



WILDLIFE HEALTH SURVEILLANCE TRAINING QUIZ

-Wildlife Health Professionals-

DOMAIN

01

Wildlife health knowledge

1.1 Understand basic concepts and connections between wildlife health and the health of their livestock and themselves.

Which pathogen can cause disease in wildlife and livestock?

- a) African swine fever virus
- b) Avian influenza virus
- c) Peste des petits ruminants virus
- d) All of the above

Poisons or toxins that affect animals can also affect humans:

- True
- False

Which host(s) below is susceptible to highly pathogenic avian influenza (HPAI) virus?

- a) Chickens
- b) Wild ducks
- c) Domestic geese
- d) People
- e) All of the above

Humans can become infected directly or indirectly by an animal (wild or domestic) by _____ (check all that apply):

- Drinking water from the same stream used by an animal in a nearby forest
- Not washing vegetables from a field used by animals before eating
- Inhaling the smell of meat cooking
- Consuming uncooked or partially cooked meat from a sick animal
- Touching the animal

1.2 Understand the term “zoonoses” and why we should perform surveillance of zoonoses in wildlife.

What is a zoonotic disease?

- a) An illness that is caused by a pathogen that can be spread from animals to people
- b) A disease only found in animals in the zoo
- c) A disease that can spread from wildlife to livestock, but not to people

Zoonoses can cause serious disease and mortality in people:

- True
- False

Zoonoses have no economic consequences:

- True
- False

COVID-19 is an example of a zoonotic disease that initially originated in wildlife:

- True
- False

Surveillance of diseases in wildlife can aid:

- a) Early detection of high-risk zoonoses
- b) Livestock production
- c) Conservation of endangered wildlife species
- d) All of the above



I.3 Understand the role they themselves play in wildlife health surveillance.

What can wildlife health professionals do to help with disease surveillance?

- a) Encourage communities to report deaths in wildlife
- b) Train conservation or animal health officers on how to collect data for wildlife health surveillance
- c) Analyze data from wildlife morbidity and mortality events
- d) Report to and coordinate with authorities from the environment, livestock, and human health sectors to facilitate interventions
- e) All of the above

Who are the other actors involved in a wildlife health reporting system? Check all that apply:

- forest rangers
- rescue centers
- communities
- animal health officers
- anyone who observes wildlife in captivity or in the wild

I.4 Understand what “pathogens” are and the basics of disease transmission.

Which of the following can be a “pathogen”?

- Poison
- Bacteria
- Allergen
- Radiation
- All of the above

How can zoonotic pathogens be transmitted from wildlife to humans?

- a) By eating wildlife
- b) From animal bites
- c) By contaminating water or food
- d) Inhaling a pathogen from a sick animal
- e) All of the above

Which pathogen is NOT considered “zoonotic”?

- a) Ebola virus
- b) Rabies virus
- c) Bacillus anthracis (anthrax bacteria)
- d) African swine fever (ASF) virus
- e) None of the above. All are considered zoonotic.

Which pathogen IS considered “zoonotic”?

- a) Nipah virus
- b) Lumpy skin disease virus
- c) Peste des petits ruminants (PPR) virus
- d) African swine fever (ASF) virus
- e) None of the above are considered zoonotic

I.5 Understand where “interfaces” exist in their country between wildlife and people and/or livestock.

Which of these activities increase the risk for the emergence of zoonotic diseases? Check all that apply:

- Birdwatching
- Intensified agriculture
- Logging a forest to expand human settlements
- Selling live wildlife in a market
- Poaching

Which of these scenarios does NOT elevate risk of disease transmission from wildlife to humans?

- a) Farming wildlife
- b) Allowing livestock to free-range in and around wildlife habitat
- c) Keeping wild birds as pets
- d) None are correct. ALL of these scenarios increase the risk of disease transmission from wildlife to humans.



DOMAIN

02

Event assessment and analysis

2.1 Know how to evaluate a wildlife mortality scene and determine whether it is safe to approach and investigate further.

What are the typical signs of anthrax in a dead wild ruminant?

- a) Dark blood from mouth, nose, anus
- b) Bloated
- c) More than one dead ruminant in same area
- d) All of the above

If you are suspicious of anthrax, you should report immediately to your supervisor. Unless you have been previously trained, you should not touch the carcass because you might become infected with anthrax:

- True
- False

Before approaching a wildlife mortality scene, it is good to assess for the following: (check all that apply)

- Whether there are physical hazards or other dangers in the environment. If you see a physical danger, do not approach.
- Whether the animals involved are ones you can accurately identify to the species level. If you cannot, do not approach.
- Whether you have sufficient PPE. If you do not have any, do not approach.

Several dead wild animals found in the same location could be a result of: (check all that apply)

- Infectious disease
- Poison
- Lightning strike
- Old age
- Predation

2.2 Document and record accurate information about the scene and the animal(s).

What information should you collect when you find a wild animal carcass? Check all that apply:

- Photos
- GPS data
- Your name and contact information
- Number of animals and species

In addition to recording the number of animals and species, you also want to collect the following information:

- a) external signs seen on the animal
- b) reports of sick/dead livestock or humans in the area
- c) the weather
- d) a & b
- e) a, b, & c

When should a wildlife mortality scene be assessed, and information recorded?

- a) Allow 4 – 5 days to pass before going near dead wildlife so that carcasses can dry out
- b) Assess the scene, record information, and take samples as soon as possible before any further decomposition
- c) Assess the scene and record information immediately, but wait one week to collect any samples
- d) None of the above



DOMAIN

03

Personal safety practices

3.1 Understand who should wear personal protective equipment when sampling an animal.

Who should wear PPE during the sampling of wildlife in a market?

- a) Only the person touching the carcass
- b) The person touching the carcass and the person helping with cutting swabs, labelling tubes, etc.
- c) All shoppers within the market
- d) Only the photographer

Who should wear PPE during the sampling of wildlife in the forest?

- a) Only wildlife health professionals
- b) Only conservation officers
- c) Anyone coming near the carcass
- d) Only veterinarians

To expand surveillance, who should wildlife health professionals train in appropriate PPE donning/doffing?

- a) Only their direct colleagues
- b) Farmers
- c) Anyone who may encounter sick or dead wildlife while performing their work duties
- d) Only government staff

3.2 Understand why, with respect to zoonoses and pathogen transmission, they must wear a mask, an apron, gloves, eye protection in the field.

Which of the following items are part of PPE? Check all that apply:

- N95 face mask
- Insect spray
- Gloves
- Eye goggles/glasses
- A plastic apron

Supplies to bring when planning to use PPE in the field should include: (check all that apply)

- Disinfectants
- Large disposal bags for contaminated PPE
- Compass
- Adequate sets of PPE for all personnel that may participate in field activities that have a risk of exposure to infectious pathogens

Why must masks be worn during sampling?

- a) To prevent injury to your face
- b) To prevent respiratory transmission (i.e. inhaling) of pathogens
- c) To make sure your face cannot be recognized in photos
- d) All of the above

Why must gloves be worn when sampling of a live animal?

- a) To prevent possible transmission of pathogens, through direct contact, from you to the animal
- b) To prevent possible transmission of pathogens, through direct contact, from the animal to you.
- c) Both a & b

Why must gloves be worn when sampling a dead animal?

- a) To protect the carcass from contamination by agents that may be found on your skin
- b) To prevent possible transmission of pathogens, through direct contact, from the animal to you
- c) Both a & b

It is okay to sample a carcass without PPE if it is an emergency outbreak investigation:

- True
- False



3.3 Don and doff personal protective equipment (PPE) properly and in the correct order in accordance with their Wildlife Health Surveillance SOP (or other policy).

If a sick or dead animal is detected, when should you put on your PPE?

- a) Before approaching the area of a sick or dead wild animal
- b) After you have gotten a close look at the animal and taken photos
- c) PPE is only needed when working around a live, sick animal. You do not need to put in on when sampling a carcass.

What is the last piece of PPE to be removed when doffing PPE?

- a) Apron
- b) Eye protection
- d) The second pair of gloves (pair on the inside which did not touch the specimen)
- e) N95 respirator

Why is it important to take PPE off (doff) in a specific order after sampling a carcass?

- a) To ensure PPE is removed as rapidly as possible to protect officers from heat stress
- b) Taking PPE off in a specific order helps keep it clean to that it can be used again in the future
- c) Taking PPE off in a specific order limits and reduces risk of exposure to pathogens that have contaminated your PPE
- d) It is not important to take PPE off in a specific order. Items can be doffed in any order.

3.4 Dispose of contaminated/soiled PPE appropriately.

What are acceptable way(s) to dispose of PPE after sampling wildlife? Check all that apply:

- Leave it in a pile on the ground in the field/forest.
- Put it directly into your bag to bring back with you.
- Completely incinerate and bury PPE on site.
- Put it in a plastic bag meant for biohazardous waste and bring it to a facility that can properly dispose of hazardous waste.

DOMAIN

04

Policy implementation

4.1 Report wildlife morbidity/mortality events to the appropriate personnel according to their Wildlife Health Surveillance SOP (or other policy document) reporting line.

If you come across one dead wild animal, this would NOT be considered a mortality event and does not need to be reported:

- True
- False

4.2 Recognize when an Outbreak Investigation is indicated, and which government agencies must be mobilized to perform such an investigation.

What should you do FIRST when you find three sick birds and two dead birds in the same area for an unknown reason?

- a) Alert your supervisor immediately
- b) Take samples immediately from all animals found at the scene
- c) Do a thorough inspection of the area and the carcasses before deciding what to do next
- d) Bring the sick bird back to your office

Why is it important to report mass mortality events immediately? Check all that apply:

- To ensure samples can be collected before further decomposition of the carcasses
- To ensure the public can be immediately informed of the event over social media (e.g. Facebook)
- So your superiors and other trained individuals can promptly support you in responding to the event
- To promptly assess if there is a risk for pathogen spillover to livestock or humans

DOMAIN

05

Sample collection, storage, and transport

5.1 Identify which types of scenarios warrant sample collection.

Which type of scenario would NOT be appropriate for sample collection? Check all that apply:

- When you find a dead primate with no obvious cause of death
- When you find a lethargic bird and you have been trained in live animal handling
- When you find a snared aggressive leopard cat
- When you find two dead birds next to a bag of pesticide



5.2 Take an oral sample correctly and without contamination of swab.

What do you have to pay attention to when collecting a swab?

- a) avoid touching the tip of the swab with your hand
- b) avoid touching the tip of the swab to the ground
- c) do not let the swab be exposed to the outside air
- d) a & b

If the swab packaging is damaged, do not use the swab:

- True
- False

What may happen if the swab becomes contaminated (e.g., the tip of the swab touches your hand or the ground) before the sample is taken?

- a) The lab may detect a pathogen, which is irrelevant to the carcass being investigated
- b) The swab could leave harmful residues on your hand or in the environment
- c) Nothing will happen. Contamination won't affect the diagnostic results.

5.3 Take a rectal/cloacal sample correctly and without contamination of swab.

You should use the same swab for sampling both the mouth and rectum.

- True
- False

5.4 Take a fecal sample correctly.

Feces should be dried in the sun after collection:

- True
- False

5.5 Label samples accurately.

When should a label be applied to a specimen tube when collecting samples in the field?

- a) Either prior to sample collection or immediately after the specimen is placed in the tube
- b) Once the samples reach the lab
- c) After samples have reached the lab and tests have been completed

5.6 Bag/pack samples correctly and safely.

How many carcasses can be collected in the same bag?

- a) 1
- b) 2
- c) 5
- d) a & b are both correct

5.7 Bag whole carcass correctly (with morbidity/mortality form) and safely.

Where should the morbidity/mortality form be placed?

- a) Inside the first bag with the carcass
- b) Taped to the outside of the final bag
- c) Inside the final bag so that it does not get wet or damaged

5.8 Understand basic concepts and instructions for maintaining cold chain.

What is the first thing that should be done when you bring bags of samples and carcasses back to the station/office?

- a) Unpack the bags and place the samples in a locked drawer
- b) Place the bags containing the samples and/or carcasses directly into the animal freezer (not food freezer)
- c) Store the samples at room temperature inside the office
- d) Keep the samples warm in the sun

What is the purpose of RNAlater when collecting samples?

- a) To preserve the sample for a brief period until cold chain can be accessed
- b) To stabilize viral DNA/RNA so it can be detected during later testing
- c) To disinfect the sample
- d) a & b
- e) All of the above



DOMAIN

06

Necropsy

6.1 Follow necropsy protocols correctly and systematically for each taxa.

Why is it important to perform a necropsy? Check all that apply:

- To determine the cause of death
- To determine if the animal has an infectious disease
- To archive samples that could be useful in the future

What steps should be followed before opening a carcass? Check all that apply:

- Examine, remove, collect entire eye(s)
- Examine head, inside the mouth, feet/paws, and fur/feathers
- Don PPE
- Weigh and measure the carcass

Which cavity should be opened on the carcass first?

- a) Thoracic cavity
- b) Skull
- c) Crop
- d) Abdominal (or coelomic) cavity

What is the appropriate formalin to tissue ratio for a formalin jar?

- a) 1:1
- b) 2:1
- c) 10:1
- d) 100:1

Tissues should be cut _____ thick to ensure proper formalin fixation:

- a) less than 1 mm
- b) less than 1 cm
- c) less than 5 cm
- d) greater than 5 cm

6.2 Confidently take the necessary samples correctly and store them in the appropriate media/container.

During necropsies, which tissues are indicated for collection in all cases (select all that apply)?

- Spleen
- Liver
- Metatarsal joint
- Kidney

During necropsies, which tissue is NOT typically collected for molecular diagnostics?

- a) Spleen
- b) Liver
- c) Thyroid gland
- d) Lung
- e) Brain

During necropsies, which tissue is NOT typically collected for toxin screening?

- a) Gastrointestinal contents
- b) Lung
- c) Liver
- d) Kidney
- e) Brain

If you see a lesion, you should take a sample for:

- a) Histology only
- b) Molecular diagnostics only
- c) Molecular diagnostics AND bacterial culture
- d) Histology AND molecular diagnostics AND/OR bacterial culture



When collecting a lesion for histology, you should collect:

- a) A sample of the lesion only
- b) A sample of normal tissue only
- c) A sample of the lesion and its junction with normal tissue
- d) A swab of the lesion

Mammal necropsies:

When performing necropsy on a carnivore, which organ will you NOT collect?

- a) Heart
- b) Crop
- c) Brain
- d) Intestine

How should you position the body of a ruminant for necropsy?

- a) on its left side
- b) on its right side
- c) on its stomach
- d) on its back

Avian necropsies:

When performing necropsy on a wild bird, which organ will you NOT collect?

- a) Heart
- b) Rumen
- c) Brain
- d) Intestine

6.3 Label samples correctly.

What are some common key elements of a sample label? Check all that apply:

- Sample type
- Date
- Suspected cause of death
- Animal ID number
- Animal species or taxa
- Weather conditions during sample collection

6.4 Accurately record information gathered from gross findings and document properly with photos.

Photos of organs and tissues should be taken throughout the necropsy process:

- True
- False

Photos only need to be taken of abnormal lesions seen during gross necropsy examination:

- True
- False

When performing a necropsy, you should document and describe both normal tissues/organs AND abnormal lesions?

- True
- False

6.5 Dispose of carcass safely and in accordance with their respective Wildlife Health Surveillance SOP (or other policy document).

Which carcass disposal method is NOT an acceptable method?

- a) Leaving carcass at the site where it was found
- b) Incinerating the carcass
- c) Burning and burying the carcass
- d) Disposing of the carcass in the nearest body of water
- e) a & d



DOMAIN

07

Outbreak Investigation

7.1 Confidently recognize when an Outbreak Investigation is indicated.

How is an outbreak defined?

- An epidemic that has spread to multiple countries
- When one person contracts a zoonotic disease (e.g., rabies)
- When a group of animals are impacted by an environmental hazard, such as a lightning strike.
- An increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area

Which of these situations may be indicative of an outbreak of disease? Check all that apply:

- In a country where ASF has never been detected, one dead wild boar is found. Samples are tested and confirm ASF.
- In January, one dead deer was detected in a forest. In February, four dead deer were detected. In March, twelve dead deer were detected. All carcasses were found within 10km of each other.
- Around one lake, 500 wild birds of different species are found on the same day. Some are sick, some are dead.
- In 2017, 2018, and 2019, 10 dead wild civets were detected in a province each respective year. In 2020 in that same province, 700 cases were detected.

7.2 Follow their respective Standard Operating Procedures for wildlife wealth surveillance and/or Outbreak Investigation guidelines/manual to prepare and pack for an Outbreak Investigation.

7.3 Support government partners in leading the Outbreak Investigation and provide guidance when needed.