious material are disposed of into the bins for infectious waste.
- The equipment must be properly decontaminated before repair, maintenance or removal from the laboratory.
- It is required to use mechanical supplies for pipetting. Mouth pipetting is strictly prohibited.
- Supplies that students use in the sampling process, dilution and plating of media are sterile (disposable plastic) or sterilized with dry air (metal scissors, spoons, tongs).
- After use, sterilized supplies are disposed of in a beaker with sanitation agent, which is removed in the laundry room.
- Reusable laboratory supplies, which have been in contact with infectious material, must be decontaminated after work and, when transported outside the laboratory, must be in a sealed container on which the sticker designating biologically hazardous materials is visible.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Disposable laboratory supplies (eg. pipette tips) must be properly disposed of in the designated containers for infectious waste.
- Laboratory equipment must be decontaminated before its maintenance, repair and removal.
- It is necessary to use protective gloves when working with liquid nitrogen or freezer at -80°C
- Handling sharp objects: needles, scalpels, etc., shall be carried out with increased caution.
- In case of breaking glassware, glass shards are collected using a broom and dustpan. Do not use hands.
- Work must be carried out so that there are no spills and/or creation of aerosols. When there is a possibility of creating aerosols, work must be performed within the biosafety cabinet.
- Handle infectious material on the desk, and if necessary, near the burner or in the biosafety cabinet.
- It is advisable to wash the laboratory glassware while wet, in agreement with the head or the person responsible for the laboratory and exercises.
- After weighing, scales should be cleaned, and the weights should be placed in a box.
- All other instruments and apparatus should be used in accordance with operating instructions and under the supervision of the head if they are used during classes.
- Instructions on how to handle appliances are provided in detail, and instructions on burning, extinguishing and the analytical procedure are supplied with each appliance.
- Instructions on decontamination procedure are also supplied.
- Calibration data are recorded, as well as the number of samples and analysis results.
- Protective gloves and automatic pipettes must be used when working with standards and calibrators.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

3.4. Waste disposal

- Disposal of infectious waste is ensured.
- Biological material can be disposed of only in designated bins for infectious waste after which it shall be disposed of following the usual procedure employed by the Faculty of Veterinary Medicine.
- Students are introduced to the types of waste generated in the microbiological laboratory and methods of disposal.
- Infectious waste includes all potentially contaminated objects/supplies that were used in the testing – disposable caps, culture media, tubes, etc. This waste is collected in red bins labelled "Infectious waste" with the exception of supplies which are subject to sterilization in an autoclave (glass, metal supplies).
- Disposable syringes without needles, gauze, cotton wool and tubes stained with blood, faeces, urine or exudates are also disposed of in bins for infectious waste.
- After completion of exercises, protective gloves are disposed of as infectious waste by students. Leftovers or other material used in teaching are stored in the refrigerator or freezer until being disposed of in the Department of General Pathology and Pathological Morphology.
- Drug product containers (vials, ampoules) and syringes without a needle contaminated with drugs are disposed of in the bins for infectious waste (green lid).
- Needles, blades or parts of ampoules are disposed of in yellow bins (bottles) that bear the sign SHARP WASTE.
- The head of the laboratory is obliged to check whether everyone complies with the rules relating to this instruction.
- Access to the site of exposure to biological agents is forbidden to all but equipped and trained staff.
- Solutions containing concentrated acids or alkalis, as well as all solutions of the chemicals, must not be disposed in the drains, but in containers used for that purpose.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Organic solvents are poured into special bottles for waste organic solvents - one bottle for halogenated solvents which cannot be burnt, and the second bottle for all other solvents.
- Solid waste should not be sent down the drain, but put into designated containers near the drain.
- All waste chemicals must be disposed of in a prescribed manner.

3.5. Hazardous substances

- Chemicals can be stored only in original packaging.
- Bottles with chemicals must be properly labelled.
- If the amount of reagents is not stated in the instructions for performing the experiment, the minimum required amount should be used. Reagents should never be put back into reagent bottles.
- All experiments with volatile, toxic and explosive substances should be performed in a fume hood using protective gloves.
- Waste liquid and organic solvents are poured into bottles for waste organic solvents.
- The water-insoluble salt, as well as all other solid waste, should be disposed of only in the waste bins.
- When heating liquid in a test tube, the tube opening must not be turned towards a person holding it or to other persons because there is a risk of splashing.
- Do not leave the burner alight when leaving the workplace.
- Do not peep into the opening of the vessel in which the experiment takes place.
- Never add water to concentrated acid, but add acid into water while stirring. Adding water to the acid will cause splashing of the liquid.
- Do not allow reagents to come into contact with skin and clothing. Use protective gloves, work clothes, tongs, etc. If a chemical comes into contact with skin, the affected place should be washed immediately by tap water. Further treatment depends on the nature of the chemical.
- During the experiments, students are required to wear clear lens glasses, and in dangerous experiments when it is specified in the instructions on the exercises, the face should be protected by a mask. Contact lenses are not worn in the laboratory. If



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

a chemical enters the eye, it should be immediately rinsed out by tap water for not longer than 3 to 4 minutes. Further treatment depends on the nature of the chemical.

- Any injury should be immediately reported to the teacher in charge of conducting exercises.

3.6. Procedures in case of accident

- Leave the endangered area as soon as possible.
- Evacuate the injured and provide first aid.
- Call emergency medical services, fire department, police.
- Stay with the injured until the ambulance arrives.
- The first aid cabinet and the poster with the instructions and accident procedures are in a visible place in the laboratory.
- Accidents involving contact with infectious material have to be immediately reported to the head of laboratory, who estimates possible consequences of the accident and recommends further action.
- Contact numbers of the head of laboratory and/or other persons responsible for biosafety must be clearly posted in the laboratory.
- In the following cases, and before reporting the accident to a responsible person, the following actions should be taken: in case of spraying of infectious material or other chemicals into the eyes, rinse the eyes for at least five minutes; in case of a spill of infectious material on your hands or other body parts it is necessary to remove contaminated clothing and wash skin areas and/or dry them using cotton wool soaked in 70% ethanol.
- When entering the laboratory, students need to learn where the fire extinguishers are. In case of fire, first remove the source of fire, i.e. close the gas. A small fire on the desk is put off by damp cotton cloth. Larger fires are extinguished by blankets, sand, water or foam from the fire extinguisher.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Wrap a blanket around a person who has caught fire, ask a person to lie down and roll on the floor. Do not extinguish fire with foam to prevent suffocation and burns.
- Minor burns, that do not have blisters and the skin surface is not damaged, are cooled under running cold water for about 3 minutes. Then, put sterile gauze and bandage or apply vegetable oil. Seek medical help immediately in case of larger burns with blisters.
- Damaged clothing should not be removed.
- Chemical burns can more severely damage eyes and the mouth than the skin. However, if the chemical gets into the eye despite protection (goggles), rinse out face and eyes immediately by lukewarm water from the tap to which a thin flexible tube is attached so that the water is directed upwards to the open eye.
- Acids and most other chemicals are rinsed for at least 15 minutes, and alkalis for at least 30 minutes. After rinsing, neutralizing agents must not get into the eyes. Put sterile gauze and go to the doctor's.
- Chemical skin burns should be rinsed thoroughly with solvent for a given chemical. Acid or alkaline burns should be first thoroughly rinsed with water. Then, treat acid burns with a weak sodium bicarbonate solution and rinse with alcohol. Treat alkaline with a weak boric acid solution, acetic acid or citric acid.
- In case of gas poisoning, it is necessary to move the injured person to fresh air and unbutton his clothes. If the person stops breathing, immediately apply artificial respiration. The life of the injured person may depend on the speed artificial respiration is applied and proper treatment.
- In case of poisonings caused by ingestion (compounds of mercury, lead, phosphorus, various acids, alkalis, drugs etc.), the poison from the stomach must be removed as soon as possible by inducing vomiting by irritation. Make the injured person drink salted lukewarm water (2 tablespoons of sodium chloride per half a litre of warm water), and then use a finger or an object to irritate the soft palate. Immediately call a doctor or refer a patient to the hospital.
- Capillary bleeding usually resolves itself or is stopped by local compression. If injuries do not cause heavy bleeding, a place near the wound (if the injury is small then rinse



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

the wound as well) should be immediately rinsed with alcohol or iodine tincture and put sterile gauze on the wound.

- In case of heavy venous or arterial bleeding, wounds are not rinsed, but the bleeding is stopped by local compression until the arrival of the doctor. In case of venous bleeding, a part of the body below the wound (away from the heart) should be ligated, and in case of arterial bleeding, the part of the body above the wound should be ligated (closer to the heart). Since all wounds can become infected, it is necessary to use sterile objects as much as possible.

4. GENERAL REQUIREMENTS FOR DISSECTION HALLS AND ROOMS FOR EXENTERATION

The purpose of these guidelines is to determine the manner in which work is performed in dissection halls and to ensure safety of staff and students who perform and participate in the autopsy and perform other procedures in a dissection hall. In addition, the guidelines describe the ways to conduct work that must prevent the spread of pathogens in the environment, and prevent or minimize the possibility of infection of humans, animals, and cross-contamination of samples taken for further laboratory tests.

- In the dissection hall, there is a risk of infection and the students and staff of the Faculty should be protected against infection in their working environment.
- When working in the dissection hall, always act as if there is a possibility of infection caused by group 2 biological agent.
- The most important microorganisms that can cause serious infections in people, present during the dissection of farm animals, pets, exotic and wild animals, are the rabies virus, *Mycobacterium spp.*, prions, *Salmonella spp.*, *Clostridium spp.*
- At the discretion of the Head, only employees of the Department of Veterinary Pathology, without active participation or without the presence of students, are allowed to perform primate autopsy and sampling or perform autopsy in other cases where there is a risk of infection by pathogens from group 3,



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- When dissecting primates, the most dangerous pathogens are blood viruses and pathogens that are inhaled, such as *Mycobacterium tuberculosis*. All these microorganisms are classified in group 3.
- In case of suspicion of group 4 of animal pathogens, all employees and students present during the autopsy must avoid contact with farm animals, their owners and farms for a minimum period of one week.
- According to available data, human pathogens from group 4 are not present in the countries of the European Union.
- Microorganisms from group 4 that are pathogenic for humans are not detected in the countries of the European Union, and infection is currently not likely to affect students and staff.
- The aim is to reduce the risk as low as possible without affecting the quality of teaching and services provided to clinicians, practitioners and owners.
- If there is a significant zoonotic infection, it is necessary to reduce the possibility of infection of students and staff to a minimum.
- If a significant infectious disease is present, it is necessary to take all possible measures to prevent and reduce the spread of microorganisms to a minimum.

There are 5 ways infections can enter the dissection hall:

- percutaneous inoculation
- inhalation
- ingestion
- contamination of the skin without inoculation
- contamination of mucosal surfaces (eyes, mouth, nose)
- Wearing civilian clothes and shoes is allowed in the clean area.
- In the transition area, putting on protective footwear is compulsory because protective clothing is mandatory if entering or leaving the contaminated area.
- In the contaminated area, wearing protective clothing and footwear is mandatory. Eating and drinking are forbidden in the contaminated and transition area.
- All students and staff members who actively participate in the dissection must be vaccinated against rabies.
- Students and staff of the Faculty who are actively involved in the dissection must wear long protective coats or shirts and trousers or one-piece coveralls.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Wearing long, waterproof aprons that fully cover the chest, stomach and legs, rubber gloves and rubber boots is mandatory.
- At the discretion of teachers or, at their own discretion, students and employees can wear protective face masks to protect the mouth and nose from direct contamination caused by spraying, safety goggles and protective caps.
- Employees and students must use wire mesh gloves when opening the cranial cavity, spinal canal and when using saws.
- At the discretion of teacher or at their own discretion, students and employees can use safety goggles or visors.
- Students and staff of the Faculty who are present in the dissection hall but do not actively participate in the dissection, must be protected by wearing the following equipment: long protective coat or shirt and trousers or one-piece coveralls, rubber boots or shoe covers, and other protective equipment if the pathologist or teacher finds it necessary.
- After completing the dissection, students and staff are required to perform the following procedures in the order given:
 - wash gloves with water and detergent
 - take off protective aprons
 - wash protective aprons and boots with water and detergent
 - immerse aprons into a container with a disinfectant
 - take off disposable protective gloves and dispose of them in containers provided for inorganic infectious waste; reusable gloves are disposed of on the drying rack provided
 - passing through the disinfection barrier is mandatory when exiting the dissection hall
 - wash and disinfect hands and all parts of the skin which may have been contaminated
 - remove protective masks, protective clothing and footwear. Disposable protective clothing, masks, caps and shoe covers are disposed of in containers for inorganic infectious waste. Other protective clothing (coats,



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

shirts, trousers, caps), if not soiled, is deposited in the wardrobe or sent to the laundry room if it is soiled.

- Wash and disinfect hands
 - passing through the disinfection barrier is mandatory when exiting the building
- Procedure with the samples that require further laboratory tests
- All samples that require further tests must be packed in impervious containers. Samples for histopathological testing are fixed in 10% buffered formalin. All packaging must be washed after being closed, and, if necessary, disinfect in accordance with the pathologist's instructions. Only then, can it be taken out of the dissection hall.
- After dissection and removal of the remains of carcasses, all floors, tables and dissecting supplies, including walls, if dirty, in the dissection hall, rooms for dissection of large carcasses and poultry, and a room with a cold chamber for the remains of carcasses, must be cleaned with water under high pressure (high pressure washer), detergent and rinsed again with water. After that, all cleaned surfaces are sprayed with disinfectant using hand sprayers.
- Autopsy equipment is washed with water and detergent, then immersed in disinfectant following the manufacturer's instructions and then dried.
- At least once a year, bacteriological control of flooring, work surfaces and instruments is performed.
- If necessary, deratization and disinfection of all rooms are done.
- The records on the implementation of the above measures shall be kept (Disinfection, deratization and insectization control form, see annex).
- The floors in the clean and transition areas, and all surfaces in toilet facilities and places for washing and disinfection are washed daily; other areas are washed when necessary using appropriate disinfectant detergent and tools (rags, brushes, sponges) that are not used to maintain the contaminated area.
- Cabinets with first aid kit are mandatory in the dissection hall.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- In each of the following cases, dissection is interrupted and continued only after the remediation of the site.
- Seeking medical assistance is mandatory in case of a serious injury.

5. GENERAL REQUIREMENTS FOR FIELD CLASSES

- Students are introduced to the rules and procedures relating to conduct during field classes before embarking on field classes and on the site where classes are held.
- Prior to the period when field classes are to be held, the head of farm/facility informs the course teacher on the epizootic conditions and health status of animals encompassed by the system of implementing legislative measures.
- After arriving at the farm and getting off the bus, employees and students are required to be protected by the prescribed equipment. The head of facility introduces them to biosafety measures being implemented on the farm/facility in detail and they are required to follow oral instructions given by teachers.
- Before entering the facility in which animals are housed, students are warned not to come close to animals and touch animals or take photographs (students are not allowed to use cameras or mobile phones during classes - warning is given before classes start) without the permission of the course teacher.
- It is necessary to wear protective gloves before direct contact with an animal (conducting measurement, etc.)
- All disposable equipment used is disposed of in the designated place according to the course teacher's instructions (bins on the bus) and prescribed biosafety measures.
- Upon completion of field classes, students are given oral instructions on the procedures relating to washing of clothes and shoes and washing and disinfecting hands.
- Regarding direct contact with an animal while conducting field classes, staff and students are given oral instructions relating to exercises that are carried out on animals which are assumed to be healthy due to the fact that they are encompassed by implementing legal measures to protect health. They are also warned that individual animals can be infected without visible symptoms of disease and that, therefore, they should strictly observe the stated written and oral instructions so that risk of possible exposure to biological agents is reduced to a minimum.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- When conducting professional activities, animals should be approached in the presence of the animal's owner or farm manager. The course teacher issues oral instructions to students on how to approach animals.
- In case of an accident, act in accordance with the course teacher's oral instructions and contact the course leader and Head of the Department/Clinic, who shall consult the Dean of the Faculty of Veterinary Medicine with regards to the further procedures.

6. GENERAL REQUIREMENTS FOR STABLES

- When entering a stable, each employee/student must be appropriately dressed:
 - orderlies –orderly's work clothes and closed footwear with a protective metal toe-cap
 - veterinarians –veterinary uniforms (coats or work clothes) and closed footwear with a protective metal toe-cap
 - students –veterinary uniforms (coats or work clothes) and closed footwear with a protective metal toe-cap
- Protective clothing and footwear that are used when working with large animals in the stable must not be used when working with small animals.
- Protective clothing and footwear must not be used outside the workplace.
- Before leaving the stable, or going to another stable, shoes should be washed and disinfected.
- When having contact with an animal or animal excretions, each worker/student must have disposable protective gloves and, depending on the nature of the disease, protective masks and safety goggles.
- When working with patients suspected of contagious disease or zoonosis, it is mandatory to wear protective gloves and a mask.
- When handling infectious material (blood, body fluids) that are susceptible to spillage and splashing, it is mandatory to wear protective gloves, mask and goggles.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- When performing rectal palpation, it is necessary to have a protective apron and use disposable gloves for rectal examination.
- All clinical procedures must be performed in the booth, except of those that cannot be performed in the booth. When doing so, an animal should be calmed in an appropriate manner to eliminate any risk of injuring a worker (sedation/anaesthesia).
- Eating and drinking are prohibited in the stable area.

7. GENERAL REQUIREMENTS FOR OUTPATIENT AND IN-PATIENT CLINICS

- When entering a clinic, each employee/student must be appropriately dressed:
 - orderlies – orderly's work clothes and closed footwear with a protective metal toe-cap
 - veterinarians – veterinary uniforms (coats or work clothes) and closed footwear with a protective metal toe-cap
 - students – veterinary uniforms (coats or work clothes) and closed footwear with a protective metal toe-cap.
- When working with a patient in a clinic, staff and students must wear protective clothing (coats or blouses and trousers, gowns) and protective footwear (footwear worn only in the workplace, clogs or shoe covers).
- Protective clothing and footwear that are used when working with small animals in the outpatient clinic must not be used when working with large animals.
- Protective clothing and footwear must not be used outside the workplace.
- When working with patients suspected of contagious disease or zoonosis, it is mandatory to wear protective gloves and a mask.
- When handling infectious material (blood, body fluids) that are susceptible to spillage and splashing, it is mandatory to wear protective gloves, mask and goggles.
- When having contact with an animal or animal excretions, each worker must have protective gloves and, depending on the nature of the disease, protective mask and safety goggles.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- For additional safety, use muzzles for all potentially dangerous animals or use sedation/anaesthesia.
- Owners are not allowed in in-patients clinics of most clinics and it is prohibited to leave toys, food and other personal items belonging to animals in a cage.
- When working in the in-patient clinic, it is necessary to use the cage designation bearing additional information, such as "suspected of infectious disease", "animal bites", "collect faeces", "nothing on mouth", etc.
- Every day, remove all animal excreta from the in-patient clinic at least three times a day.
- Eating and drinking are prohibited on the clinic premises.
- Each employee/student must be aware of the potential hazards associated with work with needles, venous pathways and butterfly needles.
- A worker must wear disposable protective gloves when handling sharp objects.
- A veterinarian has the exclusive right to prepare drugs to be used in therapy.
- All injectable medications are considered to be a one-time applicable, unless stated otherwise in the manufacturer's original instructions.
- Reusable drugs must be stored following the manufacturer's instructions. Before using a drug, a veterinarian is required to check its expiry date.
- All drugs are stored in the medicine cabinet, or in the appropriate drawers in outpatient clinics.
- Narcotics and means of euthanasia are in a locked safe or drawer.
- A worker/student must be aware that all drugs used in veterinary medicine are potentially toxic substances for a man; disposable protective gloves and, if necessary, protective mask and safety goggles must be used when working with them.
- Special caution is required when working with cytostatic drugs that must be handled with in a fume hood, using disposable protective gloves, mask and goggles.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- After use, all medications must be disposed of safely in a designated container, and cytostatic medications must be disposed of in a special container used exclusively for cytostatic medications.
- It is required to conduct thorough cleaning and disinfection of cages before admitting a new patient (senior doctor is required to put the label 'TO DISINFECT' on the cage after an animal is released).
- Cleaning and disinfection of the cages and pens for animals are carried out using disposable protective gloves, protective masks and goggles.
- Disinfection and sterilization of instruments should be carried out after work on each patient.
- Washing hands is mandatory
 - before and after working with a patient
 - after being in contact with blood, body fluids, secretions and other contaminated substances, regardless of whether a person is wearing protective gloves or not
 - immediately after removing gloves
 - after cleaning and washing cages, tables, floors
 - before each break, before leaving the workplace
 - before and after going to the bathroom
- Hands are washed in this manner:
 - wet hands and forearms with warm water
 - pour liquid soap into hand (3-5 ml or press the pump once or twice)
 - rub each side of the hands, between fingers, under the ring, under fingernails and above the wrist for 10-30 seconds
 - rinse well with warm water
 - dry hands with paper towels or hot-air dryer



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- pour a small amount of disinfectant into a hand (finger tip)
- rub disinfectant on finger tips, between fingers and the rest of the hand and repeat the procedure on the other hand
- rub hands briskly until disinfectant is dry
- The staff and students of the Faculty who are in contact with biological agents must keep their nails short and wear as little jewellery on their hands to reduce the possibility of contamination and allow for better hand washing.

8. GENERAL AND SPECIAL REQUIREMENTS FOR OPERATING ROOMS

- When entering an operating room, each employee/student must be appropriately dressed:
 - orderlies – orderly's work clothes and closed footwear with a protective metal toe-cap
 - veterinarians – veterinary uniforms (coats or work clothes) and closed footwear with a protective metal toe-cap
 - students – veterinary uniforms (coats or work clothes) and closed footwear with a protective metal toe-cap.
- Each employee must be aware of the potential hazards associated with work with needles, venous pathways and butterfly needles.
- When handling sharp objects, a worker must wear disposable protective gloves and secure needles/ venous pathways/butterfly needles with a protective cap before disposing of them into a designated container.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

**9. SPECIAL REQUIREMENTS OF DEPARTMENTS AND CLINICS OF THE FACULTY OF
VETERINARY MEDICINE**

I. Department of Anatomy, Histology and Embryology

1. WORKPLACE – dissection halls and room for exenteration

Dissection halls – safety level – 1

Room for exenteration – safety level – 2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- It is mandatory to use work and personal protective equipment at work: coats, clogs, protective gloves, masks, safety goggles.
- Application of sanitary protection measures is mandatory: eating and drinking are not permitted, availability of disinfectants and the like.
- It is mandatory to clean and disinfect instruments after being used.

Student and employee protection procedure

- Put on a work coat before entering the laboratory and practicum and take it off after exiting (it is not worn in other rooms).
- Entering dissection halls and room for exenteration is allowed only if accompanied by a person in charge.
- Before leaving dissection halls and room for exenteration, it is mandatory to wash and disinfect hands.
- It is required to use appropriate and marked containers for biological waste; disposal of waste in a safe manner is mandatory.
- Employees are required to draw attention to the unnecessary exposure to a hazard when there is a possibility of replacing it with less dangerous one or reducing the time of exposure to hazards.
- After completion of the anatomical dissection, it is required to cover anatomical preparations to prevent drying and damaging of preparations.

Note

- Handle sharp objects, needles, scalpels, etc. with increased caution.

November 5th 2013.	Version 1	Page 25 od 62
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GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

2. WORKPLACE– laboratories in the Department

Histological laboratory – safety level - 1

Molecular laboratory – safety level - 1

2. PROCEDURE DESCRIPTION

Supplies and equipment

- It is mandatory to use work and personal protective equipment at work: coats, clogs, protective gloves, masks, safety goggles.
- Application of sanitary protection measures is mandatory: eating and drinking are not permitted, availability of disinfectants and the like.
- It is mandatory to clean and disinfect instruments after being used.

Note

- Eating and drinking non-alcoholic beverages are permitted only in designated places and at designated times.
- Smoking is not allowed.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

II. Department of Biology

1. WORKPLACE– Student practicum and 4 laboratories in the Department

Biological safety level 1

Biological safety level 2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Work coat – white, knee-length and long-sleeved, clean, with all functioning buttons.
- Protective gloves – disposable, used when working with native biological material.
- Protective mask – worn when working with living organisms and potentially infectious material.

Student and employee protection procedure

- Put on a work coat before entering the laboratory and is take it off after exiting (it is not worn in other rooms).
- Wash hands with soap before leaving the laboratory.
- Disposable laboratory supplies that were in contact with biological material are disposed of in the bins for infectious waste.
- If a person who is not an employee has access to the laboratory, s/he must constantly be under the supervision of a professional, an employee of the said laboratory.

Note

- Handle sharp objects, needles, scalpels, etc. with increased caution.

2. WORKPLACE – field work (Nature park Maksimir, Nature park Lonjsko polje, National park Risnjak)

Biological safety level 1

Biological safety level 2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Personal clothing:
 - appropriate for working in the open air in the given weather conditions
 - rain protection
- Field footwear:
 - Waterproof shoes or rubber boots
- Protection against mosquitoes and ticks (depending on the season).



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

Student and employee protection procedure (use of supplies and equipment and code of conduct)

- Field footwear is taken off (changed) before getting on the bus.

Note

- Eating and drinking non-alcoholic beverages are permitted only in designated places and at designated times.
- Smoking is not allowed.
- It is not allowed to leave the group and go outside agreed boundaries.
- Approaching free animals on pasture is not allowed.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

III. Department of Physiology and Radiobiology

1. WORKPLACE – Department practicums

Practicum/laboratory – safety level - 2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Persons entering the laboratory and practicum must wear a long, buttoned-up coat with long sleeves and closed footwear. Long hair must be tied up. Access shall not be granted to students wearing inappropriate clothes and footwear.
- Protective gloves and goggles are required when working with chemicals.
- Chemicals must not get into contact with eyes, body orifices and skin.
- Only the equipment and chemicals for which the instructor has given permission can be touched.

Note

- Bringing food, drinks and things that are not necessary for the work in the practicum or laboratory is prohibited.
- It is required to read all warnings and instructions before starting working.
- Caution and concentration are required when working.
- While working, possible flaws, damage, accidents, injuries or unforeseen situations should be reported to the instructor.
- It is essential to wash hands, and, if necessary, use a disinfectant.
- After completion of work, it is mandatory to clean the workplace and wash supplies and hands.
- When the work is performed, the instructor's signature on the programme conducted is required.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

IV. Department of Pathophysiology

1. WORKPLACE – Department practicums

Practicum/laboratory – safety level - 2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Students can enter the laboratory only when wearing appropriate clothes and footwear (long, buttoned-up white coat, closed footwear, long hair tied up), and are required to have the Exercise manual and a notebook for exercises. Otherwise, students will not be allowed to enter.
- Wearing protective gloves and goggles, if necessary, is mandatory when working with chemicals and biological material.
- Chemicals must be kept in bottles that are properly labelled.
- Chemicals must not get into contact with eyes, body orifices and skin.
- Only the equipment and chemicals for which the instructor has given permission can be touched.

Note

- Unauthorized persons are not allowed into the laboratory.
- Bringing food and drinks, eating and drinking are prohibited.
- It is required to read all warnings and instructions before commencing work.
- Caution, concentration, order and silence are required when working.
- While working, possible flaws, damage, accidents, injuries or unforeseen situations should be reported to the instructor.
- It is essential to wash hands, and, if necessary, use a disinfectant.
- After completion of work, it is mandatory to clean the workplace and wash supplies and hands.
- When the work is performed, the instructor's signature on the programme conducted is required.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

V. Department of Animal Hygiene, Behaviour and Welfare

1. WORKPLACE

Chemical and microbiological laboratories of the Department of Animal Hygiene, Behaviour and Welfare

Safety level - 2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective coat
- Notebook and pen

Student and employee protection procedure

- As stated in the General part of these Guidelines.

2. WORKPLACE

Field work on the farms while conducting «Animal Hygiene and Breeding» and «Herd Health» exercises.

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Devices for determining microclimate parameters
- notebook and pen
- protective coat
- rubber boots or shoe covers

Student and employee protection procedure

- As stated in the General part of these Guidelines.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

VI. Department of Game Biology, Pathology and Breeding

1. WORKPLACE

Hunting-training grounds, state open hunting ground no. I/3 "ČRNOVŠČAK"

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Rubber boots or work shoes and shoe covers
- Protective coat and, if necessary, an apron
- Protective gloves, disposable
- Face masks for particularly hazardous conditions

Student and employee protection procedure

- Wear protective gloves, boots and aprons when processing big game (roe deer, wild boar- evisceration, skinning, removing the head and metapodials).
- If students and persons who are not employees of the Faculty participate in the game processing procedure, they must adhere to the principles of safety at work.
- The same protection is required when finding the carcass of the said game which is to be transported to the Faculty of Veterinary Medicine in accordance with the provisions regarding the transport of carcasses or which is to be safely disposed of as decided by the hunting ground professional service.
- Wearing protective gloves when processing small poultry game is mandatory.
- Protective gloves and face masks are required while eviscerating a hare. Face masks are also required when finding carcasses which are treated in the same way as carcasses under point c.
- In case of killing or finding a dead fox and other carnivores, it is necessary to protect hands by protective gloves. Take the game using a plastic bag and pull the bag over the carcass without touching it.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Carnivores must not be skinned until receiving the rabies test results. If the test result is positive, carcasses are safely disposed of in accordance with the provisions of the Act.
- After each handling of the shot game or the carcass, it is required to wash hands, regardless of protective gloves used. Hands are washed in accordance with the instructions for washing and hand disinfection in the clinics of the Faculty of Veterinary Medicine.
- It is required to wash and disinfect wounds in case of an injury by sharp objects. In case of a serious injury or suspect health status of the game, outpatient treatment is required.
- Staff and students of the Faculty of Veterinary Medicine are required to be vaccinated against rabies, and the staff, if estimated, is to be vaccinated against tick-borne encephalitis.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

VI. Department of Biology and Pathology of Fish and Bees

1. WORKPLACE

Department's laboratory – Biological safety level - 2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective coat and, if necessary, an apron
- Protective gloves, disposable
- Face masks for particularly hazardous conditions

Student and employee protection procedure

- As stated in the General part of these Guidelines.

2. WORKPLACE

Field work- **APIARY**

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Beekeeping clothes or protective coat covering $\frac{3}{4}$ of the body
- long trousers
- protective hat with veil
- beekeeping protective gloves
- closed shoes
- bee smoker

Student and employee protection procedure

- Before entering the apiary area, it is required to put on beekeeping clothes or specified protective clothing so that the protective hat veil is tucked under the collar of the coat, which should be buttoned-up. Beekeeping gloves should be worn over the coat sleeves.
- The bee smoker, that has already been prepared, is used for the purpose of appeasing bees when opening the hive.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Before starting work, the expert provides basic guidance on behaviour in the apiary, given the specific way of life of bee colonies.
- Before starting work, all persons who are allergic to bee stings are required to inform the expert. They can start working in the apiary only at their own risk as evidenced by their signature.
- Experts who implement technological and sanitary measures and administer drugs and other preparations are required to wear specified protective clothing and footwear.

3. WORKPLACE

Field work- **FISH POND**

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective coat covering $\frac{3}{4}$ of the body (if necessary)
- protective rubber boots (if necessary)
- disposable protective gloves (if necessary)

Student and employee protection procedure

- Act in accordance with the expert's instructions and, if necessary, wear protective clothing before entering recirculating systems, fish hatcheries or other closed systems for fish production and processing.
- Use of protective clothing is **mandatory** when performing clinical examination, dissection and sampling.
- Experts who implement technological and sanitary measures and administer drugs and other preparations are required, if necessary, to wear specified protective clothing and footwear.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

VII. Department of Animal Nutrition and Dietetics

1. WORKPLACE

Field classes conducted as part of the courses: „General Nutrition“ and „Applied Nutrition“

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Long-sleeved protective coat covering 2/3 of the body (knee-length).
- Rubber boots, preferably padded, because of weather conditions (coverage up to mid-calf)
- Latex gloves, disposable.
- Disposable shoe covers.
- Sufficient amount of liquid soap, liquid disinfectant and paper towels must be available to all persons in the vehicle used for field classes.
- If necessary, clear plastic protective goggles with the course teacher's instructions.
- Work leather gloves (for course teacher if necessary).

Student and employee protection procedure

- As stated in the General part of these Guidelines.

2. WORKPLACE

Chemistry laboratories of the Department – safety level -1

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective coat
- Notebook and pen

Student and employee protection procedure

- As stated in the General part of these Guidelines.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

VII. Department of Animal Husbandry

1. WORKPLACE

Field classes as part of the courses: „Animal breeds characteristics“ (1 field) and „Animal breeding and production“ (4 fields)

Places where teaching/ work is performed:

1. Family farm Džakula, Sjeverovac 23, Bl. Kut, 44000 Sisak
2. Farm Vukovina Ltd., 10419 Vukovina
3. College of Agriculture Križevci and Agricultural High School Križevci, Milislava Demerca p.p.1, 48260 Križevci
4. Faculty of Agriculture Zagreb, Svetošimunska 25, 10000 Zagreb – Grassland Centre (Sljeme, Charolais beef farm)
5. Family farm Džakula, Sjeverovac 23, Bl. Kut, 44000 Sisak
6. Croatian livestock reproduction centre Ltd., Potočka 20, 48260 Križevci
7. Farm Dubravica, d.d.Pavla Stoosa 109, 10293 Dubravica

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Long-sleeved protective coat covering 2/3 of the body (knee-length).
- Rubber boots, preferably padded, because of weather conditions (coverage up to mid-calf)
- Latex gloves, disposable.
- Disposable shoe covers.
- Sufficient amount of liquid soap, liquid disinfectant and paper towels must be available to all persons in the vehicle used for field classes.
- If necessary, clear plastic protective goggles with the course teacher's instructions.
- Work leather gloves (for course teacher if necessary).

Student and employee protection procedure

- As stated in the General part of these Guidelines.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

2. WORKPLACE

Department's laboratories – safety level -1

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective coat
- notebook and pen

Student and employee protection procedure

- As stated in the General part of these Guidelines.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

VII. Department of Hygiene, Technology and Food Safety

1. WORKPLACE

Field slaughtering exercises (*ante mortem* and *post mortem* inspection)

2. PROCEDURE INSPECTION

Supplies and equipment

- Long-sleeved protective coat covering 2/3 of the body (knee-length)
- rubber boots

Student and employee protection procedure

- When and where students use protective clothing and footwear are in line with the slaughter facility requirements.
- The facility provides protective shoe covers and face masks for a chin which are disposed of in the waste containers after leaving the slaughterhouse.
- Students are given disposable protective caps and protective gloves before coming to the place where processing takes place or before *post mortem* inspection.
- As part of the quality system, the slaughterhouse facility introduces students to the rules of conduct in the facility, and allows or prohibits entrance to students in accordance with the completed questionnaire relating to the current health status of a student.
- Students bring protective white coats to field classes conducted at the market, meat processing plant, dairy plant, ice cream factory and honey packing facility.
- Additional protection measures are defined by SPH, and those include disposable shoe covers and caps provided by SPH as part of its quality system relating to visitors (meat processing, ice cream factory).



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

2. WORKPLACE

Laboratory of the Department of Hygiene, Technology and Food Safety – safety level -2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective coat
- Notebook and pen

Student and employee protection procedure

- At the beginning of exercises, the instructor provides guidance, relevant for work on that working day, to students.
- Keeping a work log is required while working in the laboratory. The log is kept as directed by the instructor.
- Running uncontrolled experiments or experiments that are not part of the exercise curriculum is prohibited.

Preparation of culture media:

- Wear protective masks for mouth and nose (eg.surgical) to protect from inhaling potentially harmful substances (indicated on individual media) when weighing powdered microbiological media.
- Use disposable gloves when weighing and preparing media.
- Pay attention to possible injuries caused by flame and possible explosion while dissolving, i.e. when working with gas (do not close containers with media that are heated/dissolved, maintain the water level in containers).
- Follow the instructions that are posted on the wall next to the device when sterilizing media in autoclave. Monitor the temperature and pressure of autoclave under the supervision of the teacher/instructor.
- Certain additional substances (so-called supplements), which are mainly chemical compounds with different properties and potential toxicity, are added to most culture media.
- Check whether there is a warning on the toxicity and precautions on each bottle.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Use media supplements according to manufacturer's instructions, and additional protective measures may include working in the safety cabinet, wearing a protective mask for mouth and nose, gloves and safety goggles.

Microbiological testing of food:

- Samples for testing are prepared near the burner so it is required to take precautionary measures against ignition, burns and the like.
- Use cotton wool soaked in alcohol to wipe supplies and surfaces of some food samples when sterilizing them.
- Use alcohol and cotton wool soaked in alcohol at an appropriate distance from the burner (10-20 cm) due to a possible (self) ignition.
- The homogenization of a sample is carried out in a mechanical homogenizer. Students are warned of the possibility of an injury when closing the homogenizer.
- Dilution of food samples is carried out using automatic pipettors or pipettes (pipette bulb) which ensures student protection against oral intake of biological agents in food (mouth pipetting).
- Working with pathogenic microorganisms is carried out in a safety cabinet during which the student uses available instructions on the device.
- Use gloves in the cabinet.
- After completing work in the cabinet, UV light is turned on for the period of 15-30 minutes during which students or employees must not be present in the laboratory.

Chemical agents:

- Sulfuric acid (90-91%) according to Gerber.
 - Potential hazard
 - May be corrosive to metals.
 - Causes severe skin burns and eye damage.
 - Irritation and corrosion.
 - Risk of blindness.
 - Precautions:
 - Wear protective gloves, protective clothing, eye and face protection.
 - In case of ingestion: rinse mouth, drink up to two glasses of water, DO NOT induce vomiting, call a doctor.
 - In case it gets into the eyes: rinse cautiously with water for several minutes, then remove contact lenses (if any), then rinse again with water.
 - In case of exposure and if you feel unwell: consult a doctor.
 - After inhalation: go out into the fresh air, call a doctor.
 - After it gets into contact with skin: rinse the area with plenty of water, immediately remove contaminated clothes and call the doctor.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Isoamyl alcohol
 - Potential hazard:
 - Flammable liquid and vapour.
 - Harmful if inhaled.
 - May cause respiratory irritation.
 - Repeated exposure may cause skin dryness or cracking.
 - Symptoms of poisoning: irritation and corrosion, irritant effects, cough, shortness of breath, skin inflammation, dizziness, fainting, headache, drowsiness.
 - Precautions:
 - Keep away from heat, sparks, open flame and hot surfaces (no smoking).
 - After inhalation: go out into the fresh air.
 - If a person stops breathing: perform mouth-to-mouth resuscitation. Call a doctor immediately.
 - After it gets into contact with skin: rinse the area with plenty of water, immediately remove contaminated clothes.
 - After it gets into contact with the eyes: rinse out with plenty of water with the eyelids held wide open.
 - After ingestion: caution if a victim vomits. Risk of aspiration! Keep airways free. Call a doctor.
- Sodium Hydroxide (NaOH)
 - Potential hazard:
 - May be corrosive to metals.
 - Causes severe skin burns and eye damage. Corrosive.
 - Wear protective gloves, clothing, eye protection, face protection.
 - Precautions:
 - In case of ingestion: rinse mouth, give a person to drink up to two glasses of water, DO NOT induce vomiting.
 - In case it gets into the eyes: rinse cautiously with water for several minutes, remove contact lenses (if any), continue to rinse with water.
 - In case of exposure, and if you feel unwell: call a doctor.
 - After inhalation: go out into the fresh air.
 - After it gets into contact with skin: rinse out with plenty of water, remove contaminated clothes, call a doctor.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

VII. Department of Microbiology and Infectious Diseases with Clinic

1. WORKPLACE

Laboratories of the Department – safety level -2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective gown
- Notebook and pen

Student and employee protection procedure

- As stated in the General part of these Guidelines.

2. WORKPLACE

Field exercises within Mobile Clinic

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Long-sleeved protective coat covering 2/3 of the body (knee-length)
- rubber boots



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

IX. Department of Poultry Diseases with Clinic

1. WORKPLACE

Field classes as part of the courses: 'Poultry Diseases' and 'Diseases of Pet Birds, Exotic and Laboratory Animals'

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Long-sleeved protective coat covering 2/3 of the body (knee-length).
- Rubber boots, preferably padded, because of weather conditions (coverage up to mid-calf)
- Latex gloves, disposable.
- Disposable shoe covers.
- Sufficient amount of liquid soap, liquid disinfectant and paper towels must be available to all persons in the vehicle used for field classes.
- If necessary, clear plastic safety goggles with the course teacher's instructions.

Student and employee protection procedure

- As stated in the General part of these Guidelines.

2. WORKPLACE

CHLAMLab – safety level – 2

Virology laboratory – safety level – 2

Bacteriology laboratory – safety level – 2

Molecular laboratory – safety level – 2

Outpatient clinic for birds and exotic pets – safety level – 2

Serological laboratory – safety level – 2



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective coat
- Notebook and pen

Student and employee protection procedure

- As stated in the General part of these Guidelines.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

X. Department of Veterinary Epidemiology and Economics

1. WORKPLACE

Field classes

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Long-sleeved protective coat covering 2/3 of the body (knee-length)
- rubber boots
- latex gloves, disposable
- disposable shoe covers
- apron if necessary
- face masks if necessary
- Sufficient amount of liquid soap, liquid disinfectant and paper towels must be available to all persons in the vehicle used for field classes.
- If necessary, clear plastic safety goggles with the course teacher's instructions.

Student and employee protection procedure

- As stated in the General part of these Guidelines.

2. WORKPLACE

Laboratories and other Faculty facilities

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective coat
- Notebook and pen

Student and employee protection procedure

- As stated in the General part of these Guidelines.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

XI. Clinic for Surgery, Orthopaedics and Ophthalmology

1. WORKPLACE

Outpatient clinic

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective work clothes (coats or work blouses and trousers, gowns)
- protective footwear (footwear worn only in the workplace, clogs or shoe covers)
- protective gloves
- masks and caps
- safety goggles

Student and employee protection procedure

- As stated in the General part of these Guidelines.

2. WORKPLACE

Clinic's stable

2. PROCEDURE DESCRIPTION

Supplies and equipment (list)

- Protective work clothes (coats or work blouses and trousers, overalls, apron)
- protective footwear (heavy footwear or boots with a protective metal toe-cap)
- protective gloves
- masks and caps
- safety goggles

Student and employee protection procedure

- As stated in the General part of these Guidelines.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

XII. Reproduction and Obstetrics Clinic

1. WORKPLACE

Outpatient clinic

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective work clothes (coats or work blouses and trousers, gowns)
- Protective footwear (footwear worn only in the workplace, clogs or shoe covers)
- protective gloves
- masks and caps
- safety goggles

Student and employee protection procedure

- As stated in the General part of these Guidelines.

2. WORKPLACE

Clinic's stable

2. PROCEDURE DESCRIPTION

Supplies and equipment (list)

- Protective work clothes (coats or work blouses and trousers, overalls, apron)
- protective footwear (heavy footwear or boots with a protective metal toe-cap)
- protective gloves
- masks and caps
- safety goggles

Student and employee protection procedure

- As stated in the General part of these Guidelines.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

XII. Department of Veterinary Pathology

1. WORKPLACE

Dissection hall

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective work clothes (coats or work blouses and trousers, gowns)
- Protective footwear (footwear worn only in the workplace, clogs or shoe covers)
- protective gloves
- masks and caps
- safety goggles
- protective apron

Student and employee protection procedure

Critical points in dissection hall of the Department of Veterinary Pathology

CRITICAL POINT	PREVENTION MEASURES
Entering the dissection hall	Unaccompanied entry is allowed only to the employees of the Department of Veterinary Pathology (DVP). Other persons may enter only if accompanied by employees of DVP. Before entering, all visitors are required to sign in the List of visitors (Visitor records form, see annex)
Risk of human infection in the dissection hall	Only trained employees of DVP are allowed to work independently in the dissection hall. Before entering the dissection hall, all persons must use personal protective equipment. Before starting practical dissection exercises, all students must become familiar with the protective equipment, conditions and ways the work is performed in the Dissection hall. Needles and other sharp objects are disposed of in designated containers.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

	<p>Protective equipment, supplies and work surfaces are regularly cleaned and disinfected (List and ways of using disinfectants, see annex).</p> <p>If necessary, perform disinsectization and deratization.</p> <p>DVP employees and students must be vaccinated against rabies.</p> <p>Records on disinfection and disinfection control are kept (Disinfection control, deratization and disinsectization form, see annex).</p>	
Risk of spread of infectious diseases agents	<p>Use appropriate protective equipment when working in the dissection hall.</p> <p>Needles and other sharp objects are disposed of in designated containers.</p> <p>Protective equipment, supplies and work surfaces are regularly cleaned and disinfected.</p> <p>If necessary, perform disinsectization and deratization.</p> <p>When leaving the dissection hall, all protective equipment is washed and disinfected in a manner prescribed, disposable protective equipment is disposed of as inorganic infectious waste, and reusable clothing is washed if needed or, if it is not soiled, it is deposited in the wardrobe.</p> <p>Passing through the disinfection barrier is required when leaving the dissection hall.</p> <p>The samples requiring additional laboratory tests are taken and transported in the prescribed manner that prevents the spread of infectious agents and cross-contamination.</p> <p>Contaminated inorganic waste is collected and deposited of in the prescribed manner that prevents the spread of infectious agents.</p> <p>Storage of remains of carcasses and their disposal are regulated so as to prevent the spread of infectious diseases sample.</p>	
Keeping required records	All documentation and records on work in the	
November 5th 2013.	Version 1	Page 50 od 62



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

	dissection hall are stored in DVP.
Responsible person	The head of DVP is the responsible person.

List of rooms in the dissection building

In the dissection hall, the following rooms are separated, and divided into:

a) clean area:

- entrance hall for the staff and students with the disinfection barrier
- toilet for students
- room for orderlies
- changing room for students
- changing rooms with a toilet and showers for the staff

b) transition area:

- room where students get ready to enter the dissection hall
- room where the staff get ready to enter the dissection hall
- room for supplies, equipment and freezer for carcasses of small animals

c) contaminated area:

- dissection hall with the entrance for staff, entrance for students and a separate entrance for carcasses
- Room for dissection of large animals with the entrance for carcasses, cold chamber for carcasses and freezer for carcasses of small animals
- Poultry dissection room
- room with a cold chamber for storing the remains of carcasses after dissection and entrance for loading containers with the remains of carcasses
- In the dissection hall, there is a space for washing and disinfecting aprons and boots with a container used for immersing aprons in disinfectant and container for immersing dissecting supplies in disinfectant.
- In the dissection hall, there are four autopsy tables, 3 of which are equipped with a suction ventilation system. Also, there is a ventilation and air- conditioning system in the whole dissection hall.
- The windows in the contaminated area have safety nets to prevent insects from entering the area.
- There are sinks for washing and disinfecting hands in each room where preparations for the entry into the dissection hall take place.
- The dissection hall is entered through preparation rooms for the staff and students, room for supplies and room for dissection of large animals. There is a disinfection barrier at each entrance.
- Pass through the disinfection barrier when leaving the said rooms after washing boots which are then taken off or taking off protective shoe covers.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Disinfection barriers are filled up with disinfectant at least twice a week. They are cleaned once a week and the total disinfectant dosage is changed, of which records are kept.

The process of admitting carcasses and disposing of the remains of carcasses, infectious organic and inorganic waste

- Carcasses enter the dissection hall through a separate entrance (contaminated area).
- Only the staff of the Department of Veterinary Pathology has the access to the room where carcasses are admitted.
- Carcasses are kept in a cold chamber (if the size of the animal allows it) until the dissection. Technical staff of DVP stores carcasses in a cold chamber.
- Carcasses can also be stored in the freezer, which is situated next to a cold chamber or in a room for supplies (transition area). In case of freezing, carcasses must be kept in impervious containers.
- All biological remains left after dissection are stored in a special water-resistant and impervious containers that are kept in a cold chamber in the room for storing the remains of carcasses.
- The remains of carcasses are transported, if needed, to the rendering plant Agroproteinka d.d. in Sesvetski Kraljevec for safe disposal, and transport is organized by an authorized company.
- Documents on the disposal of carcasses are kept in the archives of the DVP.
- In the event that the owner of a carcass organizes safe disposal himself, the carcass is delivered in an impervious container to the employee of an authorized company which issues documents on safe disposal (cremation) that are stored in the archives of DVP.
- Infectious inorganic waste from all rooms is stored in designated containers which are disposed of by an authorized company, of which records are kept and stored in DVP.
- All liquid waste is collected by sewage system and then disposed of in tanks for treatment before being discharged into the city sewer network.

Note

In case of accidents:

- Torn glove: remove gloves; wash hands with soap; wash hand with disinfectant; dry hands; put on new gloves.
- Contamination of mucous membrane (eye, mouth, nose): rinse mucous membrane with large amount of running water using shower to rinse mucosa.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Injuries (cuts, stab wounds): remove gloves; wash hands with soap; wash hands with disinfectant; wash the injured part of the body with water and disinfect the injury; stop bleeding.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

XIII. Department of Radiology, Ultrasound Diagnostics and Physical Therapy

1. WORKPLACE

Radiological diagnostics 1 (stationary radiological device)

Radiological diagnostics 2 (diascopic device, ultrasound device)

Physical therapy room

2. 2. PROCEDURE DESCRIPTION

Protective supplies and equipment

- Veterinary uniform (coat or work clothes and work footwear)
- Orderly's uniform (coat or work clothes and work footwear)
- disposable protective gloves
- disinfectants

Equipment for protection against ionizing radiation:

- protective aprons
- protective gloves

Student and employee protection procedure

- Each employee entering the rooms for radiological and ultrasound diagnostics and physical therapy must be appropriately dressed (see General part).
- Each employee must wear protective gloves when having contact with an animal or animal excreta. For additional safety, use muzzles for all potentially dangerous animals or use sedation/anaesthesia.
- Technicians, orderlies and all other persons helping with radiological imaging (clients, students) must wear a protective apron and gloves. Pregnant women and persons under 18 years of age are not allowed in the radiology room.
- After each diagnostic imaging, work surfaces must be cleaned and, if necessary, disinfected.
- Eating and drinking are not allowed in the Department's rooms for radiological and ultrasound diagnostics and physical therapy.

Working with drugs and contrast media

November 5th 2013.	Version 1	Page 54 od 62
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GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Preparation of drugs and contrast media for use in diagnostics and therapy is the task performed exclusively by veterinarians.
- All injectable preparations are considered to be one-time applicable, unless stated otherwise in the manufacturer's original instructions.
- Reusable preparations must be stored following the manufacturer's instructions.
- Before using a preparation, a veterinarian is required to check its expiry date.
- All the preparations are stored in the Department's medicine cabinet or in the appropriate drawers in clinics.
- Narcotics and means of euthanasia are in a locked safe.
- An employee must be aware that all drugs used in veterinary medicine are potentially toxic substances for a man, so it is required to use disposable protective gloves and, if necessary, a protective mask and safety glasses when working with them.
- All drugs and contrast media must be safely disposed of in a designated container.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

XIV. Internal Diseases Clinic

1. WORKPLACE

Outpatient clinic

2. PROCEDURE DESCRIPTION

Supplies and equipment

- protective work clothes (coats or work blouses and trousers, gowns)
- protective footwear (footwear worn only in the workplace, clogs or shoe covers)
- protective gloves
- masks and caps
- safety goggles

Student and employee protection procedure

- As stated in the General part of these Guidelines.

2. WORKPLACE

Clinic's stable

2. PROCEDURE DESCRIPTION

Supplies and equipment (list)

- Protective work clothes (coats or work blouses and trousers, overalls, apron)
- protective footwear (heavy footwear or boots with protective metal toe-cap)
- protective gloves
- masks and caps
- safety goggles

Student and employee protection procedure

- As stated in the General part of these Guidelines.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

XV. Mobile Clinic

1. WORKPLACE

Field classes as part of the course: **Mobile Clinic**

2. PROCEDURE DESCRIPTION

Supplies and equipment

Veterinary technician should use:

- disposable shoe covers
- latex gloves, disposable
- work clothes (coat, blouse and trousers or coveralls)
- paper caps, masks and disposable coveralls if needed
- Sufficient amount of liquid soap, liquid disinfectant and paper towels must be available to all persons in the vehicle used for field classes.
- Sprayer with a disinfectant (hand pump with a sprayer) for disinfection of footwear and vehicle's wheels when working in the area at risk from epizootics.

Veterinary technician should use:

- Rubber boots (padded because of weather conditions) or
- Work shoes and shoe covers
- Work clothes (coat, blouse and trousers or coveralls)
- latex gloves, disposable
- leather work gloves (work with rough equipment while restraining animals and functional correction of hoofs)
- paper caps, face masks and disposable paper coveralls for particularly hazardous conditions at the instruction of the course teacher.
- clear plastic safety goggles if necessary with the course teacher's instructions

Student and employee protection procedure

- While getting off the bus, and before entering the facility where field classes will be conducted, all persons who will be working with patients are required to put on work clothes, rubber boots or shoe covers.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- Wear disposable latex gloves when having direct contact with patients. Disposable protective masks, disposable protective caps, as well as other parts of protective equipment that are available on the bus (disposable protective coveralls, rubber gloves, rubber aprons and veterinary obstetric gloves) shall be used at the instruction and under the supervision of the course teacher.
- Upon completion of all classes, all disposable protective equipment shall be disposed of in a container for infectious waste. After returning from the field, a veterinary orderly shall take the container to a designated place for waste collection at the Faculty of Veterinary Medicine.
- When arriving to the field and upon completion of all classes, rubber boots are stored in the bus luggage compartment.
- After working with patients, all persons who had direct contact with animals or parts of pens are required to wash their hands with liquid soap and/or disinfectant.
- After returning from the field, all instruments and pieces of equipment that are subject to sterilization are washed and disinfected, and sterilized in a designated room within the Mobile Clinic.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

XVI. Department of Chemistry and Biochemistry

1. WORKPLACE

Biochemistry laboratory – safety level -2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective work clothes (coats or work clothes and trousers, gowns)
- Protective footwear (footwear worn only in the workplace, clogs or shoe covers)
- protective gloves
- masks and caps
- safety goggles

Student and employee protection procedure

- As stated in the General part of these Guidelines.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

XVII. Department of Parasitology and Invasive Diseases with Clinic

1. WORKPLACE - (room/s, field work)

Laboratory for parasitological diagnostics – safety level -2

Laboratory for human serological diagnostics – safety level - 2

Laboratory for animal serological diagnostics (and room for *in vitro* isolation) – biosafety level -2

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective gown (coat)
- Protective rubber or latex gloves (disposable)
- Protective rubber gloves (reusable)
- Safety goggles

Student and employee protection procedure

- when taking charge of biological material (tissue, organs, body fluids, excreta) to be tested
- when preparing biological material (tissues, organs, body fluids, excreta) to be tested
- during testing of biological material
- during clinical examination of an animal and sampling
- while using all equipment located in the laboratory
- during practical training in the practicum if "wet samples" are used (not necessary when examining permanent preparations)
- when cleaning work surfaces and laboratory equipment (micropipette, scales, microscopes, magnifying glasses, sterilizer, thermostat, digester, chamber for sterile work - hood)
- during daily disinfection of work surfaces and laboratory equipment (micropipette, scales, microscopes, magnifying glasses, sterilizer, thermostat, digester, chamber sterile work-'hood').
- **Safety goggles should be used**
 - when working with biological material that can spill or spray
 - when working in the room with UV light (*hood*)
- **Protective rubber gloves (reusable)**
 - when handling contaminated (sharp or glass) laboratory supplies (transfer, washing, disinfection)
 - when handling tools used for cleaning and washing of surfaces
 - when handling tanks with antiseptic where supplies are disposed of before being cleaned
 - when handling bins for infectious waste
 - when washing reusable gloves with liquid antiseptic soap after use
- before taking them off



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- washing hands with liquid antiseptic soap and drying them before putting gloves on
- removal and disposal of used gloves in a designated container, and washing hands with liquid antiseptic soap (use paper towels to dry hands)
- antiseptic hand disinfection after leaving the laboratory, practicum or Department (dry)
- dry antiseptic hand disinfection before and after using a toilet or kitchen

2.3. Note

- Eating and drinking and storing of food and beverages, smoking, putting in contact lenses, applying make-up, except barrier cream, are strictly prohibited in the laboratory, practicum and clinic.
- During professional-clinical work, contact with an animal and/or drug is allowed only to a student/students who have protective disposable gloves (it is not allowed to touch or examine animals or have contact with drugs without protective gloves).
- Students will be advised to be cautious and to observe protective measures if infectious/invasive material or particularly toxic substances are used during classes.
- When using a volatile liquid for cleaning laboratory optics, it is necessary to take into account to ensure a minimum evaporation of the product (closing the bottle with a cap, it is not necessary to wet cotton wool bud for each microscope but one can be used to wipe more microscopes). Used wet cotton wool buds /tissues should be disposed of in a designated container.
- An employee and a student must be aware that all drugs used in veterinary medicine are potentially toxic substances for humans and that when working with them disposable protective gloves and, if necessary, a protective mask and safety glasses must be used.
- Handling sharp objects; needles, scalpels, etc., shall be carried out with increased caution.
- When handling sharp objects, workers and students are required to wear disposable protective gloves, and secure needles with a protective cap before disposing of them into a designated container.
- In case of breaking glassware, glass shards are collected using a broom and dustpan. Do not use hands.
- Accidents involving contact with infectious material must be immediately reported to the head of laboratory or teacher who is currently conducting practical classes; s/he then estimates possible consequences of the accident and recommends further action.

The following actions in cases listed below should be taken before reporting the accident to the responsible person:

- In case of splashing of infectious material or other chemicals into the eyes, rinse the eyes for at least five minutes.



GUIDELINES ON THE PROTECTION OF WORKERS AND STUDENTS EXPOSED TO BIOLOGICAL AND
CHEMICAL AGENTS AT WORK

- In case of spill of infectious material on your hands or other body parts it is necessary to remove contaminated clothing and wash skin areas with liquid soap and/or dry them using cotton wool soaked in 70% ethanol.

2. WORKPLACE

Practicum

Parasitological- dermatological clinic

2. PROCEDURE DESCRIPTION

Supplies and equipment

- Protective work clothes (coats or work blouses and trousers, gowns)
- Protective footwear (footwear worn only in the workplace, clogs or shoe covers)
- protective gloves
- masks and caps
- safety goggles

Student and employee protection procedure

- As stated in the General part of these Guidelines.