Animal Health

Level IV

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Module Title: - Performing Animal Quarantine Operations

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Introduction to the module

This module convers the knowledge, skills and attitude required to carry out daily quarantine techniques in field, feedlot, pre-quarantine and quarantine station. It also requires the ability to inspect and collect samplesfromequarantined animals there by provide health certificate. Quarantine operations also require knowledge of quarantine wastes disposal.

LG #27	LO #1- Understanding and Carry out animal quarantine activities

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content

- Basic terminology and classification of quarantine stations.
- Materials, tools, equipment, and facilities in quarantine stations
- Site selection and quarantine construction
- Management of isolated animals
- Cleaning and disinfection of the quarantine facilities
- Prevention and control of disease in the quarantine station

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Define basic terminology and classification of quarantine stations.
- Check and maintain materials, tools, equipment, and facilities in quarantine stations
- Describe site selection and quarantine construction
- Isolate, manage and treat suspected animals
- provide appropriate nutrition for every group of quarantined animals
- Conduct cleaning and disinfection of the quarantine facilities
- Perform prevention and control of disease in the quarantine station

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks
5. Perform Operation Sheets
6. Do the “LAP test”

Information Sheet 1

1.1 Basic Terminology and Classification of Quarantine Stations

1.1.1. Basic Terminology

- **Quarantine**: The practice of isolating individuals, animals, or goods for a certain period to prevent the spread of contagious diseases.
- **Quarantine Station**: A designated facility where individuals, animals, or goods are isolated and monitored during the quarantine period.
- **Transboundary animal diseases (TADs**) are highly contagious epidemics with the potential for very rapid spread, causing serious economic and sometimes public health consequences while threatening farmers' livelihoods. TADs often cause high morbidity and mortality in susceptible animal populations.
- **List A animal diseases**, also known as notifiable or reportable diseases, are highly contagious or economically significant diseases that have the potential to spread rapidly and cause significant economic losses in animal populations. These diseases typically have serious implications for animal health, public health, and international trade.

    - ✓ Rabies: A viral disease that affects the nervous system of mammals, including humans. It is usually transmitted through the bite of an infected animal.
    - ✓ Foot-and-mouth disease: A highly contagious viral disease that affects cloven-hoofed animals such as cattle, pigs, sheep, and goats. It causes fever, blisters, and sores in the mouth and on the feet. Some of examples are:
    - ✓ **Avian influenza (Bird flu):** An infectious viral disease that primarily affects birds, particularly poultry. In some cases, it can also be transmitted to humans, causing severe respiratory illness.

- ✓ **Bovine spongiform encephalopathy (BSE or Mad Cow Disease)**: A neurodegenerative disease that affects cattle. It is caused by abnormal proteins called prions and can be transmitted to humans through the consumption of infected meat.
- ✓ **Canine distemper**: A viral disease that affects dogs and other animals such as foxes, wolves, and raccoons. It causes respiratory, gastrointestinal, and neurological symptoms.
- ✓ **Equine influenza**: A highly contagious respiratory disease that affects horses and other equine species. It is caused by an influenza virus and can lead to fever, coughing, and nasal discharge.
- ✓ **Porcine reproductive and respiratory syndrome (PRRS**): A viral disease that affects pigs, causing reproductive problems in sows and respiratory issues in piglets and growing pigs.
- ✓ **Newcastle disease**: A viral disease that affects poultry, including chickens and other birds. It can cause respiratory, digestive, and nervous system symptoms and has high mortality rates in infected birds.
- ✓ **Feline immunodeficiency virus (FIV**): A viral infection that affects cats, similar to human immunodeficiency virus (HIV). It weakens the immune system, making the cat more susceptible to other infections.
- ✓ **Johne's disease**: A chronic bacterial infection that primarily affects ruminants such as cattle, sheep, and goats. It causes chronic diarrhea, weight loss, and reduced milk production.

- **List B animal Diseases**: are transmissible diseases that are considered to be of socio-economic and/or public health importance within countries and that are significant in the international trade of animals and animal products. Examples include:
  - ✓ **Anthrax**: A serious infectious disease caused by the bacterium Bacillus anthracis that can affect both animals and humans.
  - ✓ **Aujeszky's disease**: A viral disease that affects pigs and other domestic animals. It is caused by the pseudorabies virus (PRV).

- ✓ **Echinococcosis/hydatidosis**: A parasitic disease caused by tapeworms of the genus Echinococcus. The two most important forms in humans are cystic echinococcosis (hydatidosis) and alveolar echinococcosis.
- ✓ **Heartwater**: A tick-borne disease that affects ruminants such as cattle, sheep, and goats. It is caused by the bacterium Ehrlichia ruminantium and is transmitted by ticks of the genus Amblyomma.
- ✓ **Leptospirosis**: A bacterial disease caused by spirochetes of the genus Leptospira that can affect both animals and humans.
- ✓ **New world screwworm (Cochliomyia hominivorax)**: A parasitic fly that lays its eggs on open wounds or mucous membranes of warm-blooded animals.
- ✓ **Old world screwworm (Chrysomya bezziana)**: A parasitic fly that lays its eggs on open wounds or mucous membranes of warm-blooded animals.
- ✓ **Paratuberculosis**: A chronic bacterial infection caused by Mycobacterium avium subspecies paratuberculosis (MAP) that affects ruminants such as cattle, sheep, goats, deer, and bison. It is also known as Johne's disease.
- ✓ **Q fever**: A bacterial disease caused by Coxiella burnetii that can affect both animals and humans.
- ✓ **Trichinellosis**: A parasitic disease caused by roundworms of the genus Trichinella that can affect both animals and humans.

- **Contagious Disease**: An illness that can be transmitted from one person, animal, or object to another through direct or indirect contact.
- **Isolation**: The separation of individuals who are infected with a contagious disease from healthy individuals to prevent further transmission

1.1.2. Animal Quarantine Stations in Ethiopia

- Animal quarantine stations in Ethiopia are specialized facilities established by the Ethiopian government to ensure the health and safety of animals entering or leaving the country. These stations serve as checkpoints where animals are subjected to thorough inspections, testing, and quarantine periods to prevent the introduction and spread of diseases.
- Here are some key features and functions of animal quarantine stations in Ethiopia:
  - ✓ **Entry and Exit Points**: Animal quarantine stations are typically located at major entry and exit points, such as airports, seaports, and land border crossings. These stations are strategically positioned to effectively monitor and control the movement of animals across international borders.
  - ✓ **Inspection and Testing**: Upon arrival at an animal quarantine station, animals undergo comprehensive examinations by trained veterinary professionals. They are checked for signs of illness, infestation, or other health concerns. Samples, including blood, urine, or tissue, may be collected for laboratory testing to detect the presence of diseases or pathogens.
  - ✓ **Quarantine Period**: Animals entering Ethiopia are subject to a mandatory quarantine period. The duration of the quarantine varies depending on the animal species, country of origin, and specific requirements set by Ethiopian authorities. During this period, the animals are kept in designated areas within the quarantine station and monitored for any signs of diseases.
  - ✓ **Disease Control and Treatment**: If an animal is found to be infected or carrying a disease, appropriate measures are taken to control the spread of the disease within the quarantine station. Treatment and isolation protocols are implemented to ensure the health and well-being of the animals and prevent the transmission of diseases to other animals or humans.
  - ✓ **Certification and Documentation**: Animals that successfully complete the quarantine period and are deemed healthy receive certification or other documentation indicating

their disease-free status. These documents are crucial for customs clearance and compliance with import or export regulations.

- ✓ **Collaboration and International Standards**: Animal quarantine stations in Ethiopia collaborate with national and international organizations involved in animal health, such as the Ethiopian Ministry of Agriculture, the World Organization for Animal Health (OIE), and other relevant stakeholders. This collaboration ensures that quarantine procedures align with international standards and best practices for disease control and prevention.

- Mile, Humera, Jigjiga, Metema, and Almhal are all animal quarantine stations located in Ethiopia. These quarantine stations play a crucial role in ensuring the health and safety of animals entering or leaving the country.
  - ✓ **Mile Quarantine Station**: Mile Quarantine Station is situated in the town of Mile, located in the Oromia Region of Ethiopia. It serves as an important entry point for animals coming from neighboring countries such as Somalia and Djibouti. Animals arriving at this station undergo health checks, including vaccinations and disease screenings, to prevent the spread of diseases.
  - ✓ **Humera Quarantine Station**: Located in the town of Humera, which is in the Tigray Region of Ethiopia, Humera Quarantine Station primarily deals with animals entering Ethiopia from the Sudanese border. Animals brought into this station are subjected to quarantine procedures to ensure they meet the required health and safety standards.
  - ✓ **Jigjiga Quarantine Station**: Jigjiga Quarantine Station is located in Jigjiga, the capital of the Somali Region in Ethiopia. This station handles the quarantine of animals arriving from Somalia and other neighboring regions. Animals are examined to detect any signs of diseases and to verify their compliance with import/export regulations.
  - ✓ **Metema Quarantine Station**: Metema Quarantine Station is situated in the town of Metema, located in the Amhara Region of Ethiopia. It serves as an entry point for animals coming from Sudan. Animals brought to this station go through a quarantine process to ensure they are free from diseases and meet the necessary health requirements.

- ✓ **Almhal Quarantine Station**: Almhal Quarantine Station is situated in the Borena Zone, Oromia Region. This station primarily deals with the quarantine of animals arriving from Kenya. It plays a crucial role in preventing the spread of diseases and ensuring the health of animals entering Ethiopia.

- At these animal quarantine stations, veterinary professionals conduct inspections, vaccinations, disease testing, and other necessary procedures to safeguard animal health, prevent the introduction of diseases, and adhere to import/export regulations. These measures help protect Ethiopia's livestock industry and ensure the well-being of animals in the country.

1.1.3. Classification of Quarantine Station

- Animal Quarantine Stations can be classified based on various factors, including their scope, services provided, and the types of animals they handle.
- Here are some common classifications of animal quarantine stations:
  - ✓ **International Animal Quarantine Stations**: These stations are located near international borders or at ports of entry and primarily focus on inspecting and quarantining animals being imported or exported. They ensure compliance with international regulations and standards, such as those set by the World Organization for Animal Health (OIE) and relevant national veterinary authorities.
  - ✓ **Domestic Animal Quarantine Stations**: Domestic animal quarantine stations are established within a country or region to regulate the movement of animals between different areas. They may be strategically located at major transportation hubs or areas with high animal traffic. These stations aim to prevent the spread of diseases within the country or region and enforce specific animal health requirements.
  - ✓ **Livestock Quarantine Stations**: Livestock quarantine stations specifically cater to the quarantine needs of farm animals, such as cattle, sheep, goats, and pigs. They often have facilities for housing and managing large numbers of animals and may offer services such as health inspections, testing, and treatment.

- ✓ **Companion Animal Quarantine Stations**: These stations specialize in quarantining companion animals, such as dogs, cats, and exotic pets, that are entering a country or region. They ensure that these animals meet the necessary health and vaccination requirements, protecting both animal and human health.
- ✓ **Wildlife Quarantine Stations**: Wildlife quarantine stations focus on the quarantine and management of exotic or endangered wildlife species. They play a crucial role in preventing the introduction of diseases into native wildlife populations and ecosystems.

- It's important to note that the specific classification and terminology of animal quarantine stations may vary between countries or regions, depending on local regulations and practices. The services, facilities, and protocols offered by each station will also depend on the specific requirements of the animals being handled and the goals of disease prevention and control in that particular area.



Fig. 1.1. Animal Quarantine Station

1.2 Materials, Tools, Equipment, and Facilities in Quarantine Stations

- Here are a list of materials and equipment commonly found in quarantine stations:
  - ✓ **Isolation Units**:
    - Individual animal enclosures or stalls
    - Ventilation systems for each unit
    - Physical barriers to prevent animal contact
  - ✓ **Fencing and Security**:
    - Biosecurity fencing around the perimeter
    - Gates and access control systems
    - Surveillance cameras and monitoring equipment
  - ✓ **Animal Handling and Restraint**:
    - crush, neck collar, kennels
    - Squeeze chutes or crushes for safe handling
    - Halters, lead ropes, and harnesses
    - Animal-specific handling tools (e.g., nose ring, chains ,cattle prods, pig boards)
  - ✓ **Sample collection materials**
    - Vacutainer/cappilary tubes and racks, needle with holders, gauze, cotton, Ice box, universal bottles, forceps, scissors, formalin, scalpel blade, Refrigerator
  - ✓ **Drugs and Anesthetics**
    - Broad spectrum antibiotics, vaccines, antihelmithics, acaricides, ,antifungals
    - Sedatives, tranquilisers, local anesthesia
    - Saline water, distilled water , anthelmentics,
  - ✓ **Veterinary Diagnostic and treatment Equipment**:
    - Drenching gun, balling gun, sprayer, trocar and canulla

- Thermometers, esophageal tube, , stethoscope, mouth gag, dehorning saw, dehorning wire, surgical needles, cat gut and silk
- Microscopes for examining samples
- Centrifuges for separating blood or fluid samples
- Blood analyzers for laboratory testing
- Diagnostic kits for specific diseases

✓ **Disinfection and Cleaning:**

- Disinfectants (e.g., chlorine-based compounds, quaternary ammonium compounds)
- Sprayers or foggers for applying disinfectants
- Brushes, brooms, and mops for cleaning surfaces
- Detergents or cleaning agents
- water bath, stove, sterilizers , Disinfectants, antiseptics,

✓ **Personal Protective Equipment (PPE):**

- Gloves (disposable or reusable): Arm length gloves, surgical glove
- Masks or respirators
- Goggles or face shields
- Protective clothing (gowns, apron, rubber boots of appropriate size ,coveralls, boots, aprons)

✓ **Waste Management:**

- Waste collection bins or containers
- Biohazard bags for infectious waste
- Incinerators or designated disposal areas
- Spill kits for handling accidental spills

✓ **Ventilation and Air Control:**

- Air exchange units or systems
- Fans or blowers for airflow control
- Filters to remove airborne pathogens
- Temperature and humidity control systems

- ✓ **Communication and Documentation:**
  - Computers or tablets for record-keeping
  - Communication devices (phones, radios)
  - Signage and labels for proper identification
- ✓ **Emergency and First Aid**:
  - First aid kits
  - Emergency response equipment (fire extinguishers, eye wash stations)
  - Emergency contact information

- It's important to note that the specific materials and equipment in a quarantine station may vary depending on the type of animals housed, the size of the facility, and the specific regulations and guidelines of the jurisdiction in which it operates. Additionally, additional specialized equipment may be required for specific diseases or situations.

1.3 Site Selection and Quarantine Construction

- When establishing a quarantine station, careful site selection and construction are crucial to ensure its effectiveness. Here are some considerations for site selection and quarantine construction:
  - ✓ **Site Accessibility**: Choose a location that is easily accessible for transporting animals and supplies. It should have good road connectivity and proximity to veterinary services and facilities.
  - ✓ **Isolation and Biosecurity**: The site should be situated away from other livestock or animal populations to minimize the risk of disease transmission. Ideally, it should have natural barriers like rivers or hills that prevent contact with neighboring animals.
  - ✓ **Size and Layout**: The site should have sufficient space to accommodate the intended number of animals and required facilities. It should be designed in a way that allows for efficient movement of animals, personnel, and equipment.

- ✓ **Water and Drainage**: Adequate water supply is essential for animal care, cleaning, and disinfection. Proper drainage systems should be in place to prevent waterlogging and facilitate waste management.
- ✓ **Infrastructure and Facilities**: Construct buildings or enclosures appropriate for the species and number of animals intended to be housed. This may include isolation units, pens, or stables. Provide adequate ventilation, lighting, and temperature control systems.
- ✓ **Fencing and Security**: Install secure fencing around the perimeter to prevent unauthorized entry and ensure biosecurity. Consider additional security measures like gates, surveillance cameras, and access control systems.
- ✓ **Quarantine Pens and Holding Areas**: Design separate pens or holding areas to accommodate animals during the quarantine period. These should be equipped with appropriate containment, feeding, and watering facilities.
- ✓ **Biosecurity Measures:** Incorporate biosecurity measures into the construction design, such as dedicated entry points, footbaths or disinfection mats, and separate changing or decontamination areas for personnel.
- ✓ **Waste Management**: Develop a waste management system that includes designated areas for storage, handling, and disposal of animal waste and other potentially infectious materials. Consider the use of biosecure waste containers and appropriate disposal methods.
- ✓ **Utilities and Services**: Ensure access to essential utilities such as electricity, water supply, and waste disposal services. Install backup power generators for uninterrupted operation during emergencies.
- ✓ **Compliance with Regulations**: Familiarize yourself with local, regional, and national regulations and guidelines regarding quarantine station construction. Ensure that the design and construction adhere to the required standards and specifications.

- It is advisable to consult with veterinary experts, architects, and relevant authorities during the site selection and construction process to ensure compliance with regulations and the specific needs of the quarantine station.

1.4 Management of Isolated Animals

- Managing isolated animals in a quarantine station requires careful attention to their health, welfare, and biosecurity. Here are some key considerations for the management of isolated animals:
  - ✓ **Veterinary Care**: Provide regular veterinary care and monitoring for the isolated animals. This includes health assessments, vaccinations, diagnostic testing, and treatment of any illnesses or injuries that may arise during the quarantine period.
  - ✓ **Biosecurity Measures**: Strictly adhere to biosecurity protocols to prevent the introduction or spread of infectious diseases. Implement measures such as controlled access, proper disinfection procedures, and separation of animals to minimize disease transmission risks.
  - ✓ **Isolation Units**: House animals in appropriate isolation units or enclosures that meet their specific needs. Ensure the units have adequate space, ventilation, lighting, and temperature control to promote animal well-being and minimize stress.
  - ✓ **Feeding and Watering**: Provide animals with a balanced and appropriate diet according to their species, age, and health requirements. Ensure access to clean and fresh water at all times.
  - ✓ **Environmental Enrichment**: Implement environmental enrichment strategies to promote the psychological well-being of isolated animals. This may include providing toys, socialization opportunities (where appropriate), or other forms of mental stimulation.
  - ✓ **Monitoring and Record-Keeping**: Maintain detailed records of each isolated animal, including their health status, medications administered, treatments, and any observed

changes or abnormalities. Regularly monitor and document their behavior, appetite, and overall condition.

- ✓ **Cleaning and Sanitation**: Follow strict cleaning and sanitation protocols to maintain a clean and hygienic environment. Regularly clean and disinfect animal enclosures, equipment, and communal areas to minimize the risk of disease transmission.
- ✓ **Waste Management**: Implement proper waste management practices, including the safe handling, storage, and disposal of animal waste and bedding. Use biosecure waste containers and follow appropriate disposal procedures.
- ✓ **Staff Training and Safety**: Provide comprehensive training to staff members involved in the care of isolated animals. Ensure they understand and follow proper biosecurity measures, animal handling techniques, and safety protocols to protect both themselves and the animals.
- ✓ **Emergency Preparedness**: Develop and regularly review emergency response plans for potential disease outbreaks or other emergencies. Establish protocols for isolation, containment, and notification procedures in case of a suspected disease event.
- ✓ **Regular Reporting and Compliance**: Comply with regulatory requirements for reporting, documentation, and communication with veterinary authorities. Ensure that all necessary reports and records are promptly submitted as per the applicable regulations.

1.5 Cleaning and Disinfection of the Quarantine Facilities

1.5.1. General guidelines for cleaning and disinfecting quarantine facilities

- Cleaning and disinfection of quarantine facilities are crucial to prevent the spread of infectious diseases and maintain a safe and healthy environment for individuals in quarantine. Here are some general guidelines for cleaning and disinfecting quarantine facilities:

- ✓ Personal Protective Equipment (PPE): Before starting the cleaning and disinfection process, ensure that the cleaning staff is equipped with appropriate personal protective equipment such as gloves, masks, and gowns.
- ✓ Cleaning Supplies: Gather all the necessary cleaning supplies, including disinfectants, detergents, mops, buckets, disposable wipes, and trash bags.
- ✓ Pre-Cleaning: Before disinfecting, remove any visible dirt, dust, or debris from surfaces by using a damp cloth or vacuum cleaner. This step helps to enhance the effectiveness of the disinfection process.
- ✓ High-Touch Surfaces: Pay special attention to high-touch surfaces such as doorknobs, light switches, tabletops, handles, faucets, and electronics. These surfaces should be cleaned and disinfected frequently throughout the day.
- ✓ Disinfectants: Use disinfectants that are effective against a broad spectrum of pathogens. Follow the manufacturer's instructions for dilution, contact time, and application methods. Prepare fresh disinfectant solutions as needed.
- ✓ Application: Apply the disinfectant solution to surfaces using a cloth or spray bottle. Ensure that the surfaces remain visibly wet for the recommended contact time to allow the disinfectant to work effectively.
- ✓ Ventilation: Maintain proper ventilation during the cleaning and disinfection process to allow fresh air circulation and help reduce the concentration of disinfectant fumes.
- ✓ Laundry and Linens: Handle contaminated laundry and linens with gloves. Wash them using regular laundry detergent at the highest appropriate temperature. Avoid shaking the items to minimize the dispersal of potentially infectious particles.
- ✓ Waste Disposal: Dispose of cleaning materials, used gloves, and other waste in properly lined waste containers. Ensure that waste containers are regularly emptied and cleaned.
- ✓ Staff Hygiene: Emphasize the importance of personal hygiene practices for the cleaning staff, such as hand hygiene and proper use of PPE. Encourage frequent handwashing with soap and water for at least 20 seconds.

- ✓ Regular Cleaning Schedule: Establish a regular cleaning schedule to ensure that all areas of the quarantine facility are adequately cleaned and disinfected. Focus on frequently touched surfaces and shared spaces.
- ✓ Monitoring and Quality Control: Implement monitoring and quality control measures to ensure that cleaning and disinfection protocols are followed consistently. Regularly evaluate the effectiveness of the cleaning procedures and make adjustments as necessary.

1.5.2. General steps of Cleaning and disinfection of animal quarantine Station

- **Preparing the area**: Begin by removing all animals from the quarantine area and relocating them to a safe and suitable location. Make sure you have the necessary personal protective equipment (PPE) such as gloves, masks, and protective clothing.
- **Removing organic material**: Thoroughly clean the area by removing any visible organic material such as feces, bedding, and leftover food. Use appropriate cleaning tools like brooms, brushes, or shovels to sweep or scrape the surfaces.
- **Dry cleaning**: Perform dry cleaning to remove dust, hair, and other loose particles. Use vacuum cleaners or dry sweeping techniques to ensure that all loose debris is removed from the surfaces, floors, walls, and ceilings.
- **Wet cleaning**: Once the dry cleaning is complete, proceed with wet cleaning. Prepare a solution of detergent or disinfectant according to the manufacturer's instructions. Use a mop or sponge to apply the cleaning solution to all surfaces, paying special attention to high-touch areas such as doorknobs, counters, and cages. Scrub the surfaces thoroughly to remove any remaining dirt or contaminants.
- **Rinse**: After the cleaning solution has been applied and allowed to sit for the recommended contact time, rinse all surfaces with clean water to remove any residue from the cleaning agents. This step helps to prevent any potential harm to the animals from chemical residues.

- **Disinfection**: Once the surfaces are thoroughly rinsed, it's time to disinfect. Select an appropriate disinfectant that is effective against a wide range of pathogens and approved for use in animal facilities. Prepare the disinfectant solution according to the manufacturer's instructions. Apply the disinfectant to all surfaces, ensuring complete coverage. Pay close attention to areas that are difficult to reach or often overlooked, such as corners, cracks, and crevices. Allow the disinfectant to remain in contact with the surfaces for the recommended contact time to ensure its effectiveness.
- **Final rinse**: After the disinfectant has been given sufficient contact time, perform a final rinse with clean water to remove any residual disinfectant. This step is important to ensure that the animals are not exposed to any potentially harmful chemicals.
- **Drying:** Allow the surfaces to air dry completely. Proper ventilation and airflow will facilitate the drying process and help prevent the growth of microorganisms.
- **Monitoring and verification**: Regularly monitor the cleanliness and hygiene of the quarantine station. Implement a system for verifying the effectiveness of the cleaning and disinfection process, such as swabbing surfaces for microbial testing or using indicators to ensure the proper concentration of disinfectants.

1.6 Prevention and Control of Disease in the Quarantine Station

- Preventing and controlling disease in a quarantine station is of utmost importance to safeguard the health and well-being of animals. Disease prevention and control require a comprehensive and multifaceted approach. It's essential to tailor the strategies to the specific needs and requirements of the quarantine station and the animals housed within it.
- Here are some key measures and practices to consider:
  - ✓ **Strict biosecurity protocols**: Implement strict biosecurity measures to prevent the introduction and spread of diseases. This includes controlling access to the quarantine station, ensuring proper disinfection of personnel, vehicles, and equipment entering and leaving the facility, and enforcing proper hygiene practices for staff and visitors.

- ✓ **Isolation and separation**: Maintain proper isolation and separation of animals to prevent direct or indirect contact between healthy and potentially infected animals. Separate animals based on species, health status, and risk factors for disease transmission. Ensure that appropriate barriers, such as fences, walls, or separate enclosures, are in place to prevent contact and disease spread.
- ✓ **Veterinary examination and monitoring**: Conduct thorough veterinary examinations upon arrival and throughout the quarantine period. Monitor animals for signs of illness, observe their behavior and appetite, and perform regular health checks. Promptly report any signs of disease or abnormalities to the veterinary staff for further investigation and appropriate action.
- ✓ **Vaccination:** Follow recommended vaccination protocols for the specific species housed in the quarantine station. Vaccination can provide protection against common diseases and reduce the risk of outbreaks. Ensure that all animals are up-to-date on their vaccinations before entering the quarantine facility.
- ✓ **Cleaning and disinfection**: Maintain strict cleaning and disinfection protocols as discussed earlier. Regularly clean and disinfect all surfaces, equipment, and enclosures to eliminate pathogens and reduce the risk of disease transmission. Use appropriate disinfectants and follow recommended contact times and dilution ratios.
- ✓ **Pest control:** Implement effective pest control measures to prevent the infestation of insects, rodents, or other pests that can carry and transmit diseases. Regularly inspect the facility for signs of pests, take measures to eliminate them, and ensure proper waste management to minimize attractants.
- ✓ **Record-keeping**: Maintain accurate and detailed records of all animals entering and leaving the quarantine station. Keep records of health examinations, treatments, vaccinations, and any disease incidents. This information is crucial for traceability, disease surveillance, and informed decision-making.
- ✓ **Staff training and education**: Ensure that all staff members are well-trained in disease prevention, control measures, and biosecurity protocols. Provide regular education and

training sessions to keep them updated on emerging diseases, best practices, and any changes in protocols or regulations.

- ✓ **Collaboration with veterinary authorities**: Establish effective communication and collaboration with veterinary authorities, regulatory agencies, and other relevant stakeholders. Stay informed about the latest disease alerts, regulations, and guidelines. Report any suspected or confirmed cases of notifiable diseases and follow the guidance provided by the authorities.
- ✓ **Continuous improvement**: Regularly review and evaluate your disease prevention and control measures. Identify areas for improvement and implement changes as needed. Stay updated with scientific advancements and industry best practices to enhance the effectiveness of disease prevention and control efforts.

Self-Check – 1

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Part i. Choose the best answer and write your answer on the space provided (1 pt each)

1. Which of the following diseases is transmitted through the bite of an infected animal?
   a) Foot-and-mouth disease
   b) Avian influenza
   c) Rabies
   d) Equine influenza
2. Which disease primarily affects poultry and can cause respiratory, digestive, and nervous system symptoms?
   a) Bovine spongiform encephalopathy
   b) Newcastle disease
   c) Canine distemper
   d) Feline immunodeficiency virus
3. Which disease is caused by abnormal proteins called prions and can be transmitted to humans through the consumption of infected meat?
   a) Bovine spongiform encephalopathy
   b) Johne's disease
   c) Porcine reproductive and respiratory syndrome
   d) Anthrax
4. Which disease affects pigs and causes reproductive problems in sows and respiratory issues in piglets and growing pigs?
   a) Equine influenza
   b) Porcine reproductive and respiratory syndrome
   c) Heartwater
   d) Trichinellosis

5. Which disease is a chronic bacterial infection that primarily affects ruminants and causes chronic diarrhea, weight loss, and reduced milk production?

a) Leptospirosis
b) Aujeszky's disease
c) Paratuberculosis (Johne's disease)
d) Q fever

6. Which disease is caused by spirochetes of the genus Leptospira and can affect both animals and humans

a) Heartwater
b) Leptospirosis
c) Trichinellosis
d) Echinococcosis/hydatidosis

7. Which disease is a tick-borne disease that affects ruminants and is caused by the bacterium Ehrlichia ruminantium

a) Heartwater
b) Anthrax
c) Rabies
d) Foot-and-mouth diseas

8. Which disease is caused by tapeworms of the genus Echinococcus and has two important forms in humans, cystic echinococcosis (hydatidosis), and alveolar echinococcosis?

a) Trichinellosis
b) Echinococcosis/hydatidos
c) Q fever
d) Old world screwworm

9. Which disease is a bacterial disease caused by Coxiella burnetii and can affect both animals and humans?

a) Q fever
b) Aujeszky's disease
c) Paratuberculosis (Johne's disease)
d) Feline immunodeficiency viru

10. Which term refers to the separation of individuals who are infected with a contagious disease from healthy individuals to prevent further transmission?

a) Biosecurity
b) Isolation
c) Quarantine
d) Vaccination

Part ii. **Match correctly the following (2pts each)**

A

1. Regularly reviewing and evaluating disease prevention and control measures.
2. bImplementing measures to prevent the spread of diseases.
3. Maintaining proper isolation and separation of animals
4. Conducting thorough veterinary examinations and monitoring of animals.
5. Following recommended vaccination protocols for disease prevention.
6. Ensuring proper cleaning and disinfection to eliminate pathogens
7. Implementing measures to prevent infestation of pests.
8. Maintaining accurate records of animals, health examinations, and disease incidents.
9. Providing training and education to staff on disease prevention and control.
10. Establishing effective communication and collaboration with veterinary authorities.

B

a. Biosecurity protocols
b. Isolation and separation
c. Veterinary examination and monitoring
d. Vaccination
e. Cleaning and disinfection
f. Pest control
g. Record-keeping
h. Staff training and education
i. Collaboration with veterinary authorities

11. Continuous improvement

Part iii. Write short and precise answer.

1. What are the recommended personal protective equipment (PPE) for cleaning staff in quarantine facilities?
2. What are some effective disinfectants for use in quarantine facilities?
3. What are some key hygiene practices that cleaning staff should follow?
4. How often should cleaning and disinfection be conducted in quarantine facilities?
5. What measures can be taken to ensure the effectiveness of cleaning and disinfection procedures in quarantine facilities?
6. What steps can be taken to minimize the risk of cross-contamination during the cleaning process?

Note: **Satisfactory rating – 13 points** **Unsatisfactory - below 13 points**

You can ask you teacher for the copy of the correct answers.

Operation Sheet- 1

1.1. Procedures for cleaning and disinfection of quarantine station

A. Materials

- PPE, detergents, disinfectants, broom, mob , bucket, sprayers, disposal basket etc

B. Procedures

I. Use PPE
II. Preparing the area
III. Removing organic material using different materials and collect in to basket
IV. Dry cleaning with broom
V. Wet cleaning with only water
VI. Rinse with clean water
VII. Wash the area with water and detergents
VIII. Final rinse with clean water
IX. Allow to dry
X. Spray dininfectants
XI. Monitoring and verification

LAP Test 1

Name……ID…….Date

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within **5** hour. The project is expected from each student to do it.

Task-1: Perform cleaning and disinfection of animal quarantine station

LG #28	LO#2- Carry out Sample Collection and Decisions on Quarantined Animal and Their Products

Instruction sheet
This learning guide is developed to provide you the necessary information regarding the following content coverage and topics: • Maintain Personal hygiene and cleanliness standards • Sampling and sample transporting. • Quarantine regulations for importing and exporting • Decisions on a quarantined animal and their products This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to: • Maintain personal hygiene and cleanliness standards • undertake or provide Safety training on sampling and sample transporting • Identify, collect, label, store and submit proper and representative Samples • Pass appropriate decisions on a quarantined animal and their products
Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks
5. Perform Operation Sheets
6. Do the “LAP test”

Information Sheet 2

2.1. Maintain Personal hygiene and cleanliness standards

- **Hygiene** refers to behaviors that can improve cleanliness and lead to good health or is a series of practices performed to preserve health or conditions and practices that help to maintain health and prevent the spread of diseases. Personal hygiene refers to maintaining the body's cleanliness.
- **Cleanliness**: is both the abstract state of being clean and free from germs, dirt, trash, or waste, and the habit of achieving and maintaining that state. Many people equate hygiene with 'cleanliness,' but hygiene is a broad term. It includes such personal habit choices as how frequently to take a shower or bath, wash hands, trim fingernails, and wash clothes.
- **Sanitation** is the act or process of making sanitary or the promotion of hygiene and prevention of disease by maintenance of sanitary condition as (by removal of sewage and trash) often used attributively a sanitation equipment’s and sanitation worker.
- Objectives of sanitation include:
  - ✓ Reducing the number of people practicing open waste disposed container (e. g. Do not open defecation area, tools that contain pus, blood, necrotic organ etc.).
  - ✓ Increasing the number of people with access to basic sanitation facilities.

- ✓ Improving the affordability and availability of sanitation products and services.
- ✓ Increasing the amount of specimens waste effectively captured and treated on-site, or collected, transported, and treated offsite.
- ✓ Improving the ability of educational and health systems to manage sanitation and hygiene facilities in the laboratory institutions.
- ✓ Increasing the number of people with safely managed sanitation services.
- ✓ Increasing washing laboratory equipment with detergent (soap, Ajaksi, Omo, Barkina) at critical times.
- ✓ Increasing the rate of safe management of household drinking water and nutrition.

- Maintaining personal hygiene and cleanliness standards is essential for promoting good health and well-being. Here are some guidelines to help you maintain personal hygiene:
  - ✓ **Regular bathing or showering**: Cleanse your body daily using soap or body wash and warm water. Pay attention to areas such as underarms, groin, and feet. Dry yourself thoroughly after bathing.
  - ✓ **Hand hygiene**: Wash your hands frequently throughout the day, especially before eating, after using the toilet, after touching surfaces in public places, and after coughing or sneezing. Use soap and water, and scrub your hands for at least 20 seconds. If soap and water are not available, use an alcohol-based hand sanitizer.
  - ✓ **Oral hygiene**: Brush your teeth at least twice a day using fluoride toothpaste and a soft-bristle toothbrush. Floss daily to remove food particles and plaque between your teeth. Consider using mouthwash to freshen your breath and kill bacteria.
  - ✓ **Hair care**: Keep your hair clean by washing it regularly with shampoo and conditioner. Trim your hair regularly to maintain its cleanliness and prevent split ends.
  - ✓ **Nail care**: Trim your nails regularly and keep them clean. This helps prevent the accumulation of dirt and bacteria. Avoid biting your nails, as it can introduce germs into your mouth.

- ✓ **Clothing**: Wear clean clothes every day. Regularly launder your clothes, especially undergarments and socks, to remove sweat, dirt, and bacteria. Avoid wearing clothes that are soiled or have an unpleasant odor.
- ✓ **Foot care**: Wash your feet daily with soap and water, especially between the toes. Dry them thoroughly, especially the areas between the toes, as dampness can lead to fungal infections. Wear clean socks and well-fitting shoes to prevent foot odor and infections.
- ✓ **Menstrual hygiene**: If you menstruate, change your sanitary products regularly to maintain cleanliness and prevent infections. Follow proper disposal methods for used sanitary products.
- ✓ **Environmental cleanliness**: Keep your living space clean and free from clutter. Regularly clean surfaces, such as countertops, tables, and doorknobs, with disinfectant cleaners. Launder your beddings and towels regularly.
- ✓ **Personal grooming:** Maintain a well-groomed appearance by regularly trimming and styling your hair, shaving or grooming facial hair, and keeping your overall appearance neat and tidy

2.2. Sampling and sample transporting.

- Sampling and sample transporting in quarantine stations for animals are important procedures to prevent the spread of diseases and ensure the health and well-being of animals entering or exiting quarantine.
- Here are some guidelines for conducting sampling and transporting samples in quarantine stations for animals:
  - ✓ **Regulatory Compliance**: Familiarize yourself with the specific regulations and requirements for sampling in quarantine stations for animals. Different countries and regions may have their own guidelines and protocols that must be followed.

- ✓ **Trained Personnel**: Ensure that the personnel responsible for sampling are properly trained in animal handling, sample collection techniques, and biosafety precautions. This helps minimize stress to the animals and reduces the risk of accidents or injuries.
- ✓ **Sample Collection Equipment**: Use appropriate and sterile sampling equipment for each specific sample type. This may include swabs, needles, syringes, blood collection tubes, containers for fecal or urine samples, and other specialized tools. Use separate and dedicated equipment for each animal to avoid cross-contamination.
- ✓ **Sample Types:** Follow the guidelines provided by the relevant authorities regarding the required sample types for testing. This may include blood, urine, feces, nasal or oral swabs, tissue samples, or others. Collect the samples in a manner that ensures their integrity and represents the health status of the animal accurately.
- ✓ **Biosafety Measures**: Adhere to proper biosafety measures to protect both animal handlers and the animals themselves. Wear appropriate personal protective equipment (PPE), such as gloves, masks, goggles, and gowns, when handling animals or collecting samples. Follow proper disinfection protocols for equipment and surfaces to prevent the spread of pathogens.

  Safety training of PPE,

2.2.1. Sample collection

A. Safety Precautions

- **Safety** is the state of being "safe", the condition of being protected from harm or other non-desirable outcomes. Safety can also refer to the control of recognized hazards in order to achieve an acceptable level of risk. Working safely with hazardous chemicals requires proper use of laboratory equipment. When it comes to sample collection in a quarantine station, it's crucial to follow strict safety precautions to minimize the risk of transmission of infectious diseases.
- Here are some general safety guidelines that should be followed:

- ✓ **Personal Protective Equipment (PPE**): Wear appropriate PPE, including gloves, disposable gowns, masks (respirators if necessary), and eye protection (goggles or face shields). The type of PPE required may vary based on the specific infectious agent being tested for and the mode of transmission.
- ✓ **Hand Hygiene**: Perform thorough hand hygiene by washing your hands with soap and water for at least 20 seconds before and after sample collection. If soap and water are not available, use an alcohol-based hand sanitizer with at least 60% alcohol.
- ✓ **Respiratory Etiquette**: Cover your mouth and nose with a tissue or your elbow (not your hands) when coughing or sneezing. Dispose of used tissues immediately and perform hand hygiene afterward.
- ✓ **Environmental Cleaning**: Ensure that the sample collection area is clean and disinfected regularly. Use appropriate disinfectants effective against the infectious agent(s) in question.
- ✓ **Sample Handling**: Use sterile and disposable equipment whenever possible to collect and handle samples. Avoid unnecessary contamination by ensuring that samples are properly labeled, sealed, and stored in appropriate containers.
- ✓ **Aerosol Generation**: Take precautions to minimize aerosol generation during sample collection procedures. Use techniques and devices that reduce the risk of generating aerosols, such as using closed systems or safety cabinets whenever feasible.
- ✓ **Waste Disposal**: Dispose of all waste, including used PPE and contaminated materials, in accordance with established protocols for hazardous waste management. Use designated waste containers and follow local regulations.
- ✓ **Training and Education**: Ensure that all personnel involved in sample collection are adequately trained in infection prevention and control measures. Stay updated on the latest guidelines and recommendations from public health authorities.

- ✓ **Risk Assessment**: Perform a thorough risk assessment prior to sample collection to identify potential hazards and implement appropriate control measures. This includes evaluating the specific infectious agent, the mode of transmission, and the level of containment required.
- ✓ **Communication:** Maintain open and clear communication with colleagues and healthcare professionals involved in the sample collection process. Report any concerns, incidents, or potential exposures promptly to the designated authorities.

B. Sample Types taken in Quarantine station

- In a quarantine station for animals, various types of samples may be taken to assess the health status of the animals and to detect the presence of infectious agents. The specific samples collected will depend on the purpose of the quarantine and the suspected or known risks associated with the animals.
- It's important to note that the specific samples collected and the diagnostic tests performed will depend on the animals being quarantined, their species, and any specific regulations or guidelines in place. Quarantine facilities typically have protocols in place for sample collection and testing based on recognized standards and the specific risks associated with the animals being housed.
- Here are some common samples that may be taken:
  - ✓ **Blood Samples:** Blood samples are commonly collected to perform serological tests, which can detect the presence of antibodies or antigens related to specific diseases. These tests can help identify past or current infections and assess the immune status of the animals.
  - ✓ **Nasal or Oropharyngeal Swabs**: Swabs are used to collect samples from the nasal passages or throat to test for respiratory pathogens such as viruses or bacteria. These samples can be analyzed using techniques like polymerase chain reaction (PCR) to identify specific pathogens.
  - ✓ **Fecal Samples**: Fecal samples are collected to assess the presence of gastrointestinal parasites, bacteria, or viruses. Techniques such as fecal flotation,

PCR, or bacterial culture can be employed to detect and identify potential pathogens.

- ✓ **Urine Samples**: Urine samples may be collected to assess kidney function or to detect certain diseases such as urinary tract infections. Urinalysis and culture techniques can be used to evaluate the health of the urinary system.
- ✓ **Tissue Samples**: In certain cases, tissue samples may be collected for histopathological examination. This involves the analysis of tissues under a microscope to identify abnormalities, infections, or diseases that may not be evident through other diagnostic methods.
- ✓ **Skin or Hair Samples**: Skin scrapings or hair plucks may be taken to investigate skin conditions, such as parasitic infestations or fungal infections. These samples can be examined using microscopy or cultured to identify the causative agents.
- ✓ **Vector Samples**: In situations where vector-borne diseases are of concern, samples from the potential vectors (e.g., ticks, fleas, mosquitoes) may be collected to identify the presence of disease-causing organisms.
- ✓ **Genital tract and semen**
  - Vaginal or preputial washing can be collected in buffered physical saline, or by the use of suitable swabs.
  - Vaginal mucus or washings for cultural tests must be received within 24 hours of collection.
  - The cervix or urethra may be sampled by swabbing.
  - Semen samples can be collected using an artificial vagina or by extrusion of the penis and artificial stimulation.
  - Specific transport media and conditions is often required**.**
- ✓ **Milk sample**
  - Milk samples should be taken after cleansing and drying the tip of the teat, the use of antiseptics should be avoided.

- The initial stream of milk should be discarded and a tube filled with the next stream(s), a sample of bulk tank milk can be used for some tests.
- Milk for serological tests should not have been frozen, heated or subjected to violent shaking.
- If there is going to be a delay in submitting them to the laboratory, preservatives can be added to milk samples that are being collected for serological testing.
- If necessary, milk for bacterial examination can be frozen.

2.2.2. Sample Labeling

- Labeling samples taken from animals typically involves assigning relevant information or categories to each sample to facilitate data organization, analysis, and research. The specific labels assigned will depend on the context and objectives of the study.
- Accurate and consistent labeling of animal samples is crucial for data integrity, reproducibility, and effective analysis. It enables researchers to organize and analyze data in a meaningful way, aiding in the understanding of animal biology, behavior, ecology, and various other research areas.
- Ideally, sample labels will be produced and applied at the time the sample is drawn.
- This eliminates the possibility of applying the wrong label to the wrong sample.
- All specimens must be clearly labeled with a black indelible/permanent marker.
- Correct labeling and identification includes:

  - ✓ Owner's name and address
  - ✓ Correct species, age, sex, breed, identification
  - ✓ Clinical signs of the patient
  - ✓ Number of animals at risk and details of any mortality and postmortem findings
  - ✓ The type of sample submitted
  - ✓ Tentative diagnosis wherever possible

- ✓ Clinician's name, address and telephone number

2.2.3. Sample Transporting

- The sample should be forwarded to the laboratory by the fastest method available.
- If they can reach the laboratory within 48 hours, samples should be sent refrigerated.
- If dry ice is used, the additional packaging requirements must be met.
- Whole blood can be collected in tubes containing anticoagulant such as EDTA and send to laboratory at 4 ^{O}C or in a chilled container.
- An alternative method for collecting and transporting blood that is to be used for serology is to place a drop of blood on to filter paper, the blood is dried at room temperature and the sample can then be shipped unrefrigerated.
- Fecal samples should be dispatched as soon as possible to a laboratory in suitable containers such as:
  - ✓ Screw cap bottles
  - ✓ Plastic containers with lids
  - ✓ Disposable plastic sleeves/laboratory or rectal gloves used for collecting the samples
  - ✓ Plastic bags
- However, screwed containers, plastic or glass are best if the sample is to be transported to another place.
- Faces for parasitology should fill the container and be sent to arrive at the laboratory within 24 hours.
- If transport times are likely to be longer than 24 hours, the sample should be sent on ice or refrigerated to prevent the hatching of parasite eggs.
- For most blood parasites, blood smear on standard microscope slides can be made from fresh blood or blood with anticoagulant and sent to laboratory.

- Faeces are best stored and transported at 4°C.
- For routine shipment to the laboratory, samples can be cooled for 4^{o}c and then packed with ice or other coolant (blue ice) for shipment via any of the 24 to 48 hour transport services.
- All parasitological specimens should be dispatched in 5-10% formalin or 70% alcohol.
- If coolants are not available, samples can be stored indefinitely in 10% formalin (one part feces in 9 parts 10% formalin), but limitations must be noted.
- Sent to laboratory by placing in glycerin in a tightly sealed vial for shipment.
- Arthropod parasites can be most effectively stored in 70% ethyl alcohol or glycerin for shipment or long term preservation.
- Swabs should be transported in appropriate transport medium.

2.3. Quarantine regulations for importing and exporting

- Quarantine regulations for importing and exporting animals are implemented to prevent the introduction and spread of diseases, ensure animal welfare, and protect the local animal population and public health. These regulations can vary between countries and may be specific to different types of animals (e.g., pets, livestock, and exotic species). It is important to note that the specific quarantine regulations for importing and exporting animals can vary significantly between countries and may be subject to change.
- It is crucial to consult the official government websites, contact the relevant authorities in both the exporting and importing countries, or seek assistance from professional animal transport agents to ensure compliance with the most up-to-date regulations.
- Here are some general aspects to consider regarding quarantine regulations for importing and exporting animals:
  - ✓ Import Permits and Documentation: Importing animals typically requires obtaining an import permit from the destination country. The permit application process may involve providing specific information about the animal(s), health certificates, vaccination

records, and other documentation. Exporting countries may also require specific export permits or health certificates.

- ✓ Health Certificates: Animals being imported or exported often need to have a health certificate issued by an accredited veterinarian. The health certificate confirms that the animal is free from certain diseases and meets the health requirements of the destination country. The certificate may need to be endorsed by the appropriate government authority.
- ✓ Quarantine Periods: Quarantine periods may be required for some animals upon arrival in the destination country. Quarantine aims to observe and monitor animals for signs of infectious diseases or parasites that may not be immediately detectable. The duration and conditions of the quarantine period can vary depending on the animal species, the country, and specific disease risks.
- ✓ Vaccinations and Tests: Many countries have specific vaccination requirements for imported animals. Animals may need to be vaccinated against certain diseases, such as rabies, before importation. Additionally, animals may need to undergo specific tests, such as serological tests or polymerase chain reaction (PCR) tests, to confirm their disease-free status.
- ✓ Microchipping and Identification: Some countries require microchipping or other forms of permanent identification for imported animals. Microchips help ensure proper identification and traceability of animals throughout the importation process.
- ✓ Species-Specific Regulations: Different countries may have specific regulations and restrictions for certain species, especially exotic or endangered animals. These regulations may involve additional permits, documentation, or restrictions on the import or export of certain species.
- ✓ Transportation Requirements: Import and export regulations often specify transportation requirements to ensure the welfare and safety of the animals during travel. This may include provisions for appropriate containers, ventilation, temperature control, and handling procedures.

- ✓ Inspection and Monitoring: Animal health officials may conduct inspections and monitoring at ports of entry to verify compliance with quarantine regulations. This can involve physical examinations, laboratory testing, or other diagnostic procedures.
- ✓ Penalties and Enforcement: Non-compliance with quarantine regulations for importing or exporting animals can result in penalties, fines, or the denial of entry or exit for the animals. It is essential to adhere to the regulations and requirements of both the exporting and importing countries to avoid potential legal consequences or delays.

2.4. Decisions on a quarantined animal and their product

- Decisions regarding quarantined animals and their products depend on the specific circumstances, such as the reason for quarantine, the type of animal, and the results of health and safety assessments.
- Here are common decisions that can be made regarding quarantined animals and their products:
  - ✓ **Release from Quarantine/ Approved to cross the boundary**: If the quarantined animal is deemed healthy and free from infectious diseases or other risks, the decision may be made to release the animal from quarantine. This typically involves meeting all the necessary health requirements, completing any required testing or treatment, and obtaining the appropriate documentation, such as health certificates or permits.
  - ✓ **Extended Quarantine/ Detained for further testing:** In some cases, the initial quarantine period may be extended if there are concerns about the health status of the animal or if further monitoring is needed to ensure it poses no risk of disease transmission. Extended quarantine allows for continued observation, testing, or treatment until the animal is deemed safe for release.
  - ✓ **Rejection or Refusal of Entry/ Not approved to cross the boundary**: If an animal is found to be carrying a prohibited disease or poses a significant risk to public

health, the authorities may decide to reject or refuse its entry into the country. This decision is made to protect the local animal population, prevent the introduction or spread of diseases, and safeguard public health.

- ✓ **Euthanasia:** In severe cases where an animal is determined to be carrying a highly contagious or untreatable disease that poses a significant risk to other animals or public health, the decision may be made to euthanize the animal. This decision is typically made as a last resort when no other options for containment or treatment are available.
- ✓ **Treatment or Further Testing**: If a quarantined animal shows signs of illness or is suspected of carrying a specific disease, the decision may be made to provide appropriate treatment or conduct further testing to determine the nature of the illness and the best course of action. This can involve administering medications, isolation, or conducting additional diagnostic tests.
- ✓ **Destruction of Animal Products:** Animal products, such as meat, dairy, or other animal-derived goods, may be subject to specific decisions during quarantine. If the products are found to be contaminated with diseases or do not meet health and safety standards, the decision may be made to destroy or dispose of these products to prevent the spread of diseases or contamination.
- ✓ **Return to Country of Origin**: In some cases, if an animal fails to meet the import requirements of the destination country or is found to be carrying a disease, the decision may be made to return the animal to its country of origin. This decision is made to prevent the introduction of diseases or risks that could impact the local animal population or public health.

- It's important to note that the decisions mentioned above are general in nature and can vary based on the specific regulations and guidelines of each country. The decisions are primarily made by government authorities responsible for animal health, agriculture, or customs, in consultation with veterinarians or experts in the field

Self-Check – 2

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Part i. Choose the best answer and write your answer on the space provided (1 pt each)

1. What is the recommended duration for handwashing to effectively remove germs?
   a) 5 seconds
   b) 10 seconds
   c) 20 seconds
   d) 30 seconds
2. Which of the following is NOT a recommended practice for maintaining oral hygiene?
   a) Brushing teeth twice a day
   b) Using a soft-bristle toothbrush
   c) Flossing daily
   d) Using mouthwash instead of brushing
3. Why is it important to regularly launder clothes, especially undergarments and socks?
   a) To prevent foot odor
   b) To maintain cleanliness and prevent infections
   c) To remove sweat and bacteria
   d) To save water and energy
4. What is the recommended frequency for bathing or showering?
   a) Every other day
   b) Once a week
   c) twice a day
   d) daily
5. How should menstrual hygiene products be disposed of properly?
   a) Flush them down the toilet
   b) Throw them in the regular trash bin
   c) Wrap them in tissue and dispose of them in a designated bin
   d) Bury them in the backyard

Part ii. **Match correctly the following (1pts each)**

A

1. Collected to assess kidney function or detect urinary tract infections.
2. Used to investigate skin conditions or fungal infections.
3. Samples taken from potential disease-carrying vectors like ticks and mosquitoes.
4. Collected to detect the presence of gastrointestinal parasites or bacteria.
5. Used to examine tissues under a microscope for abnormalities or infections.
6. Samples taken from the nasal passages or throat to test for respiratory pathology
7. Samples taken to assess the immune status of animals and identify past or current infections.
8. Samples collected from the genital tract or semen for various tests.
9. Samples taken from the mammary glands for testing, including serological tests.

B

a. Blood Samples
b. Nasal or Oropharyngeal Swabs
c. Fecal Samples
d. Urine Samples
e. Tissue Samples
f. Skin or Hair Samples
g. Vector Samples
h. Genital tract and semen
i. Milk sample

Part iii. Write short and precise answer.

1. What is the purpose of quarantine regulations for importing and exporting animals?
2. What are some general aspects to consider regarding quarantine regulations for importing and exporting animals?
3. What are health certificates, and why are they required for importing and exporting animals?
4. Why are quarantine periods necessary for some animals upon arrival in the destination country?
5. What decisions can be made regarding quarantined animals and their products?

Note: **Satisfactory rating – 10 points** **Unsatisfactory - below 10 points**

You can ask you teacher for the copy of the correct answers.

Operation Sheet- 2

2.1. Procedures for Blood Collection from jugular vein

A. Materials

- PPE, Cotton, Syringes, Sample tube, Scalpel blades, Needle holder, Disinfectants , Ice box with ice packs, Hypodermic needles, puncturing needles or sterilized lancet

B. Procedures

I. Use PPE
II. Restrain the animal.
III. Locate the vein (bind if necessary).
IV. Shave the area.
V. Wash it with water and soap.
VI. Disinfect with 70 % Alcohol.
VII. Leave the skin to dry for some minutes.
VIII. Puncture with needle and syringe.
IX. Extract 5ml of blood, withdraw the needle and pass the blood to a tube containing any anticoagulant agent.
X. Mix inverting turning upside down the tube (5-7 times), till homogenizing the blood.
XI. Make duplicate smear if necessary.
XII. Identify and send the blood sample, use refrigerator if more than 2 hours elapse to take the sample to laboratory.

2.2. Procedures for Collecting Fecal Sample

A. Materials

- Include**:** Gloves, Lubricant, Labeling paper, Universal bottle, Restraining device, Preservatives (if necessary)

B. Procedures

I. Use PPE
II. Restrain the animals.
III. Wear arm length protective gloves (cut Sharpe nails and remove rings)
IV. Lubricate the gloved hand with lubricant.
V. Make the hand in conical shape
VI. Insert the hand directly to the rectum.
VII. Then, finally collect the fecal sample and place to the universal bottle (use preservative if necessary).

2.3. Procedures for Collecting Skin Scrap Sample

1. **Materials**

- Include: Petridish or test tube, Scalpel blade with handle, Disinfectants (Alcohol or Savlon), Cotton paraffin oil

2. **Procedures**

I. Clean the lesion with 70% alcohol.
II. Immerse the blade in a drop of paraffin oil.
III. Scrap the lesion with a scalpel blade till blood oozes. The scraping will adhere to the blade. Put the scraping material into a test tube/petridish.
IV. Finally identify the sample and send to the laboratory

2.4. Procedures for Collecting Preputial Wash Sample

A. Materials

Include: Plastic pipette connected to a syringe, sterile saline solution, Sterilized tube, Water and soap, Blade, PPE

B. Procedures

I. Use PPE

II. Shave, clean with water and soap all external parts, verifying that the external orifice of the preputial is kept dry.

III. Introduce a plastic pipette connected with syringe containing sterile saline solution to the preputial cavity.

IV. Tie the external orifice of the preputial with a rubber band then injecting the fluid into the cavity and massage it for some minute.

V. Aspire the wash at the interior of the syringe.

VI. Pass the sample to sterilized tube or seal the syringe with a rubber tap.

VII. Identify and submit to laboratory, take it refrigerated if the sample if takes more than 2 hours to reach the Lab.

2.5. Procedures for Collecting Milk Sample

A. Materials

Include: Golves antiseptics, towel, iodine tincture, alcohol, milk, vial, paper and pen, Water and soap, Blade, PPE

B. Preocedures

I. Wear PPE

II. Restrain the animal and Wear gloves.

III. Wash the udder with water and antiseptic solutions.

IV. Dry with clean towel.

V. Disinfect the teat with 70% alcohol or iodine tincture

VI. Discard the first 3-4 streams of milk.

VII. Open the collection vial and hold at a 45° angle to keep debris from accidentally falling into it.

VIII. Collect the milk sample from each teat in separate tubes about 5-10ml.

IX. Seal or stopper properly the tube immediately after collection.

X. Label the sample vials using a waterproof marker that will not come off during transport to the laboratory. Designate each quarter sampled as RF (right front), RR (right rear), LF (left front), or LR (left rear).

XI. Transport with ice.

2.6. Procedures for collecting urine sample

A. Materials

- PPE, Gloves, antiseptics, clean containers, Urine collection bags, Catheters, Labels and Markers: Water and soap, Blade, Storage and Transport Materials:

B. Procedures

I. Wear PPE

II. Prepare and gather the necessary equipment, including for sample collection and any additional supplies specific to the species or research objectives.

III. Restrain the animal

IV. Wash the area of sample collection with soap and water and add antiseptics

V. Select sample collection methods (free catch, manual expression, catheterization, or metabolic cage collection).

VI. collect the sample and put in to appropriate collection container

VII. Label the container with relevant information such as animal ID, date, and time of collection.

VIII. Handle Sample properly

IX. Perform post-collection procedures: After sample collection, ensure the animal's well-being by providing any necessary post-collection care, such as cleaning and disinfecting the collection area or providing treats or rewards to reduce stress.

2.7. Procedures for collecting animal tissue sample

A. Materials

- PPE, gloves, antiseptics, clean containers, forceps or tweezers, surgical blade, labels and markers, scissors water and soap, blade, storage and transport materials

B. Procedures

I. Wear PPE

II. Prepare and gather the necessary equipment.

III. Restrain the animal with anesthesia

IV. Wash the area of sample collection with soap and water and add antiseptics

V. Dissect and collect the tissue using aseptic techniques (if required) and the appropriate instruments. The specific procedure will depend on the tissue type being collected. Some common techniques include:

- Biopsy: Involves removing a small piece of tissue, often using a biopsy punch or needle, for diagnostic or research purposes.
- Excision: Involves surgically removing entire organs or larger tissue specimens, usually for pathological examination or research purposes.
- Fine-needle Aspiration (FNA): Involves inserting a thin needle into a tissue mass to obtain a sample of cells or fluid.

VI. Label the container with relevant information such as animal ID, date, and time of collection.

VII. Handle and Preserve the sample:

- Place the tissue samples in the designated collection containers, ensuring they are properly labeled.
- Use appropriate preservatives or storage media if necessary (e.g., formalin for histological analysis, RNA later for RNA preservation).
- Keep the samples at the appropriate temperature during transport and storage, such as refrigeration or freezing, to prevent degradation.

VIII. Clean and disinfect the area of work with an appropriate disinfectants and antiseptic

LAP Test 1:

Name…….ID……Date……

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within **5** hour. The project is expected from each student to do it.

Task-1**:** Perform blood collection procedures

Task-2: Perform fecal sample collection procedures

Task-3: perform milk sample collection steps

Task-4: perform preputial wash sample collection steps

Task-5: perform urine sample collection steps

Task-6: perform animal tissue sample collection steps

Task-7: perform skin scraping sample collection steps

LG #29	LO#3- Wastes Disposal and Report Quarantine Data

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Disposing of quarantine wastes
- Develop recording sheet and record daily activities in the quarantine
- Quarantine animal certification

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Prepare adequate area for the disposal of quarantine waste
- Isolate and dispose Quarantine wastes
- Record daily observations on animal history sheet
- Give original animal health certificate to the owner
- Archive and set history sheets and associated documentation of animals and information purposes

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks

Information Sheet 3

3.1. Disposing of Quarantine Wastes

- Proper disposal of quarantine wastes in an animal quarantine station is crucial to prevent the spread of infectious diseases and maintain biosecurity. The specific procedures for waste disposal may vary depending on local regulations, facility guidelines, and the types of waste generated.
- Here are some general guidelines for disposing of quarantine wastes in an animal quarantine station:
  - ✓ **Segregation and Containment**: Separate different types of quarantine wastes into appropriate containers to prevent cross-contamination and facilitate proper disposal. Common categories of quarantine waste include:
    - **Solid Waste:** This includes items such as animal bedding, discarded materials, and non-infectious waste. Place solid waste in designated containers such as trash bins or bags.
    - **Liquid Waste**: Liquid waste may consist of cleaning solutions, disinfectants, or other liquids. Collect liquid waste in containers that are leak-proof, sealed, and properly labeled.
    - **Biohazardous** Waste: Biohazardous waste includes materials contaminated with potentially infectious substances, such as animal tissues, bodily fluids, or contaminated equipment. Dispose of biohazardous waste in accordance with local regulations and guidelines for handling and disposal of hazardous waste.
  - ✓ **Disinfection and Decontamination**: Prior to disposal, it is important to decontaminate and disinfect quarantine wastes to minimize the risk of disease transmission. Follow appropriate disinfection protocols recommended by regulatory

agencies or facility guidelines. This may involve using approved disinfectants, following contact time requirements, and ensuring thorough disinfection of surfaces or items that come into contact with potentially infectious materials.

- ✓ **Waste Collection and Storage**: Establish a system for regular waste collection and storage. Ensure that waste containers are securely closed, labeled appropriately, and stored in designated areas that are inaccessible to animals and pose no risk of contamination to the environment or personnel.
- ✓ **Waste Removal and Transport**: Coordinate with waste management services or licensed waste disposal facilities to arrange for the proper removal and transport of quarantine wastes. Comply with local regulations and guidelines for waste transport to ensure safe and responsible disposal. This may involve using authorized waste collection services or adhering to specific procedures for transporting hazardous or biohazardous materials.
- ✓ **Record-Keeping**: Maintain accurate records of waste disposal activities, including the types and quantities of waste generated, dates of disposal, and any relevant documentation required by regulatory authorities. These records help demonstrate compliance with waste management regulations and support biosecurity and disease control efforts.

3.2. Develop Recording Sheet and Record Daily Activities in the Quarantine

- Creating a recording sheet and maintaining daily activity records in an animal quarantine facility is essential for effective management, monitoring, and documentation.
- The recording sheet should capture relevant information about the animals, their health status, and the activities performed each day.
- Here's a suggested format for a recording sheet and examples of the daily activities that can be recorded:

Animal Quarantine Facility Daily Activity Recording Sheet:

- ✓ Date:_____
- ✓ Animal ID:_____
- ✓ Species:_____
- ✓ Quarantine Section: _____

Daily Activities:

- ✓ Health Monitoring:
  - Body temperature (if applicable): _____°C/°F
  - Respiratory rate: _____breaths per minute Heart rate: _____beats per minute
  - General health observations: _____
- ✓ Feeding and Watering:
  - Type of feed provided: _____
  - Quantity of feed provided: _____
  - Watering frequency: _____
- ✓ Cleaning and Sanitization:
  - Cleaning of animal enclosures: _____
  - Disinfection procedures followed: _____
- ✓ Veterinary Procedures/Examinations:
  - Veterinary examinations conducted: _____
  - Treatments administered (if any): _____
- ✓ Animal Enrichment and Exercise:
  - Enrichment activities provided: _____
  - Exercise periods or access to exercise areas: _____
- ✓ Biosecurity Measures:
  - Protective measures implemented _____
  - Visitors or personnel entering the quarantine area: _____

- ✓ Other Observations or Notes:
  - Any relevant observations or incidents: _____
- ✓ Signature: _____

- Note: Customize the recording sheet based on the specific requirements and activities of your animal quarantine facility. Include additional sections or fields as needed.
- Ensure that the recording sheet is filled out accurately and promptly each day. It should be easily accessible and stored securely for future reference or inspection purposes.
- By maintaining daily activity records, you can track the health status of animals, monitor their progress, ensure compliance with protocols, and provide a comprehensive history of activities conducted within the quarantine facility.
- These records can also facilitate communication among staff members and support decision-making processes related to animal care and management.

3.3. Quarantine Animal Certification

- Quarantine animal certification is a process by which animals are assessed, tested, and certified to ensure they meet specific health and safety standards before being released from quarantine and allowed to enter a new environment.
- The certification serves as proof that the animal has undergone the necessary quarantine procedures and is considered safe and healthy for movement or release. The exact requirements for quarantine animal certification can vary depending on the destination country, local regulations, and the specific purpose of the quarantine (e.g., importation, disease control).
- Here are some general steps involved in the quarantine animal certification process:
  - ✓ **Quarantine Period**: Animals are placed in a designated quarantine facility for a specified period. The duration of the quarantine period can vary depending on the animal species, destination country, and specific health requirements.

- ✓ **Health Monitoring**: Throughout the quarantine period, the animals are closely monitored by veterinary professionals. This includes regular health checks, observation of clinical signs, and testing for specific diseases or pathogens of concern.
- ✓ **Diagnostic Testing**: Depending on the regulations and specific health concerns, various diagnostic tests may be performed on the animals. These tests can include blood tests, serology, microbiological cultures, and imaging techniques to detect the presence of infectious diseases or parasites.
- ✓ **Vaccinations and Treatments**: Animals may receive vaccinations or specific treatments during the quarantine period to ensure they are protected against certain diseases or to address any health issues identified during the monitoring process.
- ✓ **Documentation and Records**: Detailed and accurate records of the animal's health status, test results, vaccinations, treatments, and any other relevant information are maintained throughout the quarantine period. These records serve as evidence of compliance with quarantine requirements and are essential for the certification process.
- ✓ **Veterinary Certification**: Once the quarantine period is completed and the animal has met the necessary health criteria, a veterinarian issues a certification document. This certificate typically includes information about the animal's identity, health status, testing results, vaccinations, treatments, and compliance with quarantine procedures.
- ✓ **Regulatory Compliance**: The animal quarantine facility and the certification process must adhere to the regulations and requirements set by the destination country or relevant authorities. This may involve submitting documentation, test results, and the certification document to the appropriate regulatory agency for review and approval.
- ✓ **Release or Movement**: Upon successful completion of the quarantine period and the issuance of the certification, the animal is released from quarantine and may be allowed to enter a new environment, such as being released into the general population or being transported to its intended destination.

Self-Check – 3

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Part I. Choose the best answer from the given alternatives (1 pt each)

1. What is the primary purpose of proper disposal of quarantine wastes in an animal quarantine station?
   a) To prevent animal escapes
   b) To maintain biosecurity and prevent the spread of infectious diseases
   c) To reduce waste management costs
   d) To comply with local regulations on waste disposal
2. Which of the following is NOT a category of quarantine waste?
   a) Solid waste
   b) Liquid waste
   c) Biohazardous waste
   d) Recyclable waste
3. What is the purpose of disinfection and decontamination in waste disposal?
   a) To reduce waste volume
   b) To eliminate unpleasant odors
   c) To recycle waste materials
   d) To minimize the risk of disease transmission
4. What is the primary purpose of quarantine animal certification?
   a) To assess the animal's behavior
   b) To ensure the animal's comfort during quarantine

c) To meet specific health and safety standards

d) To determine the animal's age and breed

5. How long does the duration of the quarantine period typically depend on?

   a) The animal's weight

   b) The animal's coloration

   c) The animal's species and destination country

   d) The animal's level of training

6. What is the role of veterinary professionals during the quarantine period?

   a) They provide entertainment for the animals

   b) They monitor the animals' health and well-being

   c) They train the animals to follow commands

   d) They handle administrative tasks related to the certification process

7. What types of diagnostic tests may be performed on animals during quarantine?

   a. DNA sequencing
   b. Psychological evaluations
   c. Blood tests and serology
   d. Eye examinations

8. Why might animals receive vaccinations or treatments during the quarantine period?

   a) To enhance their physical appearance

   b) To meet the facility's cosmetic standards

   c) To address any health issues or protect against diseases

   d) To increase their market value

9. What purpose do detailed records serve during the quarantine animal certification process?

   a) To track the animals' weight loss or gain

   b) To provide entertainment value for future owners

   c) To ensure the animals meet behavioral requirements

   d) To demonstrate compliance with quarantine procedures

10. What is the final step after the completion of the quarantine period and issuance of the certification?

    a) Animals are transported to another quarantine facility

    b) Animals are released into the wild

    c) Animals are released into the general population or transported to their intended destination

    d) Animals are subjected to further testing and monitoring

Part II. Matching Items

A	B
1. Cleaning and sanitizing animal enclosures	a) Health Monitoring
2. Recording body temperature, respiratory rate, and heart rate	b) feeding and watering
3. Providing appropriate food and water to animals	c) Cleaning and Sanitization
4. Conducting examinations and administering treatments	d) Veterinary Procedures
5. Implementing protective measures and monitoring visitors	e) Animal Enrichment
6. Providing activities to enhance mental and physical stimulation	f)Biosecurity Measures
7. Observing and documenting any relevant incidents	g) Visitors or personnel
8. Noting the type and quantity of feed provided	h) Other Observations
9. Allowing access to designated exercise areas	i) Exercise Periods
10. Documenting daily activities and observations	j) Recording Sheet

Part II. Write short and precise answer

1. What is the purpose of quarantine animal certification?
2. What factors can influence the duration of the quarantine period?
3. Who is responsible for monitoring the health of animals during the quarantine period?
4. What types of diagnostic tests may be performed on animals during quarantine?
5. Why animals are sometimes vaccinated or treated during the quarantine period?
6. Why are detailed records important during the quarantine animal certification process?
7. Who issues the certification document once the quarantine period is completed?
8. What regulations must an animal quarantine facility comply with during the certification process?
9. What information is typically included in a veterinary certification document?
10. What happens to animals after they have completed the quarantine period and received certification?

Note: **Satisfactory rating – 15 points** **Unsatisfactory - below 15points**

You can ask you teacher for the copy of the correct answers.

Reference

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