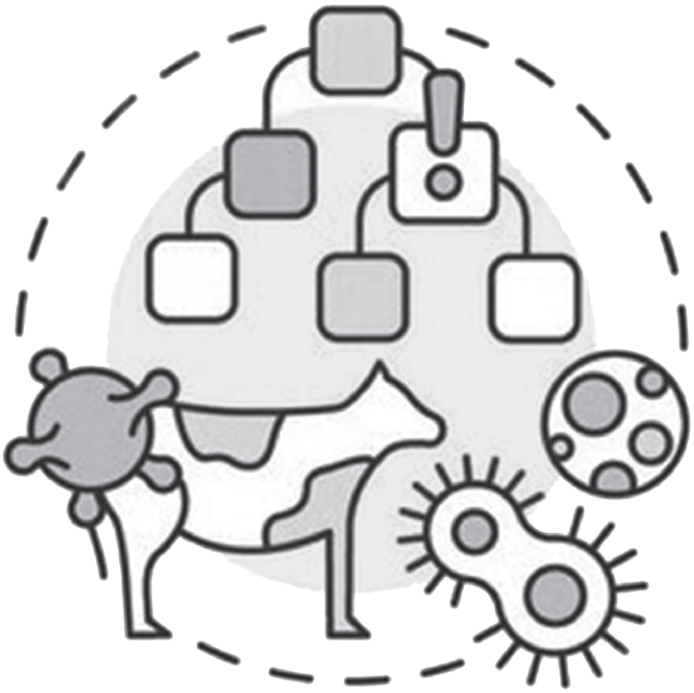
AYDIN ADNAN MENDERES UNIVERSITY

FACULTY OF VETERINARY MEDICINE

BIOSAFETY MANUAL

AYDIN - 2023



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1. INTRODUCTION

1.1. Definition

The World Health Organization has defined "Biosafety" as "conservation principles, technologies and practices put in place to prevent unintentional exposure or accidental spread of pathogens and toxins". While the World Organization for Animal Health defines "Biosafety" as "the implementation of measures that reduce the risk of transmission and spread of disease agents and the taking of effective measures by humans to reduce the risk in all activities involving domestic animals, exotic and wild birds and their products", according to the definition of the Food and Agriculture Organization, "Biosafety is a broad topic that addresses the strategy and integrated approach to risk analysis of environmental hazards related to food safety, veterinary and phytosanitary and their management".

1.2. Purpose and Scope

The purpose of Aydın Adnan Menderes University Faculty of Veterinary Medicine's Biosafety Manual is to ensure the continuity of quality education and service. In this context, it is among the primary objectives to protect hospital staff, students and patient owners from zoonotic diseases, to ensure that students receive the best education on infection prevention and control and disease monitoring methods, and to inform patient owners and other people in the community about the prevention and prevention of infectious diseases in animals and humans. In addition, it is essential to inform the students and staff about the necessary biosafety measures and to provide control during laboratory studies while carrying out education and service works. In addition to all these, it is one of the priorities of Aydın Adnan Menderes University Faculty of Veterinary Medicine's Biosafety Manual to collect, temporarily store, recycle, transport and provide the final disposal of medical wastes separately without harming public health and the environment. This manual prepared based on these purposes contains the basic biosafety principles that must be followed and applied during the education, research and service processes of the Faculty of Veterinary Medicine. Knowing and applying the basic rules in this manual by students, administrative and academic staff and patient owners will help reduce the risk of hospital-acquired infections and zoonotic diseases. The rules and principles in the biosafety manual primarily include measures to protect the health of students, staff, patient owners and visitors. In addition, in this manual, which was prepared in coordination with the Waste Management Plan, principles for public health and environmental protection were also given importance.

2. EDUCATION AND RESEARCH LABORATORIES

2.1. Educational Application Laboratories

Medical Botany, Medical Chemistry, Biochemistry I and II, Special and General Microbiology, Special Pharmacology, Toxicology, Poultry Diseases, Food Hygiene and Control, Dairy Science and Technology and Clinical Biochemistry courses are practiced in the application laboratories. The rules to be followed by the students who will participate in the applications of these courses are given below.

2.1.1. Priority Rules in the Application Laboratories

- Chemistry Laboratories should not be entered without an apron and goggles, and should be used continuously.
- Students who will enter the laboratory should have their hair tied, their aprons should be covered, and they should preferably not wear contact lenses. Since jewelry increases the contact time of the chemicals with the skin, they should be removed before starting the experiments.
- If there are open wounds, cuts, cracks, etc. on the hands, they should be covered with a bandage before starting work and gloves suitable for the work to be done should be worn.
- Food and drink should not be consumed in laboratories.
- Cell phones should not be used because volatile and flammable solvents increase the risk of batteries igniting and static electricity and solvents are at risk of igniting.
- Any material in the laboratory should not be used for non-experimental purposes.
- No distractions should be made in the laboratory. No games should be played or jokes should be made in the laboratory.
- Chemicals should not be smelled or tasted. They should never be touched with bare hands, they should be weighed and transferred with suitable material.
- Hands must be washed when leaving the laboratory.
- In the laboratory, the location of fire extinguishers and how to use them should be learned.
- The experiments should not be left without consulting the person in charge of the laboratory.

2.1.2. Rules to be Followed When Working with Chemical Substances

- Solid substances should always be taken from bottles with a clean spatula. The same spatula should not be inserted into any other material without being cleaned.
- While withdrawing liquid chemicals, a pump, pipette, etc. device should be used, never the mouth. The pipette used to pick up a solution should not be inserted into a different solution bottle.
- Bottle caps should never be placed on the table. The caps of the bottles should not be changed.
- The substances in the containers with lids should never be heated, and heating and boiling should not be done in the containers that do not bear the fire-resistant mark.
- Tongs should be used in the heating process with the test tube, and the open part of the tube should face the side where there is no one, and the heating process should be done by stirring constantly. In experiments with water bath heating, the experiment should not be left.
- Chemicals should not be mixed haphazardly.
- No container containing chemicals should be unlabeled in laboratories. No experiments should be performed with unlabeled chemicals.

- Flammable liquids should only be in the required amount in a closed container on the test bench and should be kept away from heat sources (burner flame, electric heater, etc.).
- Chemical wastes should be processed in accordance with the directives of the laboratory application supervisor.
- Inhalation of toxic vapors and gases should be avoided. It should be worked in a fume hood with acids such as sulfuric acid, nitric acid, hydrochloric acid and hydrofluoric acid, and substances containing toxic gases such as bromide, hydrogen sulfide, hydrogen cyanide and chloride. A fume hood should be used when experimenting with volatile substances such as ether, chloroform and ammonia.
- When diluting all acids and alkalis, they should always be poured over the water slowly and never vice versa.
- If mercury is spilled in any way, it should be collected with vacuum source or foam type synthetic sponges. If it is in trace amounts that cannot be collected, it should be rendered harmless by sprinkling powdered sulfur on it.
- The mercury parts or mercury residues of thermometer fractures should never be thrown into the trash or sink.
- If chemicals and/or samples are spilled into the laboratory environment, it should be cleaned immediately, and the laboratory technical staff should be notified when necessary.
- When transporting chemicals from one part of the laboratory to another, they must be transported carefully and safely. When handling chemicals, two hands should be used, one hand holding the cap tightly, the other grasping the bottom of the bottle.
- Chemical substances should never be taken out of the laboratory.
- Volatile (substances with low boiling point; ether, acetone, alcohol, etc.) and combustible materials should not be kept close to an open flame.
- All materials used during the experiment should be washed, placed next to other materials after cleaning, and the tables should be cleaned after the experiment is over.
- When working with chemicals, attention should be paid to the warning signs on them.

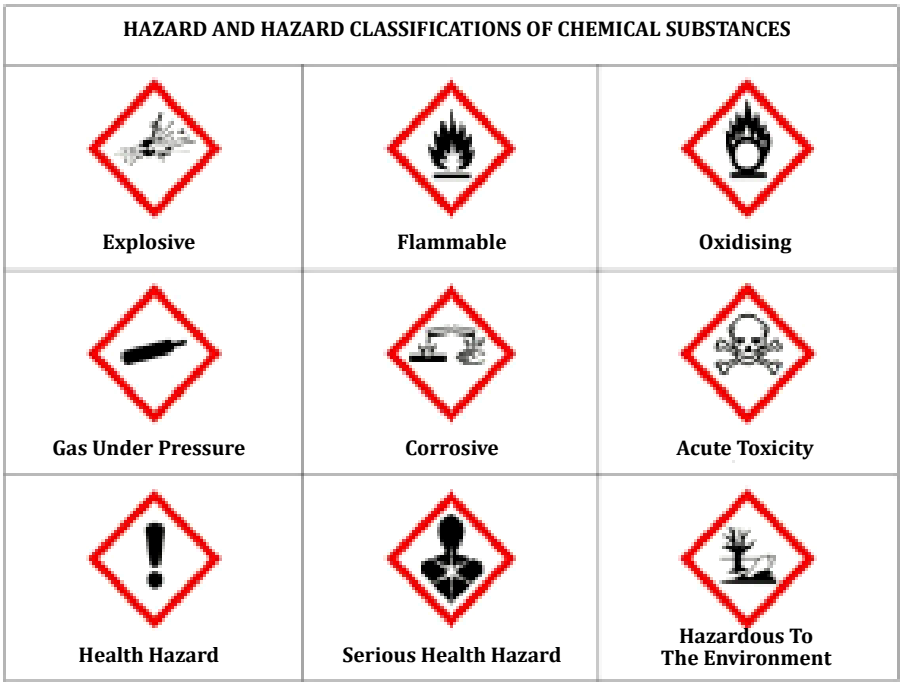

Figure 1. Chemical warning signs

2.1.3. Rules to be Followed When Using Glass Materials

- It should not be forgotten that laboratory glass materials are very thin and sensitive to breakage, and the glass materials should not be broken by applying random force.
- The labels on the chemical packaging used in the laboratory should never be torn off, blackened or deteriorated in any way. Packages with damaged labels should be reported to the technician or the relevant/responsible person as soon as possible.
- While pouring liquid from the bottles, the label side should be kept up. Otherwise, it should be known that the drops flowing from the mouth of the bottle will spoil the label and the writing on it, and it is best to wipe the last drops on the mouth of the bottle with its own cap.
- Broken glass materials should never be touched, the broken materials should be removed and disposed of in broken glass waste bins, not in the trash.

2.1.4. Rules for Device Use

- Devices whose usage is not clearly known should never be used. All devices to be used in the laboratory must be used under the control of the application course supervisor and the device usage instructions must be followed.
- Care must be taken to keep hands dry while connecting electrical appliances.
- Particular attention should be paid to experiments using a burner. Gas valves should be carefully controlled and closed immediately when not in use.
- Hair, clothes and notebooks should be kept away from the burner flame.
- Wooden tongs must be used in applications made by heating the burner.
- During heating or boiling process, care should be taken that the container is not completely closed, as explosion may occur due to pressure.
- The temperature of heating devices should not be controlled manually.
- The temperature setting should not be changed while using a stove or a bain-marie.
- The precision scale should be closed and unloaded when not in use.
- The balance of the precision scale must be checked. In a balanced water gage, the air bubble should be in the middle.
- Care should be taken not to spill chemicals on or around the precision scale. Chemical substance spilled should be cleaned with a brush.
- The ventilation system must be operated before using the fume hood.
- When working with the fume hood, chemicals should be kept at least 15 cm behind the front of the fume hood, and the glass should be kept closed as much as possible.
- When working in a fume hood with explosive or flammable chemicals, all devices must be electrically connected in advance.

2.1.5. Waste Control in Student Laboratory Practices

The wastes classified according to the Waste Management Plan of Aydın Adnan Menderes University Faculty of Veterinary Medicine, prepared in accordance with the "Medical Waste Control Regulation" dated 22.07.2005 and numbered 25883 of theMinistry of Environment, Urbanisation and Climate Change, are disposed of at the relevant place under the control of the laboratory application supervisor.

2.2. Research Laboratories

Biosafety is a definition that includes all the practices necessary to minimize or completely eliminate the exposure of health workers, other people and the environment to potentially dangerous infectious microorganisms and their genetic and toxic various components. Considering the purpose of biosafety to protect workers, other people and the environment from potentially dangerous microbiological agents, two separate protection/control mechanisms have been defined;

1. Primary protection

2. Secondary protection

Primary protection is the protection of staff and laboratory environment from infectious agents by acting in accordance with all standard or special microbiological practices of the laboratory staff. The most important element of primary protection is good laboratory practices and techniques. In this context, staff working with infectious agents or materials with a high risk of infection should be aware of the possible danger of contamination and should be trained to work safely with such material, and should be well-versed in applications and technical issues. Another element of primary protection is safety equipment. Safety equipment is designed to prevent exposure to hazardous biological materials. In this context, biosafety cabinets (BSC), which provide protection against infected droplets or aerosols formed during many diagnostic applications, are described as the most important safety equipment. Other safety equipment is gloves, aprons, shoe covers, boots, masks, face shields and safety glasses. Personal protective equipment and BSC should be used in combination depending on the agent or material being worked.

Secondary protection covers all issues related to the design of laboratory structures so that both laboratory workers and the community outside the laboratory are not exposed to infectious agents as a result of possible laboratory accidents. Laboratory supervisors are responsible for establishing the necessary structures by considering the biosafety levels and laboratory functions of the agents working in that laboratory. What needs to be done within the scope of secondary protection varies according to the risk of contamination of the agents studied in the laboratories. For example, if there is exposure to infected aerosols, additional measures should be taken within the scope of secondary protection, such as a special ventilation system, in order to prevent the leakage of this agent into the environment.

2.2.1. Determination of Risk Groups

Classification of infectious agents according to risk groups is made according to the risk of transmission (Table 1). Which risk group a microorganism will be in and at what level the study will be conducted depend on four important factors:

1. Pathogenicity of the organism.

2. Transmission way and host diversity of the organism. The current immunity level of the people living in the region, the density and movement of the host population, the presence of appropriate vectors and the effects of environmental hygiene standards are the issues that should be evaluated under this article.

- Risk Group 1; No or very little individual and environmental risk: Microorganisms without the risk of causing disease in humans and animals.
- Risk Group 2; Moderate individual risk, low societal and environmental risk: Microorganisms that can cause disease in humans and animals but do not pose a serious threat to the environment, laboratory workers, pets and public health. Laboratory studies can cause serious infections, but there are effective treatment and protection methods. In addition, the risk of spread is limited.
- Risk Group 3; High individual risk, low social and environmental risk: Although it is a serious disease

factor in humans and animals, there is generally no transmission from infected individual to another. Effective treatment and protection are possible.

- Risk Group 4; High individual, environmental and social risk: Microorganisms that cause important disease in humans and animals and can easily be transmitted directly or indirectly from one inactive individual to another, that is, they threaten public health, but there is usually no effective treatment and prevention method are included in this group.

Table 1. Classification of infectious agents according to risk groups

Risk Group 1 Agents	Risk Group 2 Agents	Risk Group 3 Agents	Risk Group 4 Agents
E. coli, S. cerevisease, Actinomyces sp.	Campylobacter sp. Plasmodium sp.	Bacteria Bartonella sp. Brucella sp. (B. abortion, B. canis, B. suis) Burkholderia (Pseudomonas) mallei, B. pseudomallei Coxiella burnetii Francisella tularensis Mycobacterium bovis Pasteurella multocida type B -"buffalo pasteurellosis" and other virulent strains Rickettsia akari, R. australis, R. canada, R. conorii, R. prowazekii, R. rickettsii, R, siberica, R. tsutsugamushi, R. typhi (R. mooseri) Yersinia pestis Fungi Coccidioides immitis Histoplasma capsulatum, H. capsulatum var. duboisii	Viruses Alphaviruses (Togaviruses) - Group A Arboviruses Chikungunya virus Semliki Forest virus St. Louis encephalitis virus Venezuelan horse encephalitis virus Arenaviruses Flexall viruses Lymphocytic choriomeningitis virus (LCM) (neurotropic strains) Bunyaviruses Hantaviruses Rift valley fever virus Coronaviruses Severe Acute Respiratory Syndrome associated coronavirus (SARS-CoV) Middle East Respiratory Failure Syndrome (MERS- CoV) Flaviviruses- Group B Arboviruses Japanese encephalitis virus West Nile virus (WNV) Yellow fever virus Orthomyxoviruses Influenza viruses 1918-1919 H1N1 (1918) H1N1), human H2N2 (1957-1968) and highly pathogenic avian influenza virus H5N1 Poxviruses Monkey pox virus Prions Spongy Brain disease virus (BSE) Retroviruses Human immunodeficiency virus (HIV) type one and 2

In the laboratory, contamination occurs in four different ways:

a. Contamination directly from the skin, eyes and mucous membranes.

b. Transmission by parenteral route or by bites of infected animals and arthropod vectors,

c. Contamination by ingesting solution liquids or rubbing contaminated hands into the mouth.

d. Airborne transmission of infected particles. The airborne transmission of the organism puts both the laboratory staff performing the study and other laboratory workers in a very risky position in terms of contamination. If working with a microorganism whose transmission route cannot be determined precisely, it should be assumed that the agent is transmitted by air and necessary precautions should be taken.

1. Availability of effective means of protection. Here, issues such as immunization with vaccines, various health measures such as hygiene of food and drink, control of animal reservoirs and arthropod vectors should be considered.

   Availability of effective treatment ways. At this point, passive immunization, post-exposure immunization and the use of antibiotics, antiviral and other chemotherapeutic agents should be evaluated.

2.2.2. Notifiable Animal Diseases

The faculty has to notify the notifiable and zoonotic animal diseases (Table 2, Table 3, Table 4) to the Provincial Directorate of Agriculture and Forestry. When the Biosafety Commission suspects or diagnoses a notifiable animal disease, it notifies the Provincial Directorate of Agriculture and Forestry. The responsible physician or the Biosafety Commission should be contacted directly.

Table 2. List of notifiable diseases (as of 18.02.2021)

Diseases of Land Animals		Diseases of Aquatic Animals
Alum (FMD)	Infectious anemia of equine	Epizootic hematopoietic necrosis
Bovine brucellosis	Equine encephalomyelitis (all	Epizootic ulcerative syndrome
Bovine tuberculosis	types, including Venezuela equine encephalomyelitis)	Viral hemorrhagic septicemia (VHS)
Rabies		White spot disease
Bluetongue	African swine fever African swine fever	Yellowhead disease
rinderpest	Classic swine fever	Taura syndrome _
Spongy brain of cattle	Vesicular disease of pigs	Infectious hematopoietic necrosis of fish (IHN) Infectious
disease (BSE)	Small hive worm (Aethina tumida)	salmon anemia
Sheep goat brucellosis	American foulbrood of bees	Infection with Perkinsus marinus
Sheep and goat plague (PPR)	Tropilaelaps mite (Tropilaelaps mite)	Microcytos mackini infection (Infection with Microcytos
Sheep goat pox	Feline spongy brain disease (FSE)	mackini)
Anthrax	Nodular exanthema of cattle (Lumpy skin)	Infection with Marteilia refringens
Scrapie	Infectious stomatitis (Vesicular stomatitis)	
Chicken plague (Avian influenza)	Rift Valley fever	Bonamia ostreae infection (Infection with Bonamia ostreae)
False Chicken Plague (Newcastle)	Infectious bovine pleuropneumonia	Bonamia exitios infection (Infection with Bonamia exitiosa)
Pullorum	(Contagiousbovine pleuropneumonia)	Koi herpes virus disease
Poultry typhoid (Chicken typhoid)	Enzootic bovine leukosis	Spring Viraemia of Carp (SVC)
Ruam (Dumb)	Epizootic hemorrhagic disease of deer	Crayfish plague
Durin (Horse syphilis)	(EHD)	Bacterial kidney disease (BKD)

Table 3. Quarantine periods and diagnosis methods in notifiable diseases

NAME OF THE DISEASE	CORD DURATION (After Final Healing or Death)	DIAGNOSIS
Rinderpest	21 days	Clinical Diagnosis +laboratory confirmation
Alum	30 days	Clinical Diagnosis + Type Determination
Sheep-Goat Pox	21 days	Clinical Diagnosis/ Laboratory Diagnosis
Sheep-Goat Plague	21 days	Laboratory Diagnosis
Anthrax	15 days	Laboratory Diagnosis
Tuberculosis	Allergic testing is done at 60-day intervals in infected establishments. If the whole flock has received a negative response in the last two tests, the cord is lifted.	Clinical Diagnosis in Slaughterhouse + Allergic Test in Business
Ruam	20 days after the 1st test, if the 2nd test is negative, the cord is removed.	Live Animal Allergy Test/Serological Test
Beef Brucellosis	Action will be taken within the scope of the "Circular on Control and Eradication of Brucella with Conjunctival Vaccine".	Laboratory Diagnosis
Sheep Brucellosis	Action will be taken within the scope of the "Circular on Control and Eradication of Brucella with Conjunctival Vaccine".	Laboratory Diagnosis
Rabies	6 months in meat-eaters, equines and cattle, and 3 months in sheep-goats, pigs and poultry.	Laboratory Diagnosis
Bluetongue	40 days	Laboratory Diagnosis
Nodular exanthema of cattle	28 days	Laboratory Diagnosis
Newcastle	21 days after agreement and disinfection in disease detection / 30 days of surveillance and control in vaccine-related positivity.	Laboratory Diagnosis
Pullorum	If the herd is negative in the last two tests performed with an interval of 21 days, the quarantine is lifted.	Laboratory Diagnosis
Chicken Typhoid	If the herd is negative in the last two tests performed with an interval of 21 days, the quarantine is lifted.	Laboratory Diagnosis

Table 4. List of zoonotic diseases

Viral Zoonoses	Bacterial Zoonoses	Parasitic Zoonoses
Zoonosis caused by norovirus	Borreliosis (Lyme Disease)	Anisakiasis
Zoonosis caused by hepatitis A virus	Botulismus	Cryptosporidiosis
Zoonosis caused by influenza viruses	Brucellosis	Cysticercosis
Zoonosis caused by arthropod-derived viruses	Camphylobacteriosis	Echinococcosis
Rabies	Leptospirosis	Toxoplasmosis
	Listeriosis	Trichinellosis
	Psittacosis	
	Salmonellosis	
	Tuberculosis	
	Vibriosis	
	Yersiniosis	
	Verocytotoxin-producing Escherichia coli (VTEC)	

2.2.3 Standard Biosafety Procedures

- Sample placement, workflow, and work on lab benches should be unidirectional. So it should be from clean areas to dirty areas.
- The risks and pests suitable for the operation at each workbench should be evaluated and the use of personal protective equipment to be used on that workbench should be determined.
- While working, hands should not be rubbed on the face, and nothing should be taken into the mouth. Food and beverages should not be stored in a laboratory environment and should never be consumed. Non-laboratory areas such as staff rest rooms should be established for their consumption and storage, and food and beverage consumption should be allowed in these environments. No items such as pens or chewing gum should be kept in the mouth.
- Make-up should not be worn in the laboratory. In addition, long nails, hair and beards that may cause contamination should not be allowed. If there are personnel with long hair, their hair should be collected, either made into a bun or put in fireproof bonnets. Shoes should be suitable for working in the laboratory, open-toed shoes should not be worn. Sharp and penetrating tools should not be carried in apron and trouser pockets.
- Plastic materials should be used as much as possible in laboratories. Because when glass materials are not noticed when broken, it may cause penetrating and cutting injuries.
- In the laboratory, there should be a cabinet with the necessary drugs and materials for first aid and first aid instructions. A washbasin should be installed at each laboratory exit so that the personnel will be a reminder and come out clean after they have finished their work in the laboratory. Eyewash stations and emergency shower system should be installed where all personnel can see it.
- The entrances and exits of the laboratories should be supervised and people other than employees should be prevented from entering the analysis areas. Personnel and animals unrelated to laboratory work should not be allowed to enter the laboratory. Children under the age of 12 should not be allowed to enter the laboratories.
- Noise should not be made in the laboratory, assuming that others are also working. It should never be joked. Major negative behaviors and bad habits should be avoided (such as overconfidence, vanity, stubbornness, impatience, carelessness and ignorance). Because such attitudes and behaviors can cause laboratory accidents.
- Any event that occurs in the laboratory should be immediately reported to the laboratory responsible.

- Do not work alone in the laboratory, especially in a locked place. Against all kinds of possibilities, the person working alone should explain the work to be done to someone else in advance and should constantly inform.
- Bags, coats, cardigans, coats and unnecessary materials should not be brought to the laboratory. When transferring liquid from bottles containing microorganisms, the label side should be kept up. Otherwise, the drops flowing from the mouth of the bottle may distort the label and the writing on it, as well as contaminate the label and cause microorganisms to aerosolize and scatter around.
- In the event that cultures are spilled on the floor or table, or culture containers are broken, the situation should be reported to the laboratory manager immediately, and the spilled culture should be immediately covered with an appropriate disinfectant solution (for example, 10% hypochlorite solution) for 30 minutes and then cleaned. A written procedure for cleaning up spills should be developed and followed. Especially in such accidents, cleaning staff should not be allowed to intervene. It should be preferred that the personnel who are trained on this subject perform decontamination.
- Materials such as tube, petri dish, tissue culture flask containing culture should not be left open on the table, tubes should not be carried in apron pockets, and should not be placed haphazardly on the table. Tubes must be kept in spores.
- The objective and ocular part of the microscope should be carefully cleaned with gauze or sponge before and after each use, without damaging the lens.
- Dyes and solutions used in microscopy and tissue fixation should be stored in a dark and cool place.
- All kinds of chemicals and solutions should be stored under lock and key in a dark and cool place. Chemicals that are incompatible or may react with each other should never be stored together.
- Since contact lenses, especially soft ones, can absorb caustic substances, caustic substances against the cornea can be concentrated in the lens. Wearing contact lenses in the laboratory is strictly not recommended. However, if it needs to be worn, face or eye protection equipment must be used.
- The locations of emergency exits, electrical panels, fire extinguishing stations, emergency telephones, eye wash stations, first aid cabinets, fire alarms should be known by the personnel.
- Arthropod-proof mosquito nets should be placed on the windows. In addition, laboratories should have an arthropod and rodent control program.

2.1.4. Pipette Usage

- Mouth pipetting should never be done.
- Infectious material should never be mixed with the pipette tip. Whenever possible, an automatic pipette device should be used.
- The liquid in the pipette should be released onto the wall of the tube, bottle or well. It should not be left high as it may cause splashing. Remaining liquid at the pipette tip should not be forcibly removed.
- Never blow into liquids containing infectious agents.
- Contaminated pipettes or pipette tips should be fully immersed in unbreakable and sealed containers containing suitable disinfectant. In addition, a biological waste bin for pipettes or pipette tips should be placed in biological safety cabinets.
- Injectors should not be used for pipetting.
- In order to prevent the spread of infectious material from the pipette, absorbent pad or paper towel should be laid and should be disposed of as medical waste after the study is finished.

2.1.5. Protection Against Penetrating and Cutting Injury

Care should be taken to avoid injury when using needles, scalpels and other sharp tools and materials, when cleaning sharps after applications, and when discarding used needles.

- Used needles should never be reinserted into the containment sheath. The tip of the needle should not be pointed at any part of the body. These finished materials are specially designed with piercing and should be disposed of in the cutting tool box. Needles should not be bent, bent, or attempted to be removed from the syringe when dispensing.

2.1.6. Wearing an Apron

Aprons should be worn while working in the laboratory to protect the skin and prevent contamination of daily clothing. Aprons should be worked with shirred sleeves and with their buttons closed.

- You should not go out to areas outside the laboratory, such as lab coats and management offices and lounges. For this purpose, it should be hung on hangers in a suitable place at the laboratory entrances. Otherwise, microorganisms are dispersed to the external environment with contaminated aprons without being noticed. Necessary measures should be taken by the security officer to prevent this.
- One way to prevent environmental contamination is to wash and disinfect the equipment and aprons used by the personnel while working. You should not go out of the laboratory with the aprons used in the laboratory.
- Although working with gloves, hands must be washed after contact with patient samples or microorganisms or in all cases where contact is suspected.
- Hands must be washed before removing old gloves and putting on new gloves, especially when changing gloves.
- After the work is done in the laboratory, hands should be washed and, if possible, wiped with a hand disinfectant to prevent microorganisms from being transferred to other environments at the final exit.
- Washing hands with normal soap is sufficient in routine laboratories. However, soaps with antimicrobial properties should be used for high-risk situations.
- In addition, hand washing facilities should be set up at the counter in the laboratory and close to the laboratory exit.

2.2.7. Eye and Face Protection

Safety glasses with side shields, mask goggles and face shields or face shields should be used in any process that is thought to be splashed into the face and eyes during laboratory studies. Among these, safety glasses provide partial protection, but their effectiveness is relatively weak. Mask glasses, on the other hand, can be used with glasses worn due to accommodation defects.

2.2.8. Mask Usage

Aerosol may occur during some procedures in microbiology laboratories. Aerosol formation can be transmitted by both respiratory and direct contact. For this purpose, it is recommended to use a surgical type mask in order not to contaminate the environment during the operations of the employees and to prevent the employees from being infected with the droplet core.

2.2.9. Biological Safety Cabinet

Biological safety cabinets (BGK) are devices designed to protect the worker, laboratory environment and study materials from infectious aerosols and splashes that may occur in any process with materials containing infectious agents such as cultures, stocks and diagnostic samples. Because:

- In microbiology laboratories, all operations such as vortexing, mixing, crushing, shredding, sonication and centrifugation and opening and transferring sample containers related to this device must be performed in a biosafety cabinet.
- The operating and safe working guide of the biosafety cabinet should be prepared and published to the laboratory personnel, and practical training should be given to all users.
- In particular, a statement should be made that the cabin will not protect personnel from inadequate technical use, internal breaks and splashes.
- Operation should not be started before the fan is running in the cabinet and the air flow is switched to safe mode.
- The glass panel on the front should not be removed while the cabinet is being used. The apparatus and materials in the cabinet should be kept as little as possible.
- Air cages in the cabin; The air flow (especially the back part) should not be interrupted by note papers, straws or other materials.
- Buzen burner should not be used in the cabin as heat generation may deflect the air flow and damage the air filter. Instead, it is to use sterile disposable specials.
- There should be a container for normal waste and penetrating-cutting waste in the cabinet. All work should be done in the middle of the cabin interior, visible through the windshield panel.
- The traffic behind the personnel using the cab should be minimized.
- During work, hands should be inserted vertically into the cabinet and should be waited for 1-2 minutes to be cleaned with negative pressure air before starting the work.
- The surface of the biosafety cabinet should be cleaned with an appropriate disinfectant at the end of the day, at the end of the work or in case of spills or spills of any infectious samples.
- Cabin fan should be run until 5 minutes after the end of operation.
- Some biosafety cabinets have ultraviolet light for post-process decontamination. In this type of cabinets, after the end of the work, the ultraviolet lamp should be operated for 15 minutes. Only when people are in the room where the biosafety cabinet is located, ultraviolet lights should be turned off as they may cause undesirable effects on the eyes and skin.

2.2.10. Autoclave Safety

- Personnel using autoclaves should be trained in packaging, loading and labeling of materials and should have knowledge of the operating system in the sterilization unit. At the same time, he must have received emergency training that may occur during autoclave operation.
- If old-style autoclaves are used in the laboratory, the back and sides of the autoclave should not be touched. Because they may not have heat preservation properties and may cause burns to personnel. In the location of the autoclave, flammable materials (cardboard or plastic material) or flammable liquids should not be placed or stored near the device.
- Toxic, caustic liquids (such as acid and phenol) and volatile (such as ethanol, methanol, acetone and chloroform) or radioactive substances should never be autoclaved.
- Before autoclaving, suitable biomedical wastes should be placed in a waste boiler labeled as biologi-

cally hazardous.

- Disposable materials should be placed in red bags and autoclaved. But not all red colored bags are suitable for autoclave. Care should be taken and only bags produced for autoclaving should be used.
- Appropriate sharps such as needles, scalpel tips, pipettes or broken glassware should be placed in sealed, labeled and rigid containers prior to decontamination.
- After placing dry materials such as absorbent papers or paper tens on the counter, 100 ml of water should be placed in the boiler to facilitate the formation of steam.
- Autoclave boilers should not be overloaded. Because in such cases, steam circulation is prevented and sterilization or decontamination is not performed.
- The lids of the autoclave boilers should be closed in a way to allow the steam to enter them easily.
- Boilers for autoclave should be placed on stainless steel or polypropylene trays. The device must be allowed to cool before the autoclave is opened. After the boiler pressure indicator sees "0" (zero), the lid should be opened slowly to remove the remaining steam and stay away from the lid as much as possible.
- Goggles with side protection or preferably a face shield should be used when opening the cover. Thick, elbow-enclosed, heat-resistant, liquid-proof gloves should be used for handling or removing hot materials from the autoclave.
- The autoclave band of the autoclaved material should be checked. If there is no color change in the autoclave band, in other words, if the autoclave band has not worked, the materials in the boiler should be re-sterilized.
- In addition, a regular maintenance and repair program should be established and followed up, in which all aspects of this device are evaluated.

2.2.11. Centrifuge Usage

- Centrifuges should be operated according to the manufacturer's instructions.
- Users should keep the centrifuges at a level where they can see their godets set.
- Sample tubes used in the centrifuge should be thick-walled and preferably plastic.
- Before use, sample containers must be visually inspected for broken, cracked and closed lids.
- If possible, the godets should be loaded, opened, balanced and empty godets should be adjusted with distilled water in the biological safety cabinet. For the same purpose, saline or hypochlorite solution should not be used as it is corrosive. The amount of space left between the liquid level and the centrifuge tube should be in accordance with the manufacturer's recommendations.
- Gode and rotor dial weights must be equalized, tubes must be placed correctly and evenly.
- When using open centrifuges, it should be ensured that the tubes are not overloaded, as they may leak or splash.
- Godes, rotors and centrifuge cavity should be cleaned with disinfectant periodically. After use, the godets should be stored by turning them upside down after the equilibrium liquid has been drained.
- If working with microorganisms that are in the biorisk group and causing notifiable infections, centrifuge cups with lids should be used.

2.2.12. Safety of Samples in the Laboratory

- Sample transport containers should be glass or preferably plastic.
- It should not leak when the stopper or caps are closed properly. No residues of specimens or infectious agents should be left outside the containers.
- Sample transport containers should be labeled correctly to facilitate the handling.
- Sample request form should never be wrapped in sample containers, these forms should be carried in a separate place, preferably in a waterproof envelope or in a bag.
- A single sample container should always be used for a single sample to avoid cross contamination and misdiagnosis during sample transfer. For this reason, the transportation of samples belonging to more than one patient in the same container/bag should be prevented.
- Personnel taking the sample should be aware of potential health hazards and should exercise caution, especially when handling broken or leaking containers.
- If the sample containers are broken or splashed around and contact has been made with the sample, it should be reported to the laboratory supervisor immediately. Visible contamination should be wiped off using a towel or gauze impregnated with a disinfectant such as 1/10 diluted hypochlorite or 70% ethanol.
- Disinfectants should be in an easily accessible place. This area should be cleaned frequently with disinfectants. Personnel responsible for this work should wear a lab coat (especially to cover the arms) and gloves. In addition, other personnel protective equipment, goggles, face shield and mask should be available. After the sample containers are distributed to the benches to be processed, the samples must be opened in the biological safety cabinet.
- Also, records of leaky tubes, lost sample containers, and broken tubes should be kept and tracked. The increase in these records indicates the need to improve transport practices, sample acceptance requirements or collection, and is good feedback data for taking necessary measures.

2.2.13. Use of Thermal Block, Thermal Cycler, Homogenizer, Shaker, Sonicator and Grinders

Thermal block, thermal cycler, homogenizer, shaker, sonicator and grinders are devices with high potential for leakage, spatter and aerosol generation. For this purpose:

- All containers, caps and bottles used in these devices should be carefully checked for cracks or breakage before use, and it should be ensured that the caps fit snugly and are fully protected against leakage.
- The thermal block and thermal cycling devices should be turned on after waiting for the post-process cooling time.
- Sonicator, homogenizer and mixers cause pressure increase in the vessel during operation. This event can cause aerosol formation of infectious material. This aerosol can escape between the cap and the boiler. For this reason, especially plastic boiler should be used. Because glass pans may break, cause injury to the user or cause splashing of infectious material. In such a case, the process should be stopped immediately.
- If appropriate in the laboratory, all operations with these devices should be carried out in a biological safety cabinet. However, plastic boxes (the box containing the mixed or homogenized material) should be opened in a biological safety cabinet against splashing and aerosol formation.

2.2.14. Necropsy Laboratory Biosafety Procedures

Necropsy is a high-risk procedure as it involves contact with infectious agents, aerosols, and contaminated sharps. During the necropsy, the person or persons who are not on duty should not be present. Everyone participating in the necropsy procedure should wear gloves, masks, face shields, safety glasses and impermeable clothing. In addition, veterinarians should use gloves that are resistant to cutting tools. Precautions regarding ventilation and respiration should be taken before the risks of diseases that can be transmitted through the respiratory tract or the use of tools that release particles into the air, such as a chainsaw.

The decision whether to perform necropsies of animals with suspected or signs of an infectious disease or carrying a foreign infectious disease should be taken under the consultation of an official veterinarian. Anthrax requires special attention with diseases such as Hendra virus, Q fever, Rift valley fever, rabies, Australian bat lyssa virus, Murray valley encephalitis, kunjin virus, Japanese encephalitis virus, highly pathogenic avian influenza virus and west Nile virus.

Students should use white lab coats in pathology laboratories.

When the animal dies or is euthanized, the cadaver should be removed from the paddock as soon as possible (same day on weekdays, in the evening or on weekends the next morning or Monday morning) and taken to the necropsy department by forklift or a sheltered transport vehicle.

If possible, the animal should be euthanized in the autopsy room.

After transporting a cadaver, the forklift must be thoroughly cleaned and disinfected in the necropsy department.

- The risk of infection in the necrospy area is high. Students and faculty staff should be protected from dangerous infections in practice areas.
- If there is a risk of serious human infection, prophylaxis, treatment and counseling protocols should be implemented with the University Hospital.
- If there is a risk of carrying important animal diseases, protocols should be applied to minimize the possible spread of microorganisms.
- Risk assessment, situational protocols and raising universal protection levels are required here.

Protective Measures to be Applied in Procedures in the Necropsy Laboratory

- Cut-resistant gloves, face shields and impermeable clothing should be used.
- Only the necessary person or persons should participate in necropsy applications.
- A suitable mask should be used when using tools such as a chainsaw.
- If there is a suspected infectious disease or a foreign disease, official authorities should be consulted before necropsy.
- Official veterinarian or emergency services should be consulted for information.

Students and faculty staff should wear the following during autopsy;

- Waterproof disposable apron that completely covers the arms, chest and legs,
- Latex gloves,
- Rubber boots (reinforced toe),
- Mouth-nose mask and goggles when cutting hard bones to prevent splashing contamination,

- Apart from hand and respiratory protection where there is a very high level of protection, applying these standards reduces the risk of acquiring a group 2 and 3 infection to an acceptable level, even if they are unknown.
- The pathologist should be aware that he or she is responsible for minimizing the risk of people touching the cadaver during and after necropsy.

Necropsy area consists of 4 different parts. These sections are as follows;

- Dressing room
- Hall
- Working area
- Disinfection area

These areas should be navigated as follows.

- Students put their personal belongings in lockers and wear disposable aprons and yellow boots.
- Holden pass,
- Access to the work area with disinfected dissection instruments and disposable gloves.

- Faculty staff and students should be informed about how to use the specified areas.

Waterproof shipping containers

- The transportation of cadavers in the faculty is done with forklift (fork lifter) compatible waterproof transport containers.
- Cadavers should be taken under control at the entrance of the necropsy room.
- Cadavers should be kept in the refrigerator by responsible technicians.
- Containers and forklift wheels should then be washed with hot water + disinfectant and high pressure.
- The same procedure should be applied to truck wheels and containers that bring cadavers from outside the faculty to the faculty.

Catching an infection

In the necropsy rooms, the ways of getting infection occur in 5 ways.

- Intradermal inoculation
- breathing
- by mouth
- Skin contamination without inoculation
- Contamination of mucosal surfaces (eyes, mouth, nose)

- The main risks during animal necropsy are rabies virus, Mycobacterium spp, Salmonella, Clostridium and Prions. The main risk in autopsy of primates such as monkeys is inhalation of blood-borne viruses and pathogens such as Mycobacterium tuberculosis.

Classification of pathogens

Infectious agents are divided into 4 groups in terms of human and animal health. Important groups for students and faculty staff are Group 3, Group 4 human and Group 4 animal pathogens.

Group 2 pathogens

The main transmission route of these biological agents in necropsy rooms is hand-mouth route. Practicing good hygiene procedures, especially proper hand washing, can prevent transmission. It can also be by inoculation (vaccination), but transmission can be minimized with standard precautions. Using a mask during the autopsy of animals with granulomatosis lesions with a low risk of inhalation is sufficient to prevent Tuberculosis/Tularemia and antibiotic treatment can be applied depending on the situation.

Group 3 human pathogens

These are biological agents that can cause severe human diseases and cause serious damage to autopsies and there is a risk of spreading to the community. In practice, this only concerns the autopsy of primates. In such cases, students should be prevented from entering the autopsy areas. Autopsy and sampling procedures should only be performed by qualified personnel wearing goggles and masks.

Group 4 human pathogens

This group includes viruses for hemorrhagic fever, such as Marburg, Ebola, Lassa-fever, Crimean-Congo hemorrhagic fever and Nipah virus, for which vaccines are not available.

2.2.15. Waste Management in Research Laboratories

Wastes classified in accordance with the Waste Management Plan of Aydın Adnan Menderes University Faculty of Veterinary Medicine, prepared in accordance with the "Medical Waste Control Regulation" of the Ministry of Environment, Urbanisation and Climate Change dated 22.07.2005 and numbered 25883, are disposed of at the relevant place under the control of the laboratory medical waste responsible.

2.3. Department of Anatomy Biosafety Rules

2.3.1. Origins of Animals Used as Cadavers

Only animals approved by the Department are accepted to the Department of Anatomy. Equipped and ruminant animals to be used as cadavers are obtained from animal vendors or from Aydın Adnan Menderes University Veterinary Faculty Farm. After the clinical examination of the animal to be cadaverized by the responsible veterinary research assistant of the Anatomy Department, the cadaver preparation process should be performed after the blood is drained from A. carotis comminis under anesthesia.

Rabbits and poultry to be used as cadavers are procured from animal breeders. These animals should be euthanized and used as cadavers after examination by the responsible veterinary research assistant of the Department of Anatomy. Animals that have died in our faculty's clinics or private clinics must receive a document from clinical veterinarians that there is no contagious disease. In addition, a letter should be obtained from the patient's owner stating that he donated it to our department. Cadavers obtained from deceased patients should be stored in the refrigerator or freezer before use. If necessary, it should be kept in benzalkonium chloride solutions for 1 week. Afterwards, it can be embedded in the fixation solution of our department. The cadaver parts stored in the refrigerator during the dissection week should be disposed of in the medical waste container at the end of the dissection week. Refrigerators and freezers should be cleaned and disinfected regularly.

2.3.2. Departments in the Department of Anatomy

Part of the chapter is directly related to biosafety measures (risk zone). These sections consist of dissection room, euthanasia section, maceration room, plastinization section and cold room.

- Students bring dissection materials according to the order of the lesson. On the days of dissection, students bring their own plastic boots, latex gloves and dissection materials.
- Students should never use dissection materials at home. How to use dissection materials and how to insert and remove scalpel tips should be explained in the lessons. If there is a locker, students should keep the dissection materials in the cabinets and not take them home.
- Students should put on their aprons and boots as soon as they enter the dissection room, and take off their boots and put them on the shelf immediately after leaving the risk area after each dissection. Rubber boots and dissection instruments should be thoroughly washed and disinfected at the end of each dissection week before students take them home. Used scalpel tips should be disposed of in yellow boxes and dirty latex gloves in a medical waste container (materials at risk).
- Personnel should wear apron and rubber boots as soon as they enter the risk area. Rubber boots should be stored in the closet placed in the entrance hall.

2.3.3. General Cleaning and Hygiene

- Before leaving the risk area, hands should be washed and disinfected (the washing and disinfection process is explained in the first lesson of each year). The use of latex gloves during dissection is mandatory, but this does not relieve the obligation to wash and disinfect hands before leaving the risk area.
- If a potential infectious disease is suspected, students are requested to leave the dissection room after disposing of their latex gloves and gowns in a separate medical waste container. Hands, tools and rubber boots should be washed and disinfected. If the cadaver is not used later, it is thrown into a special medical waste container inside the dissection room by the personnel. Tables and dissection chambers should be thoroughly washed and disinfected, as well as instruments, rubber boots, and personnel's special shoes.

2.3.4. Foot Bath

- Students should put on their boots as soon as they enter the dissection room and these should be removed as soon as they leave the risk area and placed on the shelves after each dissection.
- Students should wash and disinfect their boots after each dissection week before taking them home.

2.3.5. Disinfection Protocol for Device and Equipment

- Dissection instruments used by students should be thoroughly washed and disinfected at the end of each dissection week before being taken home.
- Used scalpel tips should be disposed of in yellow boxes and dirty latex gloves in medical waste container.
- Dissection instruments used by personnel should be washed and disinfected at the end of each dissection week, as well as daily.
- Dissection rooms should be washed with machines and detergents at the end of each dissection week. In addition, the dissection chambers should be washed, rinsed with water and scraped with a brush every day.

- Dissection tables should be washed with detergents by the person using them every day (at the end of the lesson, each student group's own desk) and disinfected at the end of each dissection week.

2.3.6. Detergents and Disinfectants Used in the Department of Anatomy

- For tables and floors: Chlorinated antiseptics, Alcohol, Benzalkonium chloride,
- For dissection materials: Iodized antiseptics, Benzalkonium chloride,
- For hand washing: Liquid soap
- If a cut occurs on the body of a student during dissection, they should immediately stop the dissection and wash their hands under the guidance of a specialist. The wound should be examined and treated with iodinated antiseptics. If the wound is deep, the student should be taken to the hospital for stitches. If the wound is superficial, it should be protected from further contamination with a dressing. However, he should still go to the hospital, have appropriate wound care, antitetanus serum and tetanus vaccine.
- In the Department of Anatomy, it is strictly forbidden to eat or drink anything other than the secretariat and offices.

2.3.7. Maceration Hall

- First of all, we have to follow the rules that we should follow during the same dissection before starting the bone union process. We need to prepare and use our apron, gloves, boots and safety glasses.
- Afterwards, the inside of the bone boiling pot should be checked before being used. If it is full, it should be asked to the responsible person and new cadaver parts should be thrown into it accordingly.
- After properly packing the parts to be thrown into the boiler, it is necessary to go to the tube section and open the tube, and then burn the bottom of the boiler. It is imperative that the tube is closed from the outside valves each time after the boiling process.
- The maceration section must be cleaned and disinfected after each use.
- The sawmill in the maceration hall should not be operated without a responsible person.

2.3.8. Plastinization unit

- Since the materials we will use are volatile and flammable, these materials must be used without a responsible person and their covers must not be opened.

3. TRAINING AND RESEARCH HOSPITAL

Risk Categories

Biosafety measures are of paramount importance in animal hospitals due to the possibility of the arrival of patients with potentially infectious diseases. Strict rules should be applied in animal hospitals to prevent sick animals from being a source of contamination to other patients, and to protect patient owners and hospital staff from zoonotic diseases. For this purpose; The following risk categories (Table 5) have been established depending on the infectious agents encountered, their transmissibility to other animals and/or their zoonotic potential.

Table 5. Classification of risk categories

CLASS 1	Normal Care	Infectious diseases caused by factors that are unlikely to be transmitted to other animals and humans.
CLASS 2	Normal Care	Infectious diseases caused by bacterial agents with a low probability of transmission and/or non-resistance.
CLASS 3	Situations requiring measures to prevent contamination	Infectious diseases and/or potential human pathogens caused by a moderately infectious agent, Resistant bacteria. Infections caused by bacteria that are highly resistant to antibacterials. Those detected by bacteriology laboratories.
CLASS 4	Situations requiring isolation	Infectious diseases caused by highly contagious agents and/or pathogens very serious to humans

3.1. Clinics

3.1.1. Ruminant Clinic

General Rules and Considerations in the Ruminant Clinic

- In the ruminant clinic, staff and students should be trained on issues including hand hygiene, use of personal protective equipment, cleaning and disinfection of the environment and equipment, waste management including cutting and piercing waste, and patient owners should be informed when necessary.
- All staff and students should minimize contact with patients for whom they are not directly responsible for their care to minimize the risk of hospital exposure. Staff and students should not enter stables/cages unless necessary, and should avoid touching or petting animals unless necessary.
- The clinician may allow and request contact with animals for the purpose of education and training of students. When students are asked to examine multiple patients or assist with procedures for instructional purposes, students should wash their hands and apply disinfectant between patients. Cleaning and disinfection of the examination materials they use should also be provided.
- To reduce the risk of inadvertent transfer of infectious agents, staff and students should minimize movement between areas used for different purposes, if possible. All staff and students should work

in areas where they are most likely to be contaminated, last day if possible.

- It is not allowed to enter any part of the ruminant clinic with human food and it is forbidden to eat or drink. This prohibition also includes patients' relatives.
- No personal belongings of staff and students should be in the clinic. Students should leave their personal belongings in the areas reserved for them.
- All clinicians, students and technical personnel should wear their badges during working hours.
- The use of jewelry (rings, watches, bracelets, etc.) while working makes it difficult to wash hands adequately, reduces both the mechanical cleaning effect of soap and water against bacteria and viruses, and the antiseptic effect of alcohol-based hand disinfectants. Therefore, jewelry should not be worn during patient contact.
- Long nails are difficult to clean, they can puncture gloves and can host more microorganisms than short nails. Therefore, nails should be clean and short in the clinic. Artificial nails or nail polish should not be used by anyone directly involved in patient care. These precautions should be considered especially when performing invasive procedures where the hands are placed inside the body cavities with gloved hands.
- All long-haired staff and students working in or around the patient should be requested to collect their hair.
- Planned visits to the ruminant clinic for a specific institution or person from outside should be coordinated by the dean's office and managed by the clinical staff.
- Patient owners and visitors who have patients in the clinic are prohibited from contacting other patients. Visitors are not allowed to enter the anesthesia preparation area, operating room, emergency room and isolation units.
- The transfer of patient owners from the area where the animal is kept to other areas should be courtesy of the responsible staff and students.
- Ruminant clinic; In addition to examination, diagnosis and treatment, no healthy animals should be allowed to enter other than justified purposes such as scientific research, education-research work, blood transfusion. The contact of healthy animals brought for the stated purposes with other sick animals must be prevented and kept in a separate area.
- In case of clinical exposure to a suspected or identified case of zoonotic disease, all known owner, physician, student and ancillary personnel contacts should be recorded and reported to the responsible biosafety officer/commission. The person/commissioner responsible for biosafety and the clinician responsible for the case should ensure that all individuals potentially exposed to zoonosis and appropriate healthcare facilities are contacted.
- Any person with known or suspected infections related to a procedure performed in a ruminant clinic should report the situation to the biosafety officer/commission and subsequently seek medical advice. Likewise, all staff and students who have concerns or questions about exposure to a zoonotic agent should contact their healthcare provider.
- Before any intervention, all personnel and students should notify the relevant unit supervisor/head if there is any special health problem (such as pregnancy, immunosuppression) that may affect the risk of infection with zoonotic agents or its results.

Hand Hygiene and Glove Use

- Hand hygiene is generally the most important measure in preventing the spread of infection in healthcare facilities. There are two methods to remove/kill microorganisms on hands, which consists of washing with soap and running water or using an alcohol-based hand sanitizer.

- Each examination room in the ruminant clinic should have a sink with running water, soap dispensers and paper towels. Bar soaps cannot be used in the veterinary clinic due to the potential to transmit pathogens from person to person. Instead, liquid/foam soap should be used and soap containers should not be filled without disinfecting.
- Antibacterial soaps should be used in critical areas such as intensive care, isolation and operating room and other areas where invasive procedures are applied.
- Washing hands is the most important procedure that reduces the risk of spreading pathogens. All clinical staff and students should use their hands before and after the study, before and after contact with each patient, after contact with biological materials such as blood and other body fluids, and after contact with contaminated objects, when protective gloves are removed, in the same animal when switching from dirty procedures to clean procedures, to prevent transmission of infection into the body. between different procedures on the same patient, after handling laboratory samples, after cleaning cages or boxes, before taking breaks from work and meals, before and after using the toilet.
- After washing the hands before and after the patient examination, hands should be disinfected with alcohol-based hand disinfectants. Hand disinfectant should be applied to dry hands, and the disinfectant should be spread on all surfaces of the hand so that it goes over the wrists. After applying the hand disinfectant, it should be allowed to dry on its own, should not be wiped or rinsed. Every examination room in the ruminant clinic should have an alcohol-based hand disinfection point. In the event that the hand sanitizer runs out, the responsible person should be informed immediately and it should be ensured that it is ready for reuse.
- In emergencies where hand washing is not possible in the ruminant clinic, firstly hands should be wiped with damp towels or cloths and mechanical cleaning should be provided, and then skin disinfectants should be used. Staff and students should then wash their hands immediately as soon as suitable conditions are established.
- If the senior clinical staff deems it necessary, clean gloves should be worn during the examination and treatment of patients with high risk of infectious disease or newborn calves, when contacting blood and various body fluids and mucous membranes of the patients. Surfaces that can be touched by people without gloves and personal items such as phones and pens should not be touched with gloved hands. Gloves should be removed immediately after use, contact between the skin and the outer surface of the glove should be avoided and discarded immediately. Wash hands or use hand sanitizer immediately after gloves are removed.
- If commonly used latex gloves pose an allergy risk, nitrile or vinyl gloves can be used as an alternative.
- Repeated hand washing and wearing gloves may cause skin irritation or sensitization, resulting in allergic dermatitis. In this case, the washing technique can be evaluated, appropriate hand creams can be used, and measures such as appropriate glove selection can be applied.

Personal Protective Equipment

- It is mandatory for staff and students to wear clean aprons (Scrubs) during all procedures in the ruminant clinic to prevent the transmission of infectious agents to humans and animals outside the clinic. The attire of staff and students should be appropriate as it affects the image of the faculty.
- It is forbidden to enter the clinic areas with clothes used outside, and it is forbidden to use the clothes used in the clinic outside the clinic. All staff and students at the ruminant clinic should always have spare outdoor clothing with them.
- Clinical gowns should be changed whenever they are visibly soiled or contaminated and at the end of each day. Aprons worn when working with potentially infectious animals should also be washed after each use, even if they are not contaminated. Since the personnel and students take the aprons home to wash, they can carry the pathogens from the clinic to the house, so the aprons should be kept in a

plastic bag at home until they are placed in the washing machine and washed separately from other laundry.

- Closed shoes should always be worn to prevent injury from sharps, such as scalpels and needles dropped in the ruminant clinic, and to protect feet from contact with potentially infectious materials such as faeces, urine, or other body secretions. For this reason, it is mandatory for all staff and students to wear boots in the patient examination/treatment and care areas in the ruminant clinic. Staff and students without boots are not allowed to enter the clinic. The boots to be used should be clean, washable and have a structure that will protect the foot against trauma. The use of these boots in non-clinical areas is prohibited. It should be ensured that the animal owner/caretaker also abides by these rules.
- Boots should be cleaned and disinfected regularly or when they are visibly soiled or contaminated. The disinfection instruction should be placed next to the disinfection station and each person performing the disinfection process must follow the instructions.
- Staff and students should use additional personal protective equipment (such as protective gloves, disposable overalls, liquid-proof overalls, masks, goggles, face shields, bonnets) in addition to clinical gowns, when necessary. These additional personal protective equipment may be needed when working with patients diagnosed or suspected of infectious disease (hazard class 3 or 4), when there is a risk of biological material splashes, and when performing activities that may cause dust generation or aerosol generation. Safety glasses should also be used if there is a possibility of contamination of the eyes with organic material or pathogens.
- Personal protective equipment should be used effectively and economically in accordance with its purposes. Staff and students should learn to wear and remove personal protective equipment appropriately to avoid contaminating themselves and the environment. Patient owners should also be provided with the necessary personal protective equipment in cases where they assist the veterinarian and where there is a risk of infection.
- Hand hygiene must be ensured before and after the use of personal protective equipment. In case of splashes or exposure to large amounts of body fluids, liquid-proof gowns should also be used to provide additional protection.
- Disposable N95 masks should be used as an alternative to surgical masks in airborne zoonoses, these masks should be placed and worn as they should be.

Hygiene

- All multi-use areas where animals are examined or treated should be cleaned and disinfected after use by personnel responsible for the patient, regardless of the infectious disease status of each animal. Cleaning tools should also be cleaned and disinfected after use.
- Routine Cleaning-Disinfection;

- On a weekly basis; The sink and sewerage drain in feed stores, general treatment and examination rooms and intermediate walking areas should be cleaned and disinfected.

- On a monthly basis; areas that are not used daily (such as the tops of the walls) should be washed with pressurized water against dusting, cleaning and disinfection tools should be maintained.

- Annually; The entire ruminant clinic should be thoroughly cleaned and disinfected, including all equipment.

Admission of Sick Animals and Referral to Outpatient Clinics

- The patient who comes to the ruminant clinic is first registered and evaluated by the responsible physician with a preliminary clinical examination in order to determine the risk category.
- Animals that do not show signs of notifiable disease and are in Class 1 and 2 groups as risk groups are unloaded and taken to the practice or hospitalization depending on the patient's condition.
- Patients infected with bacteria resistant to major antimicrobial drugs or to more than one drug class are managed as Class 3 infectious diseases and admitted to hospital.
- Special precautions need to be applied in patients with detected or suspected communicable disease (Class 4). Especially acute gastrointestinal diseases, acute respiratory system diseases, BVD, bacterial infections with multiple antibiotic resistance should be considered. Inspection of animals suspected of these diseases should be carried out in the transport truck or trailer used as an ambulance.
- Patients at high risk of communicable diseases should either be considered as outpatients or hospitalized in an isolation unit, and the examining clinician should decide whether the patient should be isolated and/or accepted for treatment.
- If the patient who comes to the ruminant clinic suspects an infectious disease during the preliminary clinical examination, the patient should be recorded as the last patient of the day and the owner should be asked to wait outside or in the car until the examination room is called. In this case, if it is decided to admit the patient to isolation, the animal should be moved to a designated isolation room, the risk of contamination in the clinic should be minimized, and a "contaminated room" sign should be placed on the door. This room should not be reused until it has been thoroughly cleaned and disinfected. The contact of all staff and students with the patient should be minimized, especially those who are not directly responsible for the patient's care should be prevented.

3.1.1.1. Examination Room

Patient Examination, Treatment and Discharge Procedures

- Outpatients who are not admitted to isolation or hospitalization, but only to be examined, are taken to the examination stops and their procedures are carried out.
- Patients in the practice can be watered with buckets belonging to the faculty and previously disinfected, but should not be fed. Buckets should be cleaned and disinfected after each use.
- After the patient is discharged following the examination and treatment process, the examination station should be cleaned and disinfected as soon as possible.

Cleaning-Disinfection and Wastes

- All examination materials or equipment must be cleaned and disinfected between different patients and after each use, placed in their original place and replaced if necessary.
- It is recommended to disinfect examination materials and equipment with alcohol or chlorine disinfectants before use.
- Instruments suitable for sterilization should be used while they are in sterile condition, they should be cleaned with soapy water after each use and disinfected with chlorinated disinfectants, then sent to the sterilization unit again.
- Clinicians and students can use their own various examination tools such as stethoscope in non-infectious areas. These equipment should be disinfected regularly, and disinfected immediately when

there is visual dirt or there is a suspicion of class 3-4 infection.

- All wastes produced in the clinic should be separated and destroyed in accordance with the legislation. Clinical waste should be separated immediately at the point of production and disposed of in waste bins with labels and colors that match the description.
- For sharp waste, the person producing the waste is responsible for its safe disposal. Sharp wastes should not be passed between people, but should be thrown into their own waste bins and replaced when these bins are full. Cutter waste bins should be located in every area where animal care is carried out, out of reach of children and animals.
- Needlestick injuries are among the most common accidents in the veterinary clinic. For this reason, when throwing the needles into the waste box, the needle removal parts on the waste box should be used and the needles should be allowed to fall directly into the container.
- Movement of people, transportation vehicles and equipment around the patient is an important point in the spread of communicable diseases. Pathogens in the ground can be transported over great distances through these factors. For this reason, there should be foot mats or baths for washing and disinfecting the boots in the ruminant clinic and must be used by all staff and students in accordance with the instructions.
- The activity and levels of foot mats and bath solutions should be constantly monitored. Instructions containing information about the disinfectant change and refill process and the person responsible for this process should be available at the disinfection station. Disinfectant solutions should be changed regularly in accordance with the instructions and their levels should be checked.
- Areas such as tables, counters, sinks and floors in clinics should always be kept neat and clean.
- Cleaning and disinfection equipment should be in every room and ready for use. Cleaning equipment should be cleaned before disinfection.
- Disinfectants used should be prepared and used in accordance with the manufacturer's instructions for dilution and contact time. Disinfectants must be applied to clean surfaces to ensure effectiveness and personnel must be trained in safe practices.
- Cleaning and disinfection of the used examination areas, tables and litter should be done as soon as possible after use, regardless of the animal's infectious disease status. Peripheral surfaces should be cleaned between uses and when visibly soiled. After the cleaning is completed, all areas should be left in the proper order.
- After the patient examination is completed, surfaces and equipment contaminated with feces, urine, blood, and other secretions should be cleaned and disinfected immediately by the personnel in charge. During cleaning and disinfection, it should be ensured that all areas are well ventilated, and care should be taken not to create dust and aerosols that may contain pathogens.
- Since solid wastes reduce the effectiveness of disinfectants during cleaning, first of all, solid wastes should be removed mechanically with a broom or dustpan and the drains should be cleaned. In cleaning, the area should be washed with warm foamy water, rinsed, disinfected and washed again with water. The staff in charge should apply this process systematically each time, then perform a visual control and sign the control card. After cleaning, all surfaces should be allowed to dry completely or, if possible, dried with suitable materials. Slippery floor warnings should be placed by marking the boundaries of the area until it dries against any risk of slipping.
- The physician in charge should make sure that the cleaning and disinfection in the area is provided.
- The animal transport trailer belonging to the hospital should be cleaned and disinfected after each transportation process.
- The animal lowering ramp should be cleaned routinely once a day, and should be cleaned immediately if animals defecate or urinate.

3.1.1.2. Operating room

General rules

- Only patients to be operated should be admitted to the operating rooms, and personnel and patient traffic should be kept to a minimum. For this purpose, the entrance and exit times for the operating rooms are determined and only the personnel and students on duty should be allowed to enter and exit during these hours.
- All staff and students entering the operating theaters should be familiar with the general rules of the ruminant clinic and should also be trained in aseptic technique and surgical procedures beforehand. Aseptic technique should be maintained during surgery.

Personal Protective Equipment

- During all surgeries, the operating rooms must be entered with predetermined clean surgical gowns. These gowns should not be used while performing other procedures or working with other patients, and a clean white gown should be worn outside the operating room. A clean white coat should be worn over the operating room gown in pre/postoperative interventions applied to the patients.
- All staff and students should wear surgical caps, masks and shoe covers, in addition to the surgical suit aprons designated for use in the operating room. This equipment should be removed when leaving the operating room. If only shoes to be used in the operating room are worn, overshoes should be worn when going out of the operating room.
- Personnel directly participating in the surgery should also wear sterile surgical gowns over clean aprons.
- Sterile gloves make an important contribution to the prevention of contamination in surgical operations and reduce the risk of pathogen transmission from the patients to the surgical team. Therefore, sterile gloves should be used in all surgical operations.
- Clean and easily dis-infectable, waterproof aprons should be worn over surgical suit aprons in laparotomic operations performed on outpatients in cattle.
- During preparation for surgical operations;

i. Before entering the preparation area, clean surgical gowns to be worn in the operating room must be worn. Accessories such as watches and jewelry on the person should be removed. The upper parts of the surgical gowns should be put inside the trousers to prevent contact. Shoes designated for the operating room should be worn, masks, bonnets and shoe covers should be worn.

ii. Hands should be visibly clean and dry, and nails should be short. Normal washing should be done to remove visible dirt on hands and arms. Then the surgical washing area should be passed.

iii. Hands and arms should be washed with iodinated soap up to the elbows for 5 minutes in accordance with the technique, then rinsed should be done with the hands and fingers higher than the elbow level. Afterwards, hands and arms should be dried from fingertips to elbows with a sterile towel up to the elbows.

iv. After the hands are dried, rubbing should be done with alcohol-based hand antiseptics for the time and amount in accordance with the manufacturer's instructions. Finally, sterile gowns and gloves should be worn, respectively, and proceed to the operating room.

Patient Preparation and Surgery Procedure

High standards of cleanliness and hygiene should be applied throughout the operating room, the patient's surgical site should be prepared aseptically, and aseptic technique should be maintained during

the surgery.

- Movement of students and staff in the anesthesia preparation area should be minimal.
- Before patients enter the anesthesia induction area, pre-anesthesia examination forms should be filled, and all known or suspected infectious diseases should be stated on the form.
- Before entering the anesthesia induction area, patients should be thoroughly brushed, cleaned or, if possible, bathed. In very urgent surgeries, the patient should be cleaned as much as possible. All personnel should take primary responsibility for ensuring that biosafety measures of surgeries are completed as required.
- Before entering anesthesia induction or outpatient surgery areas, patients' feet should be cleaned with disinfectants, disposable gloves should be worn while handling the feet, and hands should be washed thoroughly after completion.
- Clean examination gloves should be worn during catheter or endotracheal tube placement procedures.
- During surgeries, hands should be washed and/or hand disinfectant should be used between all patient contacts. Alternatively, examination gloves can be used and should be discarded after each patient contact.
- Open wounds or incisions of patients undergoing surgery should not be touched with bare hands.

Cleaning and Waste

- After each procedure in the operating room; surgical equipment, trolleys and stands are set aside and properly cleaned. Waste is disposed of in appropriate waste bins. The floor is first washed and rinsed, then cleaned with disinfectant and mopped.
- At the end of the day in the operating room and after invasive contaminated procedures; Before the operating room is cleaned, all trolleys, tables, supplies and trash cans are emptied. Any blood or dirt on the floor is cleaned and disposed of in infected waste bins. The floors and walls are then washed, scrubbed with disinfectant, rinsed and left to dry. The wheels of the items taken out of the operating room are cleaned and disinfected. Operating room doors should be kept closed at all times.
- Operating room once a week; In a spare moment, the walls are brushed to body level, the drains are cleaned and disinfected, the dust on the lights and other areas is also cleaned.
- Of all the instruments and materials used after the surgeries performed in the ruminant clinic, those that can be sterilized must first be cleaned and disinfected and then sent to the sterilization unit.
- Disposable tools and materials should be disposed of in appropriate waste bins after use, taking into account the waste legislation.
- Materials that will be reused but cannot be sterilized should be cleaned, disinfected and placed in their original places in the operating room. For example, after endotracheal tubes are used, they should be cleaned inside and out with a hard brush with soap and water, kept in chlorhexidine solution for at least 15 minutes, rinsed thoroughly in warm water and left to dry in a specially designated cabinet in the anesthesia induction area.
- Anesthesia machines and ventilators should also be thoroughly cleaned and disinfected, both between cases and on a regular basis.
- If the gas hoses belonging to the anesthesia devices used in gas anesthesia and not in direct contact with the patient contain visible discharges or if there is a known/suspected respiratory system infection in the operated patient, they should be washed with hot water and detergent, immersed in a solution containing quaternary ammonium compound, rinsed with water and used again. must be installed first.

Deceased Patients

- When a patient dies in the ruminant clinic, the responsible veterinarian should inform.
- If a death occurs in units where Class 1 and 2 patients are accommodated, they must be cleaned and disinfected before a new patient enters the area. When a suspected Class 3 patient in hospitalization or a patient in isolation with or suspected Class 4 disease dies, the field should be marked "TO DISINFECT". No other patient should be allowed to enter this area without cleaning and disinfection.
- If the deceased animal died or was euthanized in its own paddock, the carcass should be removed as soon as possible. If the patient has died in the wake-up area, he or she should be removed as soon as possible and the area cleaned and disinfected.
- Animals that die on weekdays and working hours should be transported to the pathology unit immediately, and animals that die in the evening and on weekends should be transported to the pathology unit the next morning. After transport, the equipment should be thoroughly cleaned and disinfected.

3.1.1.3. Hospitalization

General rules

- The paddock where the patients in the hospitalization will stay is determined in advance by the clinical staff. When the patients arrive, new pads are laid by the relevant personnel before they are admitted to the paddock.
- When receiving the sick animal, the materials belonging to the animal are delivered to the owner of the animal. A paddock card belonging to the patient is hung at the entrance of the paddock where the patient is located. Patient and animal owner information, names of responsible personnel, detected or suspected infectious disease, feeding and irrigation instructions, and medication applications are written on this card. All procedures related to the patient are performed by the designated personnel according to the information on this card.
- Foot baths should always be used when entering and leaving the hospital. When necessary (Class 3 risk group patients), staff and students should wear disposable gowns.

Patient Care, Examination and Treatment Procedures

- Animals to be hospitalized should be housed in a suitable paddock or stall where basic hygiene is provided. Animals should be kept as clean as possible, and if water is not contraindicated, it should be provided by the person in charge immediately upon admission.
- If there is an automatic drinker at the stop where the sick animal is staying, it should be checked whether it works properly and it should be determined whether the animal drinks from the automatic drinkers. If the animal is drinking from the bucket, the presence of water should be checked regularly and filled when it is lacking.
- Patients should be fed with hay and/or concentrated feed by the staff in the morning and evening, and lactating animals should be milked morning and evening unless otherwise stated. Feed storage areas should be cleaned and disinfected prior to new feed delivery in addition to the weekly routine.
- All feed and feed additives should be stored in tightly closed feed containers, and minimal litter and feed materials should be available in the hospital to reduce the risk of contamination and prevent nesting of wild animals.
- Animals should be kept as clean as possible, brushed regularly and their nails cleaned.

- Patients may exit hospitalization, walk or exercise only if authorized by the responsible veterinarian.
- Responsible personnel in the clinics should be informed about a patient who is in the hospitalization and is in class 3 risk category. Whenever possible, diagnostic, surgical or other procedures should be performed wherever these patients are present, rather than in common examination and treatment areas. All staff and students should take appropriate personal protective measures at this time. If the patient needs diagnosis or other procedures that can only be performed in the main clinics, these procedures should be performed at the end of the day whenever possible. Regardless of where the procedure is performed, tools, equipment and the environment should be thoroughly cleaned and disinfected after the procedure.
- More than necessary drugs and consumables should not be left in the hospitalization unit. Drugs used in Class 3 patients should either be sent with the patient or be prescribed at discharge. Medicines or intravenous fluids should not be returned to the pharmacy.
- It is the responsibility of the veterinarian responsible for the care of the patient to ensure that the samples are sent for the diagnostic procedures of the patients in hospital and that appropriate biosafety measures are taken with these patients.
- Medicines to be used in the treatment of the patient should be stored in a secure medicine room. Only active personnel should enter this room, and before administering anything to the patient, it should be known exactly what to give and in what concentration.
- Unlabeled medications left unused should not be used for another patient and should be discarded.
- Expired drugs should not be used, the opening date and time of opened drugs should be written. After opening the medicine, the expiry instructions specified by the manufacturer should be observed.

Discharge Procedures

- In isolation, technical personnel should be notified for cleaning and disinfection that patients will be discharged.
- When the patient is discharged, the station card should be cleaned and the records taken here should be archived.
- Rooms used to house Class 1 and 2 patients should be cleaned before a new animal enters the barn. A warning stating the necessity of disinfection should be hung in the rooms where Class 3 patients are accommodated, and new patients should not be allowed to enter before all areas are cleaned and disinfected.
- During the discharge process, personnel should inform the patient's owners about the communicable disease hazards in detail and make appropriate recommendations to reduce the risks to humans and animals.

Cleaning and Waste

- All areas of hospitalization, water and feeding containers, beds and bedding should be cleaned, disinfected or replaced regularly, between use by different patients, and immediately when soiled or contaminated. Door handles should also be cleaned regularly with disinfectant.
- During hospitalization, paddocks with patients are cleaned in the morning and evening by the predetermined paddock staff and new pads are laid. Feces or wet litter in newborn compartments should be removed immediately.
- Normal washing and disinfection of feed and water containers is sufficient for hospitalized patients. On the other hand, it is recommended to use disposable containers in patients admitted to the isola-

tion unit.

- After a discharge, cleaning staff should be contacted for cleaning and disinfection before another patient is admitted.
- Dirty and clean materials should be kept separate from each other during cleaning processes.
- Cleaning personnel should use aprons, masks and gloves against infectious contaminants that may occur and chemical droplets that may arise from disinfectants while cleaning paddocks, cages, clinical areas and materials in these areas.
- Before starting disinfection, all materials such as feces and bedding should be thrown into garbage bins, dust and other small substances on the floor should be swept. Walls, doors and floors should be washed with a brush and water using soap or detergent. Brushing is important in terms of removing the film layer or residual dirt.
- After washing with detergent, the surfaces should be rinsed thoroughly and care should be taken to ensure that no detergent residue is left, as this can destroy the effectiveness of disinfectants. Then, disinfection should be done by ensuring that all surfaces are in contact with the surface for an appropriate time with appropriate quaternary ammonium compounds, and disinfectant should be rinsed at the end of the period.
- Corridors should be cleaned and disinfected daily in hospitalization.
- Cleaning materials should also be cleaned and disinfected when passing from one paddock to another, if necessary.
- After disinfection, the protective clothing used by the personnel should be removed and hands should be washed.
- Cleaning and disinfection should be carried out by the responsible personnel according to the same principles in multi-purpose areas such as the examination room, where animals are examined and treated.
- Garbage bins used in the ruminant clinic should not be used in the single-claw clinic.
- After the garbage is prepared and closed, it should be kept in an isolated area until it is collected.
- All materials in the hospitalization unit should be used for a patient and discarded if possible. If non-disposable equipment or materials are used, they must be thoroughly disinfected before returning them to the main clinical facilities.

Visitation

- Patient owners are prohibited from being alone in treatment or patient accommodation areas and should not be allowed to touch other animals. If the owners have come with their children, the children should always be kept under the supervision of an adult.
- Visiting hours for inpatients are limited to predetermined times and patient owners must comply with this. In the event of euthanasia, patient owners are not allowed to visit animals alone unless exceptional permission is granted. Patient visits are carried out under the supervision of a responsible personnel and, if necessary, the owner is ensured to wear appropriate personal protective equipment.

3.1.1.4. Isolation

General Information

- The isolation area is dedicated to the care and housing of animals with contagious and/or potentially communicable diseases.
- The isolation area should allow for complete physical separation of the animal to be housed and have adequate areas to perform routine patient-related procedures, thereby reducing the risk of direct or indirect infection of other hospitalized animals or clinical staff.
- The isolation room is separate from the rest of the hospital, has an external entrance separate from the hospital entrance and has a special area at the entrance to store personal belongings and personal protective equipment. There should be a footbath filled with a suitable disinfectant between this area and the isolation room.

General rules

- The owner of the patient to be isolated should be explained to the owner that his/her animal has/may have a contagious disease and must be isolated for human health and safety of other animals.
- In case of suspicion of a notifiable disease, Faculty Management and Animal Diseases Branch of the Directorate of Agriculture and Forestry should be informed.
- In case of suspected or confirmed disease, the biosafety commission should be informed as soon as possible so that they can assist in communication and assess whether appropriate measures have been taken to house the animal.
- Any situation that occurs while patients at high risk of communicable disease (Class 4) are placed in isolation or while the patient is in isolation should be reported to the Faculty and Hospital Management as soon as possible.
- Once an animal has been decided to be placed in isolation, it should be transported on a stainless steel cart and not allowed to walk on the ground. Personnel carrying the animal to isolation should wear disposable personal protective equipment and gloves. It is very important to clean and disinfect surfaces from fecal materials or bodily fluids that contaminate surfaces during the transport process.
- When the isolation room is used by animals with a contagious and/or potentially contagious infectious disease, patients' rooms, cages and/or stalls should be clearly labeled for the relevant communicable disease hazard. This marking should indicate the risk class of the disease, disinfection procedures for the control of the causative agent, hygiene requirements and whether there is a risk of zoonotic disease. If there are precautions to be taken in addition to routine isolation protocols, these should also be outlined.
- Personnel and patient traffic should be minimal in isolation areas. Access to the isolation room should be limited to the minimum number of personnel required to provide patient care. No unnecessary personnel should go into isolation and entry should be made when absolutely necessary. A maximum of 4 people can be in isolation at the same time.
- The authorized veterinarian is always responsible for the care of patients in isolation. It is at the discretion of the veterinarian to take the students here for teaching purposes. However, this should be minimized as much as possible. Students who care for/care for patients in Class 3 and 4 risk categories should not come into contact with other patients elsewhere in the clinic, if possible.
- It is best for the people caring for patients in this unit to be different from the people in the routine clinic, if possible.
- Special precautions should be applied in the management of patients with detected or suspected communicable diseases. Thermometers used in animals with suspected enteric infections such as

BVD, Salmonellosis should have boxes. Patients with suspected Class 4 infection should also have a separate thermometer. Stethoscopes should be available for use in the examination of high-risk patients, and these stethoscopes should be cleaned and disinfected immediately after use.

- Infectious disease status should be updated as the condition of patients changes during hospitalization.
- Doors should be opened and closed with the key at the entrance to the isolation area, trying not to touch too much.
- In isolation, there should be shoes or disposable shoe covers for the personnel in the place where the patients are kept. Shoes should be worn when the person enters the contaminated area and should be removed when leaving the area and discarded immediately if possible. Foot baths must be used when entering and exiting the unit.
- All personnel entering the isolation area where the potentially contagious animal is staying must wear appropriate personal protective clothing at each entry, whether or not they come into contact with the animal. These personal protective equipment can be: disposable examination gloves, shoe covers, cap and P2 masks, disposable or normal gowns. Before leaving the isolation room, these equipment should be disposed of in the clinical waste bin located there. If washable and reusable aprons are used, they should be immediately thrown into the laundry bag at the exit. Staff should replace personal protective equipment when moving between patients in isolation.
- After removing the gloves at the entrance and exit to the isolation ward, hands must be washed in accordance with the technique.
- Only the equipment and materials necessary for the care and treatment of the animal should be kept in the isolation room. Materials to be used in subsequent isolation patients should not be kept in the isolation area.
- All products entering an occupied isolation area should be considered as a source of contamination, and disposable items should be discarded immediately after the patient is discharged, and those that cannot be disposed should be cleaned and disinfected. Items other than discarded items should not be removed from the room.
- The ventilation of the isolation rooms should be in such a way as to prevent the flow of air towards the other areas of the clinic, or if it is not, the HEPA filter system should be used.
- If necessary (if there is an unknown fire), tape insulation should be applied. All equipment such as gowns, gloves and boots to be used in patient-related procedures should be kept in this area. There should also be a litter box within the tape isolation area.

Patient Care, Medical Examination and Treatment Procedures

- Once an animal is placed in isolation, it must be housed there for the duration of its stay and should not be taken out of the isolation room.
- Patients remaining in isolation should not be walked in areas used by other animals and should not be allowed to urinate or defecate.
- Biosafety staff at clinics and on the Biosafety Committee should be informed if a patient is in isolation with a reasonable suspicion that they may be infected with Class 4 disease. Medical practices to be performed in these patients should be tried to be performed on site, and all personal protective equipment precautions should be taken during these procedures. The Biosafety people in clinics and the Biosafety commission should be consulted before moving any class 4 patient for diagnostic or surgical procedures. If an isolated patient must be compulsorily transferred to another part of the clinic for basic procedures such as radiography or operational procedures, this should be done at the end of the day, if possible, or when there are minimal animals and staff, and appropriate personal protective

clothing should be worn during these procedures.

- These patients should be transported on a trolley to avoid contamination of the clinic floor. All staff performing these operations should use appropriate personal protective equipment. Other animals should be kept away from the processing area. As soon as the process is completed, the area where the process is applied and all tools and equipment should be thoroughly cleaned and disinfected.
- Only necessary drugs and consumables should be taken to isolation for treatment. The drugs used in the patients here should either be sent with the patient or discarded when they are discharged. Medicines or intravenous fluids should not be returned to the pharmacy.
- It is the veterinarian's responsibility to ensure that sending samples for the diagnostic procedures of patients in isolation and taking appropriate biosafety measures with these patients.
- Samples from isolation patients can be sent to the laboratory or examined on in-house laboratory equipment. Samples should be collected with as little contamination as possible in sample cups, sprayed with disinfectant on the outside of the container, and then placed in a clean disposable glove. Staff analyzing the sample should always wear gloves. If the sample is being sent to an external laboratory, it should be double bagged and a warning should be placed stating that the sample may be contaminated with an infectious organism.
- In the samples to be sent in suspicious cases or disease agents and zoonotic cases, the situation should be clearly stated on the application forms and samples.

Discharge Procedures

- A warning should be placed on the need for disinfection after discharge of patients with a suspected or suspected disease in the Class 4 risk group and staying in the isolation unit, it should not be used for a new patient without detailed cleaning and disinfection of the entire area, tools and equipment here.
- Patients should be brushed when discharged, their faeces and body secretions should be cleaned, and their feet should be washed with chlorine disinfectants.
- All staff involved in patient movement during discharge procedures should wear appropriate personal protective equipment. Staff should avoid touching doors and doorknobs with contaminated gloves.
- During the discharge process, staff should inform the patient's owners about the communicable disease hazards in detail and make appropriate recommendations to reduce the risks to humans and animals.
- Fecal materials or body fluids that contaminate surfaces during the patient's movement should be cleaned immediately and these areas should be disinfected.

Cleaning and Waste

- All staff are responsible for the hygiene of the isolation unit. A technician or staff should not be expected to clean when necessary, the person(s) assigned to the patient should take this responsibility.
- Door handles to isolation rooms should be disinfected regularly.
- Suitable waste bins and bags should be available in isolation rooms for the disposal of bedding, disposable personal protective equipment and other garbage.
- All materials such as buckets, mops and spray bottles to be used for cleaning the isolation room should be kept in the isolation room and should not be taken out.
- Contaminated items and wastes in the isolation room should be packed and sealed before being re-

moved from the isolation area. Waste from the isolation room should be considered potentially infectious and warnings indicating this should be placed on the waste packaging.

- Infectious or potentially infectious fertilizers and bodily fluids of patients in isolation should be stored and disposed of separately from other waste materials in special waste containers.
- All surfaces and materials which have been touched by the isolated animal or come into contact with bodily fluids or exudates should be cleaned and disinfected immediately. All surfaces, including benches, feeders, drinkers, and feeders, should be sprayed with a suitable disinfectant, and floors should be properly wiped daily with a disinfectant. All organic matter must be removed before using the disinfectant.
- Any material taken into the isolation unit should not be returned to the main clinical facilities. Equipment such as beds and cages should not be moved to another point in the hospital, even for washing and disinfection.
- Tools such as feed and water bowls used for animals in the isolation room, and medical examination equipment such as thermometer and stethoscope should be cleaned and disinfected after each use and if taken out of the isolation ward.

Patient Owner

- It is forbidden for the relatives of the patients to enter the isolation section. However, in exceptional cases, they can be taken by making an appointment at certain times, under supervision and if strict personal protective measures are taken by the staff. The permission of this situation is the responsibility of the senior clinical staff.

3.1.2. Equidae Clinic

- As in any hospital, biosafety has gained great importance in the equine clinic due to the risk of encountering potentially infectious diseased animals. Strict rules should be applied to prevent sick animals from becoming a source of contamination to other animals and from contracting hospital infections.
- Special clothing is used to reduce the risk of carrying infectious agents to which humans or animals may be exposed. It is mandatory for all staff to wear clean and appropriate clothes for the job. Students, interns and clinicians should wear gowns or overalls with name cards attached. If they do not have suitable clothes, they should be removed from the clinic. Cleaning staff and technical staff are required to wear clothes with name cards.
- All staff should wear durable boots or shoes at all times. Shoes should be easily cleaned and disinfected. At the entrance to the medical examination room, one must enter by pressing the disinfectant foot mats.

Adoption of Sick Animals and Referral to Outpatient Clinics

The animal owner must be asked to register first. After registration, a quick anamnesis should be taken by an intern or clinician to understand whether the animal is in a certain risk class. According to the classification results, the animal should be sent to the parking area - to the download ramp and lowered to the medical examination room or isolation unit.

The steps to be followed in order for patients with suspected infectious diseases are as follows:

- If the owner reports an acute case of vomiting, coughing or diarrhea (within the last 1 week) in the call made with the request for an appointment, the owner should be asked to keep the animal in the vehicle until the hospital registration is done and directed by a staff member. Depending on the

circumstances, the patient may be taken directly to a medical examination room, equine isolation, or emergency and intensive care unit.

- The application complaint should be clearly written on the patient registration form as “acute diarrhea”, “acute vomiting” or “acute cough” and the section “Suspected Infectious Disease” should be marked.
- If an animal is brought directly off the ramp and into the equine practice without prior notice, the patient registrar should immediately contact the appropriate clinic and coordinate the placement of the animal in an appropriate box or isolation facility to minimize hospital contamination.
- Every precaution should be taken to reduce or prevent direct contact between patients with suspected infectious diseases and other patients in the hospital. In addition, such patients should be transported to the appropriate medical examination / treatment / accommodation area as soon as possible to reduce the potential for hospital contamination.
- Patients without signs of infectious disease are directed to the download ramp by the staff in charge to be brought to the clinic.

3.1.2.1. Clinics

Clean medical examination gloves should be worn when handling risky patients (eg, suspected infectious diseases or newborn foals) or before touching secretions, discharges and wounds.

Washing of hands is mandatory after wound treatment, bandage change, ophthalmological care, catheter placement, endoscopy implementation and contact with risky patients. Hands should also be washed in other cases where hands are soiled.

After the medical examination is over, the instruments and equipment (stethoscope, thermometer, probes, endoscopes, etc.) used in the patient medical examination must be cleaned and disinfected before being used on another patient.

Residual materials formed in the area during the medical examination should be thrown into household waste bags in the trash cans in the hall, sharp, piercing and stinging materials (scalpel, injector tips and cannulas) should be collected in special yellow boxes. Surfaces or equipment contaminated with faeces, secretions or blood should be cleaned and disinfected by the staff responsible for the patient. should be done. This is especially important for patients suspected or known to be spreading important infectious disease agents.

All staff and students are expected to organize the materials once used and leave the venue in its original state. All staff working in the hospital are responsible for maintaining the cleanliness of the hospital and the proper hygiene of the staff.

It is forbidden for students and staff to consume any kind of food and drink in the medical examination rooms.

Before leaving the medical examination room, the hands should be washed again after the gloves and disposable aprons used are thrown into the appropriate trash cans, and it is necessary to leave the hall by pressing the disinfectant mats in front of the doors.

3.1.2.2. Operating room

All surgical procedures cause breaks in the normal defensive barriers of the skin or mucous membranes. Therefore, the breaking of these barriers is accompanied by a natural risk of surgical site infection. Surgical site infections can occur sporadically or as part of an epidemic, and in some cases can have devas-

tating consequences. General infection control practices (eg, hand hygiene, cleaning and disinfection) are important for the prevention of surgical wound infection. Special precautions for surgery include proper maintenance of the surgical environment, use of appropriate personal protective equipment, hand hygiene, disinfection and sterilization of anesthetic equipment and surgical instruments, appropriate use of perioperative antimicrobials, and surgical site care before, during, and after surgery.

- The use of sterile gloves does not make surgical hand preparation unnecessary. Sterile gloves contribute to preventing surgical site contamination and reduce the risk of bloodborne pathogen transmission from patients to the surgical team.
- An operating room should only be used for surgical procedures. It is very important to have a well designed and maintained operating room. To keep the operating environment as clean as possible, this area should be separated from staff and animal traffic and should be easy to clean and disinfect thoroughly. The operating room should not be used for non-surgical procedures between surgeries. Access to the area should always be restricted to minimize traffic in the room. The number of people in the operating area has been identified as a risk factor, so only essential staff should be allowed into the operating room during any surgical procedure. All staff involved in the procedure, including those performing surgical nursing duties, should be trained in aseptic technique and operating room procedures.
- All staff in the operating field should wear designated freshly washed surgical gowns, surgical caps or hair caps, and surgical masks during surgery, regardless of whether they are directly involved in the procedure itself.
- The designated surgical shoes or shoe covers must be worn by all staff in the surgical field. Freshly laundered surgical gowns worn during surgery should not be worn while handling or treating other patients and should be covered by at least a lab coat when outside the operating area. Staff directly involved in the procedure should also wear a sterile gown and sterile gloves.
- The doors should always be closed before, during and after the operation.
- Tools and equipment in the hall and sewer channels should be cleaned and disinfected once a week during non-operational times.
- Sleep-wake box reserved for anesthesia is used. Cushions in the area should be properly cleaned before and after each patient.
- It should be ensured that the cushions are solid, fixed to the wall-floor correctly and securely. Mattresses should be replaced in order to take into account that stool, blood, urine or other body fluids may have entered through the ruptures in the mattresses and to prevent possible contamination.
- All kinds of auxiliary and technical materials (eg anesthesia machines, endotracheal tubes, shackles, etc.) used during and after the surgical procedure should be cleaned, disinfected and sterilized at the end of the procedure. Blood and other dirt on the floor should be washed first and then wiped with disinfectants.
- Cutting, piercing and penetrating materials (scalpel, injector tips and cannulas) used during the surgical procedure should be collected in special yellow boxes, and stools or secretions should be cleaned by the staff responsible for the patient as soon as possible.

3.1.2.3. Hospitalization

All staff and students responsible for the implementation of general disinfection and personal protective measures in the hospitalization unit. Before hospitalization, the patient should be evaluated by the responsible clinician in terms of risk categories and the measures to be taken accordingly should be prepared in advance.

- Accessories such as blankets, coatings, guide rope (long rope-rope) belonging to the patient owner are returned to the patient owner. If the owner insists that these accessories remain, they are informed that they will not be returned.
- Visiting hours of patient owners are limited to predetermined times and patient owners must comply with this.
- The feed that the patient eats routinely should be provided by the patient's owners.
- The feed is stored in buckets with suitable lids.
- A file containing the medical history is prepared when the patient is admitted to the hospitalization unit.
- Inpatient paddocks are determined by the responsible veterinarian. Allocated paddock must be clean.
- Outside the paddock door where the patient is placed, a chart is hung visibly on the front or side wall, with information about the owner and the patient, and the suspected or confirmed infection status.
- If the patient's temperament is aggressive, this should be hung on the door of the box in a way that attracts attention.
- On the whiteboard in the hospitalization section, the name of the veterinarian and the student in charge of the patient, what should be done in the treatment and the estimated time of discharge should be written.
- The patient's medical examination and treatment information should be written on the chart on a timely basis.
- It is forbidden to transport patients from paddock to paddock. Cleaning can be done while the patient is taken from the paddock and walking. The filled paddocks are cleaned at least once a day by the cleaning staff and, if necessary, they are properly prepared again.
- Again, all staff are responsible for warning, cleaning and re-preparing the dirty paddock.
- Before discharge, patient owners should be warned about the dangers of infectious diseases and how to control these dangers.
- When the patient is discharged, a "clean" warning should be posted on the paddock door or on the side wall. The paddock should be cleaned as soon as possible.

Colic Horses and Pain Paddock

- Patients with colic should be hospitalized separately from other patients and managed with strict biosafety measures because of the risks of spreading Salmonella.
- Protective clothing should be worn in the pain pad as in other parts of the hospital.
- A foot bath should be used when entering and exiting the constriction unit.
- Staff should not enter the pain pad unless contact with patients is necessary.
- Hands should be washed or hand sanitizers before and after touching the patient.
- When a painful horse is required to be examined by special methods (radiology, ophthalmology, etc.), the staff should follow the same protective measures when transferring the patient to the relevant unit.
- If there are materials used in the painful patient (nasogastric tube, bucket, syringe, etc.), all necessary equipment should be placed in front of the pain pad.
- If the patient no longer needs the equipment, the materials used should be thoroughly cleaned with

soap and water, then taken by a staff member and taken to the relevant unit for sterilization.

- Residue materials formed in this area during the medical examination should be thrown into household waste bags in the trash cans in the hall, sharp, piercing and stinging materials (scalpel, injector tips and cannulas) should be collected in special yellow boxes, and faeces or secretions should be cleaned as soon as possible by the staff responsible for the patient.

Discharge of Patients

- Animals that have recovered as a result of the treatment procedures should be discharged and the date of discharge should be written in the patient registry.
- When the patient is discharged, the patient card in the paddock should be cleaned, it should be stated that he will not be hospitalized anymore, and all records should be collected in the patient registry unit.
- Empty paddocks should be cleaned (stool and wet litter should be removed) before a new patient is brought in, while paddocks where patients with suspected or known infectious diseases stay should be identified with the note "will be disinfected". No other animals should be allowed to enter this paddock prior to cleaning and disinfection.
- When the patient is discharged, all materials used in the patient (such as halter, lanyard, blanket, etc.) should be cleaned and disinfected with chlorhexidine solution.
- All medical materials to be disinfected should be placed at the entrance of the units, then the relevant staff should collect these materials for cleaning and disinfection process and storage afterwards.

Patient Visits

- Whatever the reason, pet owners are not allowed to stay overnight in the hospital with their patients.
- Only after getting permission from the hospital management and an officer to accompany them can they visit their patients within the specified hours.
- Patient owners must comply with all barrier protection measures necessary to touch their animals or enter paddocks.
- The general public, except their owners, should not be allowed to enter the hospitalization areas of the hospital.
- Visiting patients in the isolation unit is prohibited. In exceptional cases, such as euthanasia, this may be permitted provided that biosafety measures are taken.
- Dogs and other pet animals should not be allowed to enter hospitalization areas.

3.1.2.4. Insulation

All potentially infectious patients should be housed in an isolation unit until proven non-infectious. It is better to use the isolation unit when there may be an infection in the clinic, than not to use the unit and there is an epidemic in the clinic. This is especially important for zoonotic agents.

Staff procedures entering the isolation unit:

- All necessary equipment for medical examination and treatment should be collected before entering the unit.

- No personal items should be taken into the unit.
- Disposable aprons should be worn in the isolation unit.
- Masks should be used when necessary in the isolation unit.
- Special rubber boots must be worn for this purpose at the entrance to the isolation unit. Boots should be dipped in disinfectant at the entrance to the isolation unit.
- It is recommended to use double gloves during the medical examination in the isolation unit. After examining the patient, a set of gloves should be removed and discarded. The remaining glove is used when writing records, taking medication, etc. should be worn.

Patient care

- Medical examination and treatment of patients in the isolation unit should be carried out with a minimum of clinicians and students.
- All preparations for medical examination and treatment should be made in advance on a clean bench.
- Personnel procedures leaving the isolation unit:
- Gloves should be thrown away just before leaving the isolation unit.
- It is necessary to walk in a disinfectant foot bath.
- All contaminated surfaces (door handles, etc.) should be disinfected with inner gloves.
- Rubber boots should be removed and shoes should be put on (with inner gloves) just before leaving the isolation unit.
- Underwear gloves should be removed and disposed of in the appropriate waste bin.
- After removing gloves and rubber boots, hands should be thoroughly washed with chlorhexidine scrub and water.

Patient Admission to the Single Nail Isolation Unit

- Patients with suspected communicable diseases should be taken directly to the isolation unit as soon as they are off the ramp.

General Cleaning and Garbage

- The isolation unit should be cleaned daily and disinfected with an appropriate disinfectant.
- Reusable equipment should be disinfected with an appropriate disinfectant.
- Any equipment to be sent to the sterilization unit must first be disinfected with an appropriate disinfectant and marked with a suspected infectious disease label.
- All kinds of waste in isolation units should be disposed of in double-layer medical waste bags. After the medical waste bags are closed, the outer surfaces of the bags should be disinfected with an appropriate disinfectant. Warning labels stating that there is suspected infectious disease waste should be affixed on these bags.
- The transportation, storage and disposal of the wastes from the isolation units should be carried out in accordance with the medical waste plan of the Faculty.

Minimizing Input to the Isolation Unit

- Only the clinician and student(s) directly responsible for the patient should be allowed to enter the isolation unit.
- Entry of staff with suppressed immune system (using immunosuppressive drugs, pregnant, leukopenic, diabetic) to the isolation unit and contact with animals should be prevented.
- The clinician, who needs to take care of patients outside of isolation due to the case density in the hospital, should perform the medical examination and treatment of the patient in the isolation unit last.
- Patient owners should never be allowed to enter isolation units. With the express permission of the biosafety staff, exceptions to this visitation rule can be made, provided that necessary precautions are taken in certain circumstances, such as when patients are required to be euthanized.
- Equipment and materials; in general, any material taken to the isolation unit should not be returned to the main hospital.
- All materials that will go to the isolation unit are stocked by the Veterinary Health Technician. These materials are; apron, gloves, boots, masks, buckets, disinfectant, footbath set, garbage bags, linen bags, various syringes and needles, sharps container, thermometer holder, scissors, stethoscope. There should be signs on these materials showing that they belong to the isolation unit. Disposable ones of these materials should only be used for the relevant patient, and other materials should never be used on another patient without disinfection.
- Treatment materials should be determined by the clinicians and students responsible for the patient. These must be removed from the treatment room before going into isolation.
- The isolation unit DOES NOT contain drugs and intravenous fluids. These items will be dispensed from the central pharmacy, depending on their immediate or anticipated needs. Medications distributed from the central pharmacy and not used later should be disposed of properly and should not be returned to the pharmacy or medical examination rooms.
- Medications used in isolation patients should be billed to the patient owner.
- Samples taken from isolation patients should be disinfected for transport to the laboratory, placed in a biohazard bag and tightly sealed. This will minimize the possibility of contaminating other surfaces.

Discharge of isolation patients:

- After the patient is in isolation, one nail should never be taken into the medical examination room. The patient is discharged directly from the outer door to the owner.
- After the patient is discharged from the isolation unit, the unit should be properly disinfected. After disinfection, the area should be left empty for 48 hours and a sign should be placed indicating when it can be used.

3.1.3. Cat-Dog Clinic

All clinicians, students and hospital staff are required to follow basic hygiene and biosafety rules. All staff at the cat and dog clinic are responsible for maintaining cleanliness and applying biosafety procedures. For this reason, training should be given to staff and students at regular intervals, and patient owners should be informed on issues including hand hygiene, use of personal protective equipment, cleaning and disinfection of the environment and equipment, waste management including sharps and penetrating wastes.

All staff should always wear clean professional clothing, clean protective outerwear and clean ap-

propriate footwear when working in outpatient areas. Protective outer clothing (shirt, apron, etc.) and shoes should be changed or cleaned and disinfected when contaminated with faeces, urine, blood, runny nose or other body fluids. It is useful to have an extra outer garment as a spare for situations where contamination may be excessive. All staff should wear closed-toed shoes and take care to disinfect their shoes while working.

It is the responsibility of all staff to ensure hospital cleanliness and proper personal hygiene. Before and after each patient's medical examination, hands should be washed or cleaned with an alcohol-based hand sanitizer. Surfaces or equipment contaminated with faeces, secretions or blood should be promptly cleaned and disinfected by staff responsible for the patient. This is particularly important for patients known or suspected to be spreading important infectious disease agents. If there is common equipment for patients (mouthpiece, speculum, forceps, etc.), it should be cleaned and disinfected after each use. Students are required to carry some equipment of their own (eg thermometer, stethoscope, pen light). It is very important that these materials are cleaned and disinfected routinely and this responsibility belongs to the students.

Food and drink should not be kept or consumed outside the permitted areas in the hospital. Patients should not be allowed to enter any area where food or drink is allowed to be held or consumed.In areas where food consumption is allowed, food and beverages should be closed in non-spillable containers and stored in small compartments in backpacks. Food should not be left out for a long time as it can cause bacterial growth and the occurrence of foodborne illness. All staff using these areas are responsible for cleaning. Refrigerators used to store food or medicine for patients should not be used to store food or drink intended for human use.

Adoption of Sick Animals and Referral to Outpatient Clinics

Patients with a history of acute vomiting, diarrhoea, cough or upper respiratory tract symptoms should be treated as suspected cases of infectious disease.

Appointments for possible cases of infectious disease should be handled by admissions officers and staff receiving cases as follows:

a) If the owner of the patient reports an acute case of vomiting, coughing or diarrhea (within the last 1 week) in the call made with the request for an appointment, the owner of the patient should be asked to keep his pet in the car until the hospital registration is done and directed by a staff member. Depending on the circumstances, the patient may be taken directly to an medical examination room, small animal isolation, or emergency and intensive care unit.

b) The application complaint should be clearly written on the patient registration form as "acute diarrhea", "acute vomiting" or "acute cough" and the section "Suspected Infectious Disease" should be marked.

c) If the animal is brought directly to the reception desk without prior notice, the patient registrar should immediately contact the relevant clinic and coordinate the placement of the animal in a medical examination room or isolation to minimize hospital contamination. Every precaution should be taken to reduce or prevent direct contact between patients with suspected infectious diseases and other patients in the hospital. In addition, such patients should be transported to the appropriate medical examination/treatment/accommodation area as soon as possible to reduce the potential for hospital contamination.

Patients without signs of infectious disease can wait in the waiting room with their owners.

3.1.3.1. Clinics

Patients should not be allowed to wait in the corridor where medical examination rooms are located. Patients in Class 4 in the risk category or with suspected infectious and/or zoonotic diseases should never be taken into medical examination rooms and should be directed to direct isolation. There is a patient medical examination table in each medical examination room. More than one patient should not be admitted to the medical examination room. Before the patient is admitted to the medical examination rooms, the medical examination table and the equipment to be used in the medical examination (stethoscope, thermometer, etc.) should be disinfected with appropriate disinfectants. Clinicians and students who will come into contact with the patient before the patient medical examination should meticulously apply personal protective measures. Stool, urine, aspirate and swabs should be assumed to be contagious. Protective outerwear and disposable gloves should be worn when handling these samples. Gloves should be discarded and hand hygiene practiced before touching clean objects. It should be ensured that the samples to be delivered to the laboratory are closed hygienically and safely so that the staff carrying the sample and working in the laboratory are not exposed to potential infectious agents. If a contagious disease is suspected based on the evaluation of the medical examination and/or laboratory analyzes of the patient taken to the medical examination rooms: a) The medical examination room should be closed. b) The sign "Do not use the medical examination room, special disinfection is required" should be hung on the door. c) Staff responsible for disinfection should be informed and the room should not be used until adequate cleaning/disinfection takes place and the sign is removed. All waste materials must be properly stored, transported and disposed of. These patients should be transported to the designated area for high-risk patients with a disinfectable table.

3.1.3.2. Operating Rooms

Only patients, staff and a limited number of students are allowed to enter the operating rooms. The owners of the patient are strictly prohibited from entering the operating rooms. All staff and students entering operating rooms should be trained in advance in aseptic technique and surgical procedures.

During preparation for surgical operations;

- Clean surgical gowns to be worn in the operating room must be put on before entering the preparation area. Accessories such as watches and jewelry on the person should be removed. The tops of surgical gowns should be placed inside the trousers to avoid contact. All staff and students in the operating rooms should wear surgical caps, masks and shoe covers.
- Hands should be visibly clean and dry and nails should be short. Normal washing should be done to remove visible dirt on hands and arms. Then the surgical washing area should be passed.
- Hands and arms should be washed with iodine soap up to the elbows for 5 minutes in accordance with the technique, and then rinsed with hands and arms above elbow level. Afterwards, hands and arms should be dried from fingertips to elbows with a sterile towel up to the elbows.
- After the hands are dried, rubbing should be done with alcohol-based hand antiseptics for the time and amount in accordance with the manufacturer's instructions. Finally, one should go to the operating room by wearing a sterile gown and gloves, respectively.

Management of Patients in the Surgical Field;

- The goal of preoperative surgical site management is to eliminate potential pathogens without creating a physical environment that could increase post-operative bacterial colonization or infection.

- Patient owners may be asked to wash their patients 1 day before the planned operation.
- The operation area should be shaved in a suitable width just before the operation. The equipment to be used for shaving should be chosen in such a way as to cause the least damage to the skin of the animal.
- Before the operation, the preparation of the patient operation area should be done in the surgical preparation room by wearing medical examination gloves and a protective suit.
- The shaved operation area should be cleaned of visible dirt with the help of suitable antiseptic and a brush.
- The operation area of the patient who is taken to the operating room should be made aseptic by using appropriate antiseptics and appropriate methods.
- The operation area should be appropriately delimited with sterilized or disposable service and service forceps.
- Sterile service and sterile operating equipment should never be touched without wearing sterile gloves.

Considerations for Small Animal Operations with Suspected Infectious Diseases;

- If possible, surgery should be avoided in animals with suspected infectious disease. Bandage changes, minor procedures, and minor surgeries should be performed in the isolation unit whenever possible.
- If the operation is necessary, the operations of such patients should be performed at the end of the day in order to minimize transmission to other patients.
- It is the senior clinician's responsibility to inform anesthesia and small animal surgery about planned surgery in animals with potential infectious diseases (especially respiratory, gastrointestinal, and multi-antibiotic-resistant bacterial infections).
- Premedication in such patients should be done in the isolation unit. Afterwards, patients should be transported to the operating room with disinfectable tables/carts.
- An operating room with minimum cross-traffic should be selected.
- Anyone who comes into contact with an animal should carefully wash their hands and remove contaminated clothing before touching other animals.
- After surgery, contaminated outerwear should be placed in plastic bags marked with a biohazard sign and sent to the sterilization unit to be washed separately from other washes.
- All contaminated instruments and equipment should be cleaned and disinfected and placed in a plastic bag marked with a suspected infectious disease label before being sent to the sterilization unit for sterilization.
- If possible, patients' recovery phases from anesthesia should be performed in the isolation unit.
- All contaminated areas should be cleaned and disinfected immediately after the operation.

3.1.3.3. Hospitalization

All staff and students responsible for the implementation of general disinfection and personal protective measures in the hospitalization unit are responsible. Before hospitalization, the patient should be evaluated by the responsible clinician in terms of risk categories and the measures to be taken accordingly should be prepared in advance.

- Accessories such as blankets, beds, leashes belonging to the owner of the patient are returned to the

owner of the patient. If the owner of the patient insists that these accessories remain, they are informed that they will not be returned.

- Visiting hours of patient owners are limited to predetermined times and patient owners must comply with this.
- The food that the patient eats routinely should be provided by the owner of the patient.
- Feed is stored in suitable bags, cans or plastic containers.
- The smallest possible amount of food is stored in the small animal hospitalization refrigerator.
- A file containing the medical history is prepared when the patient is admitted to the hospitalization unit.
- Inpatient cages are determined by the responsible veterinarian. The cage allocated must be clean.
- A chart containing the owner of the patient and information about the patient and the suspected or confirmed infection status is hung in the cage where the patient is placed.
- If the patient's temperament is aggressive, this situation should be hung in the cage in a way that attracts attention.
- On the whiteboard in the hospitalization section, the name of the veterinarian and the student in charge of the patient, what should be done in the treatment and the estimated time of discharge should be written.
- The patient's medical examination and treatment information should be written on the chart on a timely basis.
- Transporting patients from cage to cage is prohibited. The cage is cleaned as the patient is taken out of the cage and walked. Full cages are cleaned by the cleaning staff at least 2 times a day and prepared again if necessary.
- Again, all staff are responsible for warning, cleaning and re-preparing the dirty cage.
- Before discharge, patient owners should be warned about the dangers of infectious diseases and how to control these dangers.
- When the patient is discharged, a "clean" warning should be posted in the cage. The cage should be cleaned as soon as possible.

3.1.3.4. Isolation

Patients known or suspected to have a contagious disease should be housed in an isolation unit. These diseases are: a) Diarrhea +/- vomiting (eg Salmonella, Campylobacter, parvovirus infections, Clostridial agents, Giardia etc.). b) Respiratory tract disease (eg, infectious tracheobronchitis, calicivirus, Feline Herpes Virus, etc.). c) Other infectious diseases and agents that are deemed necessary to be isolated by the senior clinician or member of the Biosafety Board.

- Great attention to hygiene and the use of barrier nursing measures in isolation units are absolutely critical for the proper containment of infectious disease agents.
- Special care should be taken to avoid contamination of the isolation medium by dirty hands, gloves or shoes. Gloves should be changed as often as necessary to minimize environmental contamination. After contact with the patient or any potentially contaminated material, hands should be washed with soap and water and cleaned with alcohol-based hand disinfectant when entering and exiting the isolation area.
- Environmental hygiene is the responsibility of all staff working in the isolation unit. Students and staff assigned in the isolation unit are responsible for the routine cleaning and organization of the

halls. This includes cleaning and disinfecting countertops, used materials, doorknobs, and emptying trash when full.

- Due to the risk of exposure to zoonotic agents, it is forbidden to smoke, eat or drink anywhere in the isolation unit. No food or drink should be brought into the unit.
- Prior to entering the unit, staff and students are briefed on infectious disease, risks and protocols. Staff with immunosuppressive illness are not allowed to treat patients in the unit.
- The Small Animal Isolation Unit consists of a room for preparation and materials, a vestibule, a fixed isolation cage and isolation boxes consisting of a mobile cage assembly. Only one animal can be accommodated in the fixed isolation cage.
- Patients in isolation are treated after all other patients in the hospital have been treated. Any potential accident (including needle sticks, bites, and scratches) should be reported to the clinician responsible for the case and the appropriate accident report form should be completed.
- Patient owners are never allowed to visit animals housed in the isolation unit. As an exception, the owner of the patient whose patient is to be euthanized may be allowed, provided that the unit is suitable. The exception must be confirmed by the senior clinician involved.
- Generally, patients are not allowed to be moved from isolation to other areas of the hospital. Under special circumstances (for example, intensive care needs or changing the initial diagnosis), the patient may be moved to the general area of the hospital with the consent of the senior clinician dealing with the case.
- Isolation patients will not be taken out of the isolation unit and these patients will not be allowed to use the common areas.

Protocols to be Followed While Working in the Small Animal Isolation Unit

Procedures for Staff Entering the Isolation Unit

- Gather all necessary equipment for medical examination and treatment before entering the unit.
- Remove the personal lab coat and hang it on the wall near the door, outside the entrance hall. No personal items should be taken into the isolation unit.
- Disposable aprons should be worn in the isolation unit.
- At the entrance to the isolation unit, wear the special rubber boots available for this purpose. Dip the boots in disinfectant at the entrance to the isolation unit.
- It is recommended to use double gloves during the medical examination in the isolation unit. After vetting the patient, a set of gloves should be removed and discarded. The remaining glove is used when writing records, taking medication, etc. should be worn.

Patient care

- Medical examination and treatment of patients in the isolation unit should be carried out with a minimum of clinicians and students.
- All preparations for medical examination and treatment should be done on a clean counter in the anteroom.
- After entering the main isolation area, the patient's medical examination and treatment should be done on the cage or table inside the isolation area.

Staff Procedures Leaving the Isolation Unit

- Just before crossing the red line from the isolation unit to the entrance hall, the outer gloves should be thrown away.
- It is necessary to walk in the disinfectant foot bath
- All contaminated surfaces (door handles, etc.) should be disinfected with inner gloves.
- Rubber boots should be removed and shoes should be put on just before leaving the isolation unit. (with inner gloves).
- Inner gloves should be removed and disposed of in the appropriate waste bin.
- After removing gloves and rubber boots, hands should be thoroughly washed with chlorhexidine scrub and water.
- It is necessary to exit the entrance hall.

Patient Admission to Small Animal Isolation Unit

- Patients with suspected communicable diseases should be taken directly to the isolation unit from the external entrance.
- Patients transferred from the hospitalization to the isolation unit should be transported on easily disinfectable carrying tables to limit hospital contamination.

General Cleaning and Garbage

- Used cages should be cleaned daily and disinfected with an appropriate disinfectant.
- Reusable equipment and food containers should be removed from the cage and disinfected with an appropriate disinfectant.
- Any equipment to be sent to the sterilization unit must first be disinfected with an appropriate disinfectant and marked with a suspected infectious disease label.
- All kinds of waste in isolation units should be disposed of in double-layer medical waste bags. After the medical waste bags are closed, the outer surfaces of the bags should be disinfected with an appropriate disinfectant. Warning labels stating that there is suspected infectious disease waste should be affixed on these bags. The transportation, storage and disposal of the wastes from the isolation units should be carried out in accordance with the medical waste plan of the Faculty.

Minimizing Input to the Isolation Unit

- Only the clinician and student(s) directly responsible for the patient should be allowed to enter the isolation unit.
- Contact with patients in the isolation unit should be avoided as much as possible, especially for staff who have a condition or disease that may lead to immunosuppression, such as the use of immunosuppressive drugs, pregnancy, leukopenia and diabetes.
- The clinician, who needs to take care of patients outside of isolation due to the case density in the hospital, should perform the medical examination and treatment of the patient in the isolation unit last.
- Patient owners should never be allowed to enter isolation units. With the express permission of the biosafety staff, exceptions to this visitation rule can be made, provided that necessary precautions are taken in certain circumstances, such as when patients are required to be euthanized.

Equipment and Materials:

In general, any material taken to the isolation unit should not be returned to the main hospital.

- Entrance hall materials are stocked by the veterinary health technician. These materials are; apron, gloves, boots, masks, buckets, disinfectant, footbath set, garbage bags, linen bags, various syringes and needles, sharps container, thermometer holder, scissors, stethoscope. There should be signs on these materials showing that they belong to the isolation unit. Disposable ones of these materials should only be used for the relevant patient, and other materials should never be used on another patient without disinfection.
- Treatment materials should be determined by the clinicians and students responsible for the patient. These must be removed from the treatment room before going into isolation.
- There should be no drugs and intravenous fluids in the isolation unit. These items will be dispensed from the central pharmacy, depending on their immediate or anticipated needs. Medicines distributed from the central pharmacy and not used later should be disposed of properly and should not be returned to the pharmacy or medical examination rooms.
- Medications used in isolation patients should be billed to the patient owner.
- Samples taken from isolation patients should be disinfected for transport to the laboratory, placed in a biohazard bag and tightly sealed. This will minimize the possibility of contaminating other surfaces.

Discharge of Isolation Patients:

- The patient should never return to the general hospital area after going into isolation. The patient is discharged directly from the outer door to the owner.
- After the patient is discharged from the isolation unit, the unit and cages should be properly disinfected. After disinfection, the cage should be left empty for 48 hours and a sign should be placed indicating when it can be used.

3.2. Clinicar

For all staff, physicians and students who will participate in the procedure in all non-faculty clinical visits planned by the veterinary faculty for education-training or medical examination-treatment;

- All necessary personal protective equipment,
- Materials to be used in the medical examination and treatment attempt,
- Waste bins required for waste disposal
- Necessary materials for cleaning and disinfection measures to be taken at the entrance and exit of the procedure area should be prepared in advance and taken during the visit.
- It should be informed about the risks of diseases/infectious diseases that will be encountered according to the business and animal species to be visited.
- Suspicion of contagious and/or zoonotic disease when visiting the establishment

if any;

- The clinic vehicle should be left off property or outside the area where the suspected case is located. A dirty area (the area where the suspected case is located) and a clean area should be determined, and an entry-exit point should be selected between these areas. At the entry/exit point, a small transition area should be determined to switch between clean and dirty areas.
- All materials and personal protective equipment to be used in the dirty area should be prepared in

the clean area. If there is no water in the dirty area, a bucket filled with water should also be prepared.

- The transition zone should be prepared for cleaning and disinfection for use when returning from the contaminated area to the clean area. Fort his purpose; if applicable, a waterproof cover should be laid on the floor, a footbath filled with disinfectant, a bucket and/or spray bottle filled with disinfectant, a scrub brush, and 2 large plastic bags with ties for contaminated personal protective equipment should be placed on the dirty side. On the clean side, a bucket and/or spray bottle filled with disinfectant and 2 large plastic bags with ties for contaminated personal protective equipment should be placed.
- After washing and drying hands with soap or detergent and water, personal protective clothing should be worn in the appropriate order. Two pairs of gloves should be worn, and it should be ensured that the outer gloves fit the sleeves of the disposable overalls. If necessary, outer gloves should be taped to the sleeves of the suit with duct tape.
- All staff moving into the contaminated area must follow these procedures.
- All equipment and disinfection materials required for medical examination, treatment or sampling should be brought to the contaminated area.
- If the sample is taken, the sample containers should be closed, wiped and disinfected with disinfectant, put in a plastic bag and sealed. Afterwards, disinfection should be applied again and put in a second plastic bag and closed.
- After the procedure is completed, the contaminated area should be cleaned of coarse contamination, the waste should be placed in a plastic bag and sealed, the outside of the bag should be disinfected by dipping or spraying disinfectant. Then the waste should be placed in the second plastic bag, sealed and disinfected again. Waste should be sent to the clean area.
- The practitioner should clean himself and the equipment. For this purpose; the practitioner should disinfect the boots in the footbath, spray the outside gloves with disinfectant or dip them in the disinfectant bucket, send sample containers and other equipment to the clean side by dipping them in disinfectant or spraying disinfectant.
- Finally, the practitioner should move to the clean side and remove the personal protective equipment. For this, the outer gloves are removed respectively, and while the inner gloves are in hand, the hands are washed in disinfectant, overalls and boots are removed, head and eye protective equipment is removed, respiratory protection is removed after waiting for a while for the dust to settle. Removed equipment should be placed in the waste bag and the inner gloves should be removed and placed in the waste bag. The bag should be dipped in the disinfectant bucket or sprayed with disinfectant and sealed. Waste should be placed in the second plastic bag, sealed and disinfected again and placed in the clean area. Finally, hands should be washed and dried.
- Before leaving the business, the owner or manager should be briefed about the biosafety procedures to be used to control the disease and the measures needed to protect people against infection. If necessary, the relevant authorities should be informed and samples should be sent.
- If accidental exposure to blood or bodily fluids or a sharp injury occurs in the management, the affected skin area should be thoroughly washed with soap and water, and mucous membranes with water or saline. If the suspected disease is zoonotic, medical assistance should be sought without delay.

3.3. Sterilization Unit

- Complete sterilization of surgical instruments used in the training and research hospital and all parts that may come into contact with the surgical field is an important procedure. Improper/poor sterilization or improper use of instruments after sterilization may result in contamination of sterile tissues during surgical procedures.

- Heat is the most common physical method used for the decontamination of pathogens.
- Dry air, which is completely non-corrosive, ensures the sterilization of materials that can withstand high temperatures, and for this purpose, there are dry air sterilizers in Aydın Adnan Menderes University Veterinary Faculty Training and Research Hospital.
- Dry air sterilizers are electrically operated ovens with thermostats and time and temperature settings. With dry air sterilizers, sterilization is provided in 1 hour at 170°C, 2 hours at 160°C or 2.5 hours at 150°C.
- Before sterilization, the materials to be sterilized should be prepared for this process. The materials should be washed with soapy water after use and the organic matter residues on them should be cleaned. It should then be disinfected with chlorhexidine and sent to the sterilization unit.
- The sterilized products should be stored in the sterilization unit in such a way that they will not be contaminated until they are used.
- The staff responsible for the sterilizers must ensure that the set temperature and times are maintained each time they use the device.
- Periodic maintenance and controls of the sterilizers used in the sterilization unit should be carried out regularly in accordance with the manufacturer's instructions.

3.4. Hospital Central Laboratory

3.4.1. General rules

One of the most likely hazards to occur in laboratories is the splashing of chemicals on workers and damaging them with their burning and penetrating effects. The simplest and most effective way to be protected from such dangers is to use aprons. Depending on the nature of the operation, gloves should be used when necessary. Comfortable and flat feet shoes should be worn and especially peeptoe should not be worn.

It is one of the most important safety products with many different features to protect the eyes which are one of the most sensitive and most important organs, from chemicals, radiation or various harmful particles. Depending on the nature of the operation, protective glasses should be used when necessary. They are practical to use, skin-compatible masks designed to prevent laboratory workers from being affected by dust and liquid particles consisting of solid or liquid chemicals used during analysis. Apart from these, the things to be considered in the central laboratory are listed below.

- It is not necessary to go out of the laboratory with the apron and gloves used in the laboratory. Smoking should not be allowed in the laboratory.
- No cosmetics should be used in the laboratory.
- If the hair is long during the operation, it must be tied it up.
- No food/drink should be consumed in the laboratory.
- No food items should be kept.
- Laboratory equipment should not be used for food preservation etc. Purposes
- No chemical substance in the laboratory should be smelled or tasted.
- Liquid should not be taken orally while working in the laboratory.
- Attention and care should be kept in the foreground in the operations.
- No noise should be made or jokes should be made by thinking that others are working in the laboratory.

- Cracked and broken glassware should not be used in the laboratory.
- Due to the risk of transmission of diseases through the skin, open wounds must be covered with a band-aid while working in the laboratory environment.
- Solid substances should always be taken from the bottles with a clean spatula or spoon, and the same spoon should not be inserted into another substance until it is cleaned.
- Bottle caps should never be placed on the table with their undersides, otherwise, since the cap will be contaminated with foreign substances, these foreign substances may come into contact with the pure substance or solution in the bottle and spoil it when placed back on the bottle.
- Chemicals should be transferred from large containers to small containers
- Electric cables should be arranged in such a way that they do not interfere with the walking path.
- Before using electrical equipment, make sure that hands and the relevant area are dry.
- Do not insert anything into electrical outlets.
- The plug should be pulled out of the socket without pulling on the cable.
- All electrical equipment should be unplugged at the end of the laboratory work.
- The hazards of the materials to be used should be learned beforehand.
- Labels should be re-read to ensure you are using the correct chemical.
- Attention should be paid to the warnings about the materials used in the laboratory.
- Never work alone in the laboratory.
- It is necessary to have knowledge about safety equipment (Eyewash fountain, Shower, Fire extinguisher, Emergency exit)

3.4.2. Before Leaving the Laboratory

- All used materials and equipment should be put away.
- Work area should be cleaned
- It is necessary to know the procedure to be applied to the wastes.
- Hands should be washed thoroughly with soap and water before leaving the laboratory (even if gloves are worn)
- Biological/Medical wastes should be collected in bins with red bags.
- Household waste should be collected in garbage bins with black bags.
- Biological/Medical waste bags are filled to a maximum of ¾, their mouths are tightly tied, and when deemed necessary, each bag is placed in another bag with the same characteristics to ensure absolute sealing.
- The contents of the biological/medical waste bags are never compressed, removed, emptied or transferred to another container.
- Sharp and puncture tools should be collected in compression-resistant plastic boxes, separate from other medical wastes, and put in red bags by sealing the containers when they are full.
- These collection containers are filled to a maximum of ¾, their mouths are closed and placed in red plastic bags. Sharp-piercing waste containers are never compressed, opened, emptied or recycled after they are filled.

3.5. Pharmacy

3.5.1. Pharmacy Location and Features

- The place to be used as a pharmacy should be bright, damp and airy; floors should be laid with an easy-to-clean material suitable for hygiene conditions.
- Pharmacies should benefit from technological facilities such as lighting, water and telephone in the place where they are located.

3.5.2. Storage of drugs

- Drugs should be grouped according to their pharmaceutical effects and drugs in these groups should be listed in alphabetical order among themselves.
- Drugs should be stored in a clean environment, away from sunlight and not affected by humidity and temperature.
- Drugs that require special storage conditions or that are subject to cold chain must be accepted to the pharmacy in accordance with the storage conditions, stored and presented to patients in accordance with the same conditions. There is also a refrigerator for cold chain medicines. In order to monitor the temperature and humidity in the refrigerator and pharmacy, thermometers with retrospective memory records should be stored and all devices in the pharmacy should be calibrated at regular intervals.
- There should not be any food or drink in the refrigerator where the medicines are kept, other than the medicine.
- All chemical drug raw materials, ready-made drugs, vaccines and serums should be stored properly, taking into account the storage conditions on the package. For this reason, the internal temperature of the pharmacy should be kept within the necessary measures.
- Labels of bottles containing materials such as bromine, iodine, acid, alkaline, which spoil the labels, shall be non-removable and incorruptible; if necessary, it will be written on the bottle with oil paint. Damaged and dirty labels will be renewed.
- Drugs opened should be kept in the refrigerator or in a separate room with the lid closed, if necessary.
- Drugs in the pharmacy should not be accessible to unaffiliated persons, children or animals (hospitalized or other animals including vermin).
- Opiate narcotics, ketamine and euthanasia drugs should be stored in safer rooms or locations, in locked cabinets, and privately accessible only by the responsible veterinarian and/or pharmacist.
- The date on which the drug was opened should be indicated on the drugs opened and should be used until the storage date specified in the package insert.

3.5.3. Preparation of Medicines

- Preparation of drugs should be done by or under the direct supervision of veterinarians, pharmacists or technicians. Contamination with other drugs or soils should be avoided during preparation. The rubber in the drug bottles to be administered parenterally should be wiped with alcohol each time before being punctured with a needle. Each drug should be prepared with a new sterile syringe and needle. Needles and syringes used for drug administration should never be used for other patients or for the same patient. As an exception, oral medication syringes can be reused after thorough rinsing and cleaning.

- After preparation, a new and sterile needle should be used for injections.
- The preparation of toxic or dangerous drugs should be done under safe conditions (using protective equipment such as gloves, safety glasses, masks or under vacuum, etc.).
- Some drugs (eg sodium penicillin, ampicillin) should not be prepared in advance because they only remain stable for a very short time after dilution.
- Each syringe that is not administered immediately after preparation should have the name of the drug clearly marked on it with a water-resistant marker.
- Chemicals, galenic preparations and drugs used in the preparation of magistral drugs should be kept in glass bottles; substances that may deteriorate from light should be kept in colored bottles in a separate cupboard.
- In pharmacies, the top of the counter reserved for making medicines should be made of heat-resistant glass, marble and material that will not cause microbiological contamination. Precise, centigram or kilo scales should be kept on the counter or on a separate special table in such a way that their settings are not disturbed. It is obligatory to obtain a control certificate of the scales from the relevant institution every two years.
- Labels should be attached to the packaging of the drugs. The names of the pharmacy, veterinarian, patient and the way the drug is used will be written on these labels.
- Drug labels to be used should be white, and drug labels to be used externally should be red.
- Drugs be prepared in the laboratory should be put in new and suitable packages that have never been used.

3.5.4. Recycling of Drugs

- Expired or obsolete drugs should not be returned to the pharmacy and should be disposed of in special waste bags (yellow bags).

4. EXPERIMENTAL ANIMALS UNIT

The Experimental Animals Production and Research Center provides services with the work permit obtained from the Ministry of Agriculture and Forestry. As producers, users and suppliers, "mouse, rat, gerbil, rabbit, pig, sheep and goat" species are within the scope of work permit.

There is a full-time responsible veterinarian at the center.

The unit consists of a quarantine room, a feed and litter room, four procedure rooms, an operation room, a post-operative care room, two mouse production rooms, a rat production room, a gerbil production room, a rabbit production room, a medicine and medical equipment room, two washing rooms and an administrative section.

4.1. General rules

- Researchers are obliged to comply with the basic laboratory rules during working hours.
- Persons who do not have an "Experimental Animal Use Certificate" cannot perform any action on experimental animals.
- Researchers are required to sign the Visitor Confidentiality Agreement at the entrance and exit of the laboratory.
- Overshoes are worn when entering the laboratory.
- The laboratory should be clean and tidy, floors should be mopped at least every day, surfaces should be cleaned with appropriate cleaners and disinfectants, and should meet all requirements for biosafety.
- Appropriate clothing should be worn during working hours (closed-toe shoes should be used, movement-restricting clothing such as coats should not be worn), gloves and aprons made of personal protective materials should be used, goggles and face protection should be used when necessary, and these materials should not be left outside the laboratory.
- Hands should be washed after contact with infectious material or infected animals, after removing gloves, and before leaving the laboratory.
- All biological materials of the animal (body fluids such as tissue, blood, urine, feces, saliva) should be considered potentially infected, and contact areas should be washed with soap and water immediately after contact.
- Researchers carry out their studies in accordance with the instructions "Safe Working with Biological Substances", "Safe Working with Chemicals", "Cleaning" and "Waste Control".
- It is necessary to pay attention to the clean use of the laboratory area, work benches and operation and post-operation rooms.
- While working with biological-chemical material, if any such substance is spilled or splashed around, precautions are taken and support staff are informed.
- All practices that may cause aerosol formation or splashing should be avoided.
- Practices should be made periodically against insects, mice and other pests.
- Notifiable diseases should be reported to official institutions and organizations immediately.
- When a zoonotic condition is suspected, disinfection of the environment and equipment should be carried out seriously by applying disinfectants and antiseptics known to be sensitive to the agent.

- For practices to be carried out out of working hours, the responsible veterinarian must be informed and approved in advance.
- Feed is procured from commercial companies. Feed should be stored in closed sacks in a dry and clean manner in the feed and litter room. To reduce the possibility of contamination, minimal litter and feed should be available. Litter should be stored in a clean and dry manner in the feed and litter room, in sealed sacks.

4.2. Waste Removal

- Household wastes are taken into a large black colored bag and disposed of in closed garbage bins.
- Medical-infected wastes are collected in double-layered red colored bags with 100 micron thickness or in boxes made of rigid PVC with a lid and the necessary warning inscriptions arranged for this purpose.
- Microbiologically contaminated wastes are sterilized by autoclave and then disposed of in red medical waste bags. Support staff are definitely notified when contaminated waste occurs.
- Sharp-piercing wastes are thrown into the yellow medical waste bucket only.
- Animals sacrificed at the end of the experiment are kept in a red medical waste bag in a temporary waste storage unit (at -20°C) until they are removed from the institution. The relevant project number and the name/surname of the person performing the operation are indicated on the red medical waste bag.
- The freezer in the temporary waste storage unit cannot be used except for the support staff.

4.3. Biting and Scratching

Caregivers and researchers who come into direct contact with laboratory animals are often at risk of being bitten and scratched. First of all, the necessary health screening and vaccination of the employee should be done before encountering such a risk. It is ensured that the antisepsis rules, which are the basic first aid practices after being bitten or scratched, are applied and the person is directed to the nearest health institution after physical contact. In addition to immunization, the main aim should be not to be exposed to such a situation. For this purpose, first of all, it is necessary to apply grip techniques and tools (sedative, anesthetic agents) suitable for the type of experimental animal, and to avoid physical contact with the animal without a protective apron and gloves in accordance with universal laboratory rules.

4.4. Allergens

It is one of the most common health problems of those working in experimental animal laboratories. Allergens can be found in body secretions such as saliva, urine, faeces, feathers and hair. Life-threatening conditions such as asthma and anaphylaxis can occur. Protective measures (mask, gloves, apron, etc.) should be taken, ventilation and physical conditions should be considered.

4.5. Zoonoses

Diseases that can be transmitted from animals to humans are defined as zoonosis. Basic biosafety rules must be followed in order to be protected from zoonoses (ectoparasitism, hantavirus, leptospirosis, salmonellosis, pasteurellosis, etc.). It is necessary to carry out regular screening and monitoring of animals, to work with aprons and gloves, to disinfect contaminated waste and surfaces, to prevent inhalation contact for the protection of respiratory tract, and to cut off contact with wild rodents.

4.6. Before Operation

Before starting the operation, the researchers submit the "Experimental Animals Operation Application Form", "Ethics Committee Approval", "Experimental Animal Use Certificate" and the invoice regarding the animal supply (if not, the report describing where the animals were obtained from). If the animals are obtained from another experimental animal production laboratory, they are delivered to the quarantine room where they will stay for 1 week under the supervision of a veterinarian.

"The name of the operation, the number of animals inside, the start and end dates of the operation, the phone numbers of the project team" should be written at the entrance of the procedure rooms where the experimental animals used in the studies are housed.

Tables are disinfected before the operation. The animals in cages placed on the table should be allowed to get used to the environment for a while, and then species-specific handling and related procedures should be applied. Special protective gloves should be worn inside the surgical glove to avoid bite and scratch injuries.

4.7. Operation Process

- Approval of the Animal Experiments Local Ethics Committee (HADYEK) is required for interventional procedures and changes to the working team during the operation process.
- During the operation, ethical principles are followed and any unexpected adverse effect is immediately reported to the authorized staff (Veterinarian).
- During the operation, in accordance with the "Regulation on the Welfare and Protection of Animals Used for Experimental and Other Scientific Purposes", live animals cannot be transferred to another laboratory that does not have a working license from T.R.Ministry of Agriculture and Forestry.
- Researchers can supply their own special equipment. Bringing devices or materials from outside into the unit must be within the knowledge of the Veterinarian.
- The project coordinator and the working team are responsible for every stage from the start of the operation to the end of the operation and the removal of waste.
- It is obligatory to use aprons, shoe covers and gloves at the entrance to the laboratory and during the operation.
- At/in the Animal Shelter Rooms;

  - It is not allowed to enter without permission, except for the Veterinarian / Support Staff.

  - No action can be taken that will cause stress/disturb the animals.

  - When the cages are removed and put back on, it should be noted that they are properly placed on the ventilation pipes.
- Animal cages cannot be placed on the ground in order to prevent contamination.
- No procedure other than interventional intervention can be performed in the operation room, such studies must be carried out in the medical examination rooms of the animals concerned.

4.8. After Operation

At the end of the operation, animals belonging to the operation should be sacrificed, all materials used in the operation should be disinfected and wastes should be disposed of appropriately.

4.9. Pig Breeding Unit

- Currently, there are 13 pigs, 4 adult and 9 baby pigs, in the unit.
- Animals should be kept in separate paddocks by grouping them according to their rearing style and age.
- Animals should be prevented from entering and exiting the facility from outside.
- Mice, insects and other pests must be effectively combated.
- Cleaning and disinfection of the unit should be done at routine intervals.
- Staff should change their clothes at the entrance to the unit and work in special work clothes, and should not walk around the unit in the clothes they wear outside.
- Medical wastes generated during diagnosis, treatment, research and production should be put in red plastic bags and thrown into medical waste buckets and collected regularly.
- Natural wastes from animals include baby membranes, blood, etc. should be placed in biological waste bags and treated as medical waste.
- Students and researchers who come to the unit for practice lessons and research should be provided with disposable clothes and bag boots / shoe covers.
- Disinfectant water pools should be placed at the entrances of all barns, and these waters should be changed at frequent intervals.
- The feed is procured from a commercial company. The baits are stored dry and clean in sealed sacks in the feed room.
- Yellow boxes should be placed for penetrating waste materials such as syringes, cannulas and scalpels, and they should be replaced with new ones as they become full.
- Notifiable diseases should be reported to official institutions and organizations immediately.

5. FOOD / FOOD HYGIENE and TECHNOLOGY

5.1. Biosafety in Laboratory and Non-Laboratory Practices

The purpose of these procedures is:

- The risk of transferring animal or human-induced diseases to farm animals or foodstuffs from various facilities and resources where the lectures are held by the instructors and students who are in charge of the operation.
- It minimizes the risk of being infected by the instructors and students working in the operation from contaminated foodstuffs and animals.

Among the facilities where practice lessons are held, there are business units such as slaughterhouses, dairy farms (dairy unit within the faculty, private dairy farms), animal market, food processing units (aquaculture processing units, meat products production facilities, etc.).

5.2. General Hygiene Rules

- Food/Food Hygiene and Technology Department staff and students should know the general biosafety rules specified in Section 2 in education and research laboratories, and biosafety requirements should be followed in the pratice areas.
- The responsible lecturer informs the students about the easy-to-understand rules about food hygiene in order to minimize the risks that cause food contamination. In addition, he/she explains the hygiene principles to be followed in the dairy unit within the faculty, and the responsible staff in the visited food processing plants visited are asked to give information about the hygiene rules that must be followed along the production line.
- The responsible instructor should give information about the guide that includes general hygiene rules.
- Students are required to comply with staff hygiene rules (hand washing, use of tools-equipment and protective clothing, etc.).
- If the students have been to the farm, barn and waste storage areas within 48 hours before their visit to the food processing plants, they should inform the responsible lecturers about the situation.
- If a farm or slaughterhouse is visited before the visit to the food processing plants, clothes and shoes should be cleaned and disinfected.
- The responsible lecturer makes sure that the students comply with the hygiene rules during the visit to the milk unit production line or facilities. In particular, students are asked not to touch food products without gloves and not to do post mortem inspection.
- It is forbidden to smoke, use alcohol or drugs in the operation areas. Jewelry such as watches, earrings, piercings, rings and fake nails should be removed.
- It is forbidden to eat and drink within the operation areas in food processing plants.

5.3. Health Status of Students

- If the student has an infectious disease caused by a pathogen that is considered harmful to foods, or if he/she is a disease carrier for the diseases in question, he/she has to inform the responsible lecturer about his situation. In this case, that student will not be allowed to enter the production area.

- The responsible veterinarian in the slaughterhouse should be aware of all potential zoonotic infections that may be found in the slaughterhouse and the precautions to be taken.
- The slaughterhouse management should inform the faculty staff about the carcasses in which zoonotic diseases are detected. In this way, contact of students with infected materials such as animals, carcasses, tissues, body extracts should be prevented. Even if post-mortem examination will be performed, extra (double-layer gloves, mask, protective clothing, etc.) biosafety measures should be taken during the medical examination.

5.4. Hand washing

By means of hands, the product, tools and equipment used in production can be contaminated, as well as the transmission of infectious diseases to other people. Hand washing is considered to be an important factor in reducing the risk of microbial contamination.

- When should hands be washed?

  - Entry into the business and at the beginning of each business,

  - In business transitions,

  - After entering and leaving the production unit,

  - After the breaks,

  - Before and after using the toilet,

  - Before putting on and taking off gloves,

  - After contacting the unprocessed raw material,

  - After contact with dirty surfaces and tools-equipment,

  - After touching trash and phone,

  - After handling organs containing a certain microbial load such as mouth, hair and nose,

  - After contact with cleaning equipment,

  - After sneezing and coughing,

  - Every time the hands look dirty.

  Recommended technique for hand washing

  - Hands should be washed in non-touch sensor or knee-operated sinks.

  - Before using soap, hands are wetted with warm water.

  - Sufficient amount of liquid soap (3-5 ml) is taken into the palm.

  - The entire surface of the hands is foamed and washed thoroughly by rubbing each part of the hand for 30 seconds.

  - The upper surfaces of the hands and between the fingers are washed.

  - Thumbs are taken into the palm and washed.

  - It is washed by rubbing the fingertips in the left and right palms.

  - Left and right wrists are washed.

- The hands are rinsed under running water from the wrist until the soap residue is gone.

- Hands are dried with disposable paper towels.

- The paper towel is thrown into the pedal bin.

- After the hands are washed at the entrance and exit of the facility, the hands are definitely disinfected at the hygiene barrier. In cases where there is no hygiene barrier, hands should be washed thoroughly with alcohol-based hand disinfectants, and hands should be rubbed tightly until dry. After disinfectant application, hands are not washed and dried.
- Disposable gloves should be used according to the condition of the practice area and gloves should be changed during work/examination transitions. Hands should not be wiped on aprons during production/inspection.
- If one of the students has a dressing or open wound, it should be mandatory to use disposable gloves.

5.5. Student Clothes

The use of clothes used in food processing plants only in relevant places is accepted as an important factor in both food safety and protection of human health.

- Students' aprons should be clean, light-colored, and easily washable. All underwear should be completely covered and aprons should be worn only during the practise, and should not be used outside the practical courses during the rotation (During the practical training in food processing plants, it is recommended to provide disposable clothing to the students of the Faculty of Veterinary Medicine).
- Boots to be used in food production areas should be easy to clean. It must be cleaned at the entrance and exit of the facilities.
- From the moment they enter the facility within the scope of the practical courses, it is mandatory for the students to wear clean boots or disposable shoe covers together with a clean lab coat, disposable cap, disposable sleeves in case of participating in the production line and disposable gloves during food contact/post mortem examination.
- The responsible instructor should ensure that the students comply with the above-mentioned conditions.

5.6. Special Cases Regarding the Facilities where Practical Training is Provided

In order to reduce the risk of cross-contamination in food processing plants, practical courses should be carried out considering the clean and dirty area of the establishment.

5.7. Slaughterhouses

- Before going to the slaughterhouse, it is checked whether the students have protective equipment (aprons, boots, etc.) by the responsible instructor.
- Students should wear appropriate equipment at the entrance to the slaughterhouse.
- The practical course should be carried out by considering the clean and dirty area.
- The post mortem inspection of the slaughterhouse should be carried out without hindering the operating cycle.
- Students should pay attention that the materials (live animals, carcasses, organs) examined during the medical examinations carried out in the slaughterhouses do not pose any health risks.

- In case of injuries or cuts in students, the medical examination should be stopped and necessary intervention should be made.

5.8. Milk Unit

- Before the practical course starts, the responsible instructor gives information about the operation of the unit and the hygiene rules to be followed.
- Students should wear appropriate clothes (apron, bonnet, boots, etc.) at the entrance to the unit.
- Students should not touch food products (from raw material to final product) without gloves along the production line.
- After the production is completed, both the unit must be cleaned and the exit must be done after the staff have done their personal cleaning.

5.9. Other Food Processing Plants

In addition to the practice of general hygiene rules, the situation of food estabhlishments should also be taken into consideration.

5.10. General Cleaning and Disinfection Protocol

- Protective equipment should be used during cleaning.
- Detergents suitable for food processing plants (alkaline for organic dirt, acidic for inorganic residues) and disinfectants should be chosen for the cleaning and disinfection of the production area and tools-equipment.
- First of all, mechanical cleaning should be done and all visible dirt should be removed.
- Dirty areas should be washed with water and detergent and rinsed well.
- Afterwards, disinfectant should be applied, the disinfectant used should be allowed to contact the surfaces for a certain period of time and then rinsed.
- Care should be taken to ensure that no residue is left in the cleaning of tools and equipment.

6. UNITS ASSOCIATED WITH THE DEAN'S OFFICE

There are 3 units affiliated to Aydın Adnan Menderes University Veterinary Medicine Faculty Dean's Office. One of the faculty members of Aydın Adnan Menderes University Faculty of Veterinary Medicine serves as the responsible manager of the Cattle and Sheep Breeding Unit. Two full-time employees are assigned as animal caretakers. Support is received from full-time Veterinarians at ADU Faculty of Veterinary Medicine Animal Hospital for medical examination, diagnosis, treatment and preventive practices.

- Cattle Unit
- Sheep Breeding Unit
- Poultry Research and Application Unit

6.1. Cattle Unit

- Livestock units are established on approximately 35 decares of land. In this land I. Cattle Unit, II. Sheep Breeding Unit, III. There is a horse shelter owned by the Poultry Research and Application Unit and ADU Equestrian Society.
- Concentrated feed is procured from commercial companies. Straw, alfalfa and herbs are obtained from the agricultural fields of the Faculty of Veterinary Medicine and Faculty of Agriculture. It is stored indoors on the farm. Corns grown in the agricultural lands of the Faculty of Veterinary Medicine and Faculty of Agriculture are prepared in a silage bale packaging machine and stored in open areas.

Practices to be done within the scope of biosafety

- Animals should be grouped according to age, sex, nutrition, lactation and postnatal periods and kept in separate paddocks.
- Fertilizer should be taken from the paddocks regularly. It should be stored in a suitable place and used in the agricultural lands of the Faculty of Veterinary Medicine.
- Foot baths should be provided, where animals can be walked through or kept for a while.
- Calves should be kept in calf huts for the first 2 months. Maintenance, repair and cleaning of calf kennels should be done routinely.
- The unit must have separate compartments for childbirth, sick animals and quarantine. E. coli antiserum should be applied to each calf born. Internal parasites and external parasites should be applied every 3 months. Newborn calves should be vaccinated with FMD every 6 months after 2nd and 3rd months. Newborns should be vaccinated with Brucella at 3 months and every year thereafter. Newborn calves should be vaccinated with Clostridium at 3 weeks and every 6 months thereafter. Since calves are 8 weeks old, they should be vaccinated with BVD-IBR once a year before weaning and after 2 doses 4 weeks later. In addition to these, the vaccination program should be updated when fungi, LSD, Rota, Corona, E. coli are seen in our region and in cases where anthrax, rabies and leptospira are seen in our region.
- Spraying should be done periodically to combat rodents, flies and insects.
- Cleaning and disinfection of the unit should be done at routine intervals.
- Medical wastes generated during diagnosis, treatment, research and production should be put in red plastic bags and thrown into medical waste buckets and collected regularly.
- Natural wastes from animals include baby membranes, nails, horns, blood, etc. should be placed in biological waste bags and treated as medical waste.
- Yellow boxes should be placed for penetrating waste materials such as syringes, cannulas and scal-

pels, and they should be replaced with new ones as they become full.

- A disinfection pool for vehicle tires should be made at the entrance of the unit and the water of the pool should be changed at regular intervals. A suitable disinfection pool for shoes and boots should be available at the entrance of the unit.
- Staff should change their clothes at the entrance to the unit and work in special work clothes, and should not walk around the unit with the clothes they wear outside.
- Students and researchers who come to the unit for practical courses and research should be provided with disposable clothes and bag boots / shoe covers.
- Students and researchers should be given separate rectal medical examination gloves and latex gloves for each examination.
- Daily-weekly-monthly cleaning and disinfection of the milking area should be carried out within the framework of the established program.
- Before each milking, the teats of the cows should be washed with normal water and dried with disposable paper towels. Milking should be completed in a maximum of 15 minutes. Teat dipping should be applied after each milking.
- Maintenance and repairs of milking equipment should be done routinely.
- Cooling systems should be provided for the short-term storage of expressed milk.
- Notifiable diseases should be reported to official institutions and organizations immediately.

6.2. Sheep Breeding Unit

- The unit has a barn with a covered area of 1000 m2 and an open area of 1000 m2. The size of the paddocks can be adjusted according to the needs.
- The barn is ideally designed for lighting, ventilation and disinfection. It was planned to have an area of 0.7 m2 per animal.
- Concentrated feed is procured from commercial companies. Straw, alfalfa and herbs are obtained from the agricultural fields of the Faculty of Veterinary Medicine and Faculty of Agriculture. It is stored indoors on the farm. Corns grown in the agricultural lands of the Faculty of Veterinary Medicine and Faculty of Agriculture are prepared in a silage bale packaging machine and stored in open areas.

Practices to be done within the scope of biosafety

- Rams and sheep should be kept separate from each other. Animals should be grouped according to their age and kept in separate paddocks.
- Fertilizer should be taken from the paddocks regularly. It should be stored in a suitable place and used in agricultural lands.
- Foot baths should be provided, where animals can be walked through or kept for a while.
- The unit must have separate compartments for childbirth, sick animals and quarantine.
- Routine health screenings in the relevant legislation should be performed.
- E. coli antiserum should be applied to newborn lambs. Internal parasites and external parasites should be applied every 3 months. FMD vaccination should be done twice in March and September. Brucella vaccination should be done in May. PPR (plague) vaccine should be given in September. Clostridium vaccination should be done before being taken to pasture. The vaccination programs of the Provincial Directorates of Agriculture should be followed.
- Spraying should be done periodically to combat rodents, flies and insects.

- Cleaning and disinfection of the unit should be done at routine intervals.
- Medical wastes generated during diagnosis, treatment, research and production should be put in red plastic bags and thrown into medical waste buckets and collected regularly.
- Natural wastes from animals include baby membranes, nails, horns, blood, etc. should be placed in biowaste bags and considered as medical waste.
- Yellow boxes should be placed for penetrating waste materials such as syringes, cannulas and scalpels, and they should be replaced with new ones as they become full.
- An antiseptic pool should be placed at the entrance of the unit, and these waters should be changed at frequent intervals.
- Staff should change their clothes when they enter the unit and should not walk around the unit in the clothes they wear outside.
- Disposable clothes and plastic bag boots should be provided for students and researchers who come to the unit for practical courses and research.

6.3. Poultry Research and Application Unit

- The unit has a quail room with a cage system, a quarantine room, an incubation room and 4 small (controlled rooms) with an automatic irrigation system, 3 large broiler rooms, and a slaughter examination room for research animals.

Practices within the scope of bioafety

- Animals should be provided with hygienically clean feed and water.
- Vaccination programs should be implemented for research and training animals when necessary (for laying hens such as CRD, Egg Drop Syndrom and Gumboro, for broiler chickens such as Gumbaro and Newcastle).
- Physical barriers should be constructed to prevent rodent and bird contamination.
- Spraying should be done periodically to combat rodents, flies and insects.
- Disinfectant foot baths should be used when entering and exiting the unit. Bathrooms should be maintained regularly.
- Cleaning and disinfection of the unit should be done at routine intervals.
- Medical wastes generated during production or research should be put in red plastic bags and thrown into medical waste buckets and collected regularly.
- Yellow boxes should be placed for penetrating waste materials such as syringes, cannulas and scalpels, and they should be replaced with new ones as they become full.
- After the animal emerges, garbage, litter material and manure should be removed from the unit without wasting time.
- Biological wastes (dead animals) should be removed from the unit as soon as possible and disposed of in accordance with biosafety rules.
- Visitors' records should be kept, their name, surname, date and duration of the visit should be recorded.
- Disposable overalls, bonnets and shoe covers should be available for visitors.
- Students should wear white coats, masks and shoe covers during educational practices.
- Researchers should wear unit-specific clothes and boots during the operation.

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