

**FOREIGN ANIMAL DISEASE
INVESTIGATION MANUAL**

Selected Excerpts



1 FOREIGN ANIMAL DISEASE DIAGNOSTICIAN FIELD KIT COMPONENTS**PERSONAL PROTECTION ATTIRE****RESTRAINT EQUIPMENT****PHYSICAL EXAM EQUIPMENT**

1 INTRODUCTION TO PPE

Personal protective equipment (PPE) must be worn by all FADDs during an animal disease investigation.

IMPORTANT PPE FUNCTIONS



Protects user from exposure to potentially life-threatening infectious agents.

Prevents spread of biological hazards by the user.

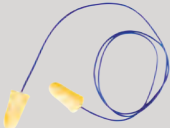








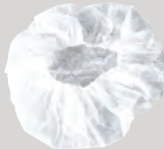





It is the FADD's responsibility to understand how to use PPE appropriately in order to prevent the transmission of infectious agents to animals and humans.

The general principles discussed in this chapter are intended to serve as a basis for making sound decisions regarding PPE. As always, it is important to evaluate each situation and adjust procedures to the risks present in the situation.

2 PPE OPTIONS

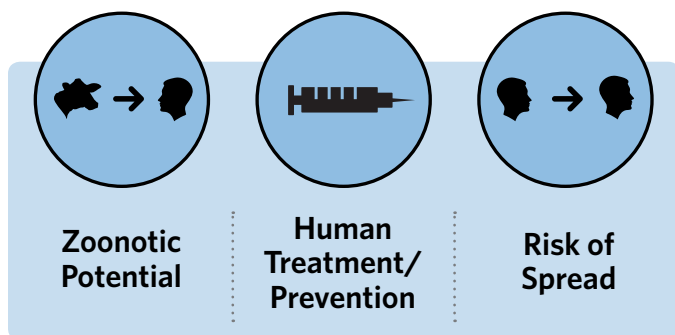
The FADD must assess the risk posed by the suspected biological agent and then select the appropriate level of PPE for a foreign animal disease (FAD) investigation. A range of available PPE options is shown below. ▼

TO PROTECT	EAR	EYE	HAND	FOOT	SKIN	RESPIRATORY
PPE PROTECTION LEVEL FROM LESS TO MORE	 Ear plugs	 Safety glasses	 Latex or nitrile gloves	 Shoes or boots	 Disposable Tyvek™ suit	 Air Purifying Respirator (APR) N95, N98, N100
		 Safety goggles	 Thick rubber gloves	 Washable rubber over-boots	 Hair cover or hood	 Powered Air Purifying Respirator (PAPR)*
		 Full-face shield	 Cut-resistant glove	 Disposable plastic boot covers	 Cut-resistant apron	

* to be used only during confirmed FAD cases involving a potentially fatal zoonotic agent.

3 SELECTING APPROPRIATE PPE

To select the appropriate level of PPE, consider the following risk factors.



Suspected Agent Risk Factors

- ✓ Is there zoonotic potential?
- ✓ Is there a vaccine or treatment for humans?
- ✓ What is the infectious dose?
- ✓ What is the mode of transmission (e.g., airborne, parenteral, or ingestion)?
- ✓ What activities might disseminate the agent during handling if it was aerosolized or spilled?

Use the following to categorize the suspected agent and select the corresponding level of PPE. ▼

SCENARIO: Routine undiagnosed FAD or emerging animal disease field call.

CATEGORY I

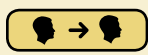
RISK FACTORS



Unlikely to cause disease in healthy adult workers and animals



Effective therapy or vaccines available



Risk of spread is limited

RISK LEVEL



Low individual and community health risk

Moderate individual risk and limited community risk

CLEAN UP

- Dispose of gloves and disposable coveralls
- Disinfect boots
- Wash hands
- Launder washable coveralls before next use
- Shower upon returning home

APPROPRIATE PPE

EYE: none

EAR: ear plugs as needed

RESPIRATORY:
none to N95 APR

Street clothes + washable
cloth or disposable
coveralls

Disposable latex or nitrile
gloves + cut-resistant gloves
(during necropsy)

Boots or shoes with rubber
over-boots as needed



2 DONNING AND DOFFING PROCEDURES

DONNING PROCEDURE • STEPS 1-9



1 Arrive at the farm wearing washable coveralls over your street clothes. Park in a clean zone, away from affected farm premises. Record the GPS coordinates upon arrival to site.



2 Prepare strips of duct tape for boots and gloves and place them on the vehicle door. Fold the bottom of the tape back on itself to create a small tab for easy removal.



3 Remove jewelry and watch.



4 Place disposable boot covers over street shoes or boots.



5 Insert feet into Tyvek™ coveralls.



6 Put on a second set of disposable boot covers.



7 Exit vehicle and finish putting on Tyvek™.



8 Place 2 garbage bags, hand sprayer, and hand sanitizer on the driver's seat for later use.



9 Loosely tape outer boots to the Tyvek™, leaving enough room to bend and walk.

DOFFING PROCEDURE • STEPS 1-9



1

Exit the facility and spray down the PPE with water, if available. Pay attention to the bottom of your boots.



2

Proceed to the tarp and dunk the bagged samples in the disinfectant bucket.



3

Without stepping over the "clean" line, place the samples on the tarp or the back of your vehicle.



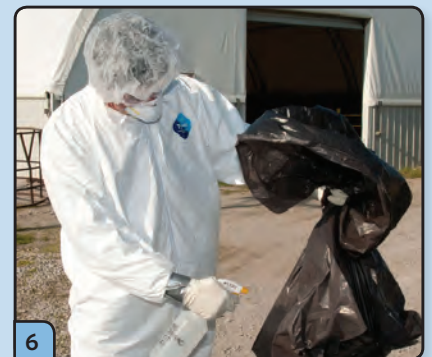
4

Dunk or spray equipment with disinfectant.



5

Place used equipment and supplies, such as the tote, into a garbage bag for further cleaning at a later time.



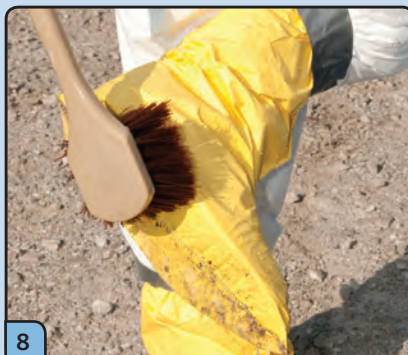
6

Spray the outside of the garbage bag with disinfectant, place in a second garbage bag, seal, and place in the back of the vehicle.



7

Use hand sprayer to disinfect your gloves, Tyvek™, and outer boot covers.



8

Scrub bottom of boot covers with boot brush and disinfectant.



9

Remove tape from outer gloves and boots and place in a garbage bag.

2 GUIDELINES FOR PROPER LABELING OF SAMPLES



Label the samples with a smear-proof/waterproof pen or marker. On each label include:

Animal number _____

Tissue type _____

Referral number _____

12 = last 2 digits of the current year

VA = the state in which the investigation is taking place

001 = the FAD investigation number for that state (will stay the same for all samples with that investigation)

Date _____



3 GENERAL SUPPLIES & EQUIPMENT



ITEMS REQUIRED FOR ALL PROCEDURES

Shipping & Labeling

- ☐ Supply of shipping containers (use only IATA-approved shipping boxes supplied by NVSL)
- ☐ Frozen ice packs
- ☐ Whirl-pak® or Ziploc® bags
- ☐ Black electrical tape or parafilm to seal specimen tubes
- ☐ Paper towels or absorbent material to place between primary and secondary shipping containers
- ☐ Fine point permanent marker and ball-point pen
- ☐ 10-4 Submission Form (filled out completely)

Safety & Clean Up

- ☐ Appropriate personal protective equipment
- ☐ Disinfectant
- ☐ Paper towels
- ☐ Garbage bags
- ☐ Pan or bucket for rinsing gloved hands and disinfecting instruments



4 STANDARD TISSUE SAMPLES

The following guidelines for collecting tissue samples should be followed during all FAD investigations.

A Collect a set of standard tissue samples from the trachea, esophagus, heart, lung, thoracic lymph nodes, liver, spleen, kidney, abdominal lymph nodes, bladder, stomach, duodenum, jejunum, ileum, and colon. Please refer to the **Disease-Specific Guide to Sample Collection** for guidelines on how to submit these tissue specimens.

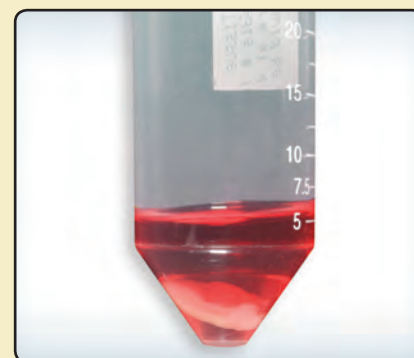
B All histologic samples should be trimmed to 1 × 1 cm thickness to ensure proper fixation. The sample should be placed in a 10:1 ratio of 10% buffered formalin.



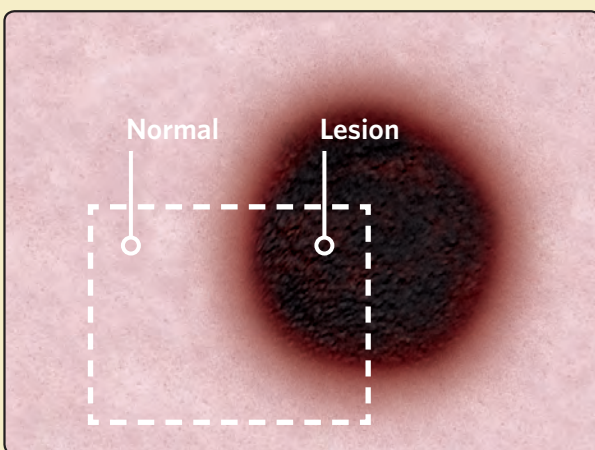
Fresh tissue should be trimmed to 1g and placed in Whirl-pak® or Ziploc® bags or TBTB (e.g., for vesicular lesions).



When using TBTB, ensure the tissue is covered by media, but do not exceed a 4:1 ratio of TBTB to tissue.

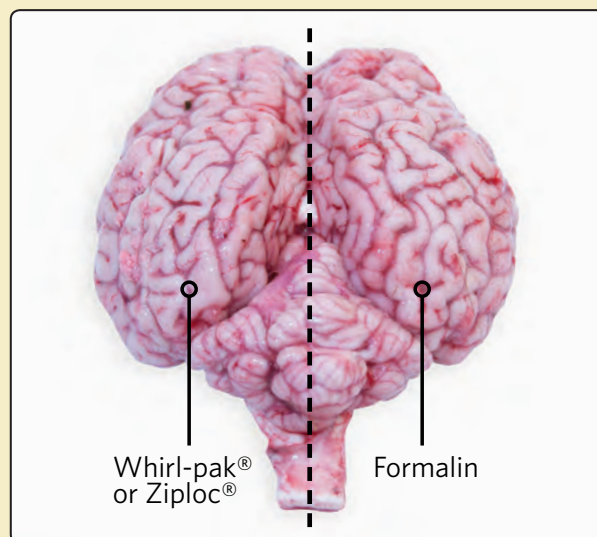


C Collect 1 × 1 cm thick sections of any lesions. Your tissue sample should include both “normal” tissue, as well as a portion of the lesion on the same section. Ideally, lesions should be submitted as both fresh tissue and formalin fixed samples. However, if a lesion is small, put the entire lesion in a Whirl-pak® or Ziploc® bag for virology, **not** in formalin.



D If an animal shows neurologic signs, collect the brain.

- Place ½ of the brain in a Whirl-pak® or Ziploc® bag.
- Place the other ½ of the brain in formalin for fixation.



** When testing for rabies, consult with your state laboratory for sample specifications.*

E When fixing tissues, fix them using a 10:1 ratio of 10% formalin (e.g., 1 cm of tissue to 9 ml of formalin).

F Chill tissue samples immediately upon collection using frozen ice packs, not ice cubes. Do NOT freeze the tissue samples.

8 SHEEP PROCEDURES

Blood Collection & Serum Submission



SPECIAL EQUIPMENT AND SUPPLIES

- ❑ 18 gauge × 1.5 inch or longer needles or Vacutainer® needles
- ❑ 10 ml - 50 ml syringe
- ❑ 10 ml red, green, and purple top Vacutainer® tubes
- ❑ Approved shipping container for sample submission



PROCEDURE



1
Restrain the animal for blood collection. A common method is to have an assistant back the sheep into a corner of the barn.



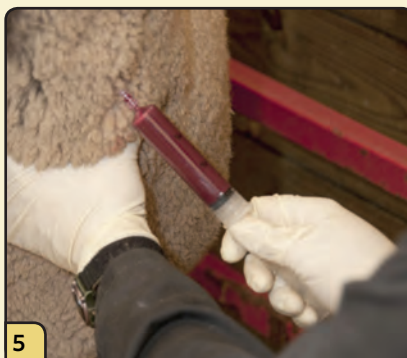
2
Have the assistant restrain the head and expose the jugular vein.



3
Using your non-dominant hand, apply pressure over the jugular groove to distend the vein with blood. In heavy coated animals, you can palpate the vein to verify its exact location.



4
With the bevel of the needle facing outward, insert it into the jugular vein all the way up to the hub.



5
Pull back on the plunger, filling the syringe with blood. Collect a full 10 ml of blood, since it is ideal to submit 2.0 ml of clear, non-hemolyzed, separated serum per animal.



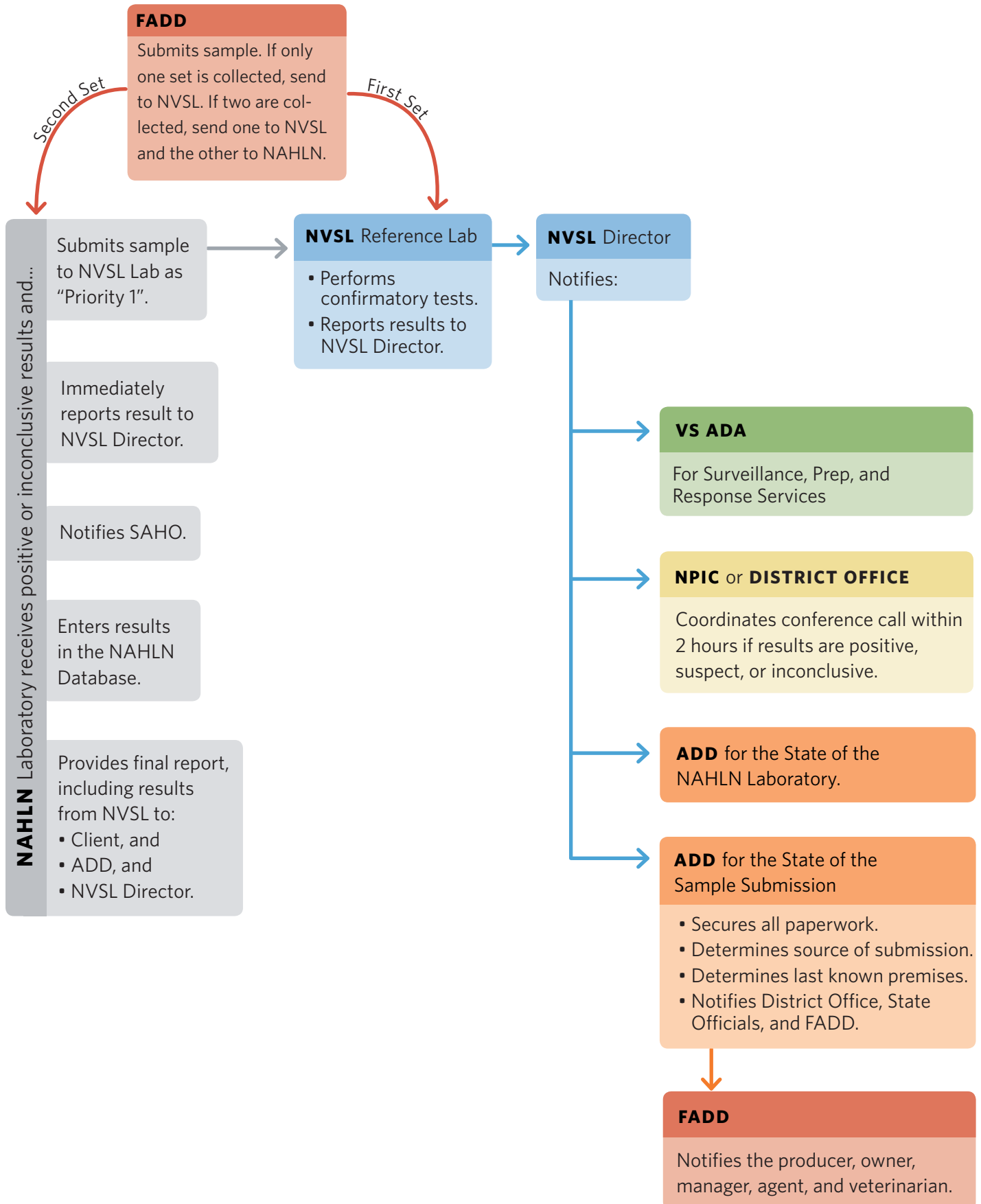
6
Remove the needle and syringe and transfer the blood to the appropriate Vacutainer® tubes. Gently invert the purple- and green-top tubes.



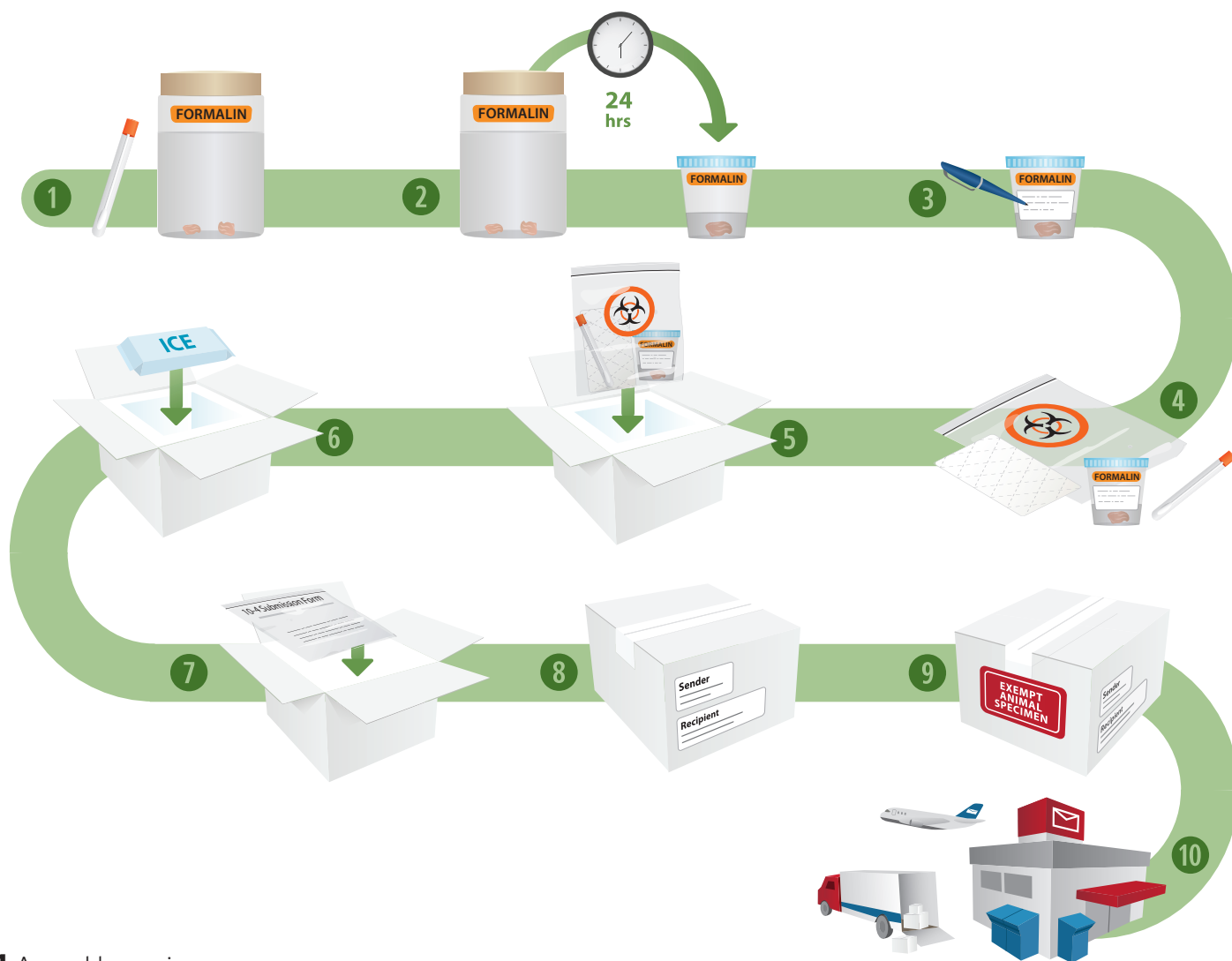
PROCEDURE VIDEO

To view a video demonstrating this procedure, scan the graphic code to the left with a QR code reader. Doing so will open the video link below on your device.
(http://vetmed.tamu.edu/files/etc/FADD/ovine_blood_collection.html)

DIAGNOSTIC SAMPLE REPORTING PROCEDURES



EXEMPT DIAGNOSTIC SPECIMENS



- 1 Assemble specimens.
- 2 Place histologic samples in a 10:1 ratio of 10% formalin in a leak-proof, screw-top jar. When shipping fresh tissue samples and histologic samples together in one package, place the fresh tissue samples on an ice pack for transport.
- 3 Label all specimens with the tissue source, date, and relevant farm information.
- 4 Place jars containing 10% formalin in an approved secondary container, separate from samples intended for microbiological analysis. Protect fragile items (like glass) with padding. Add absorbent material capable of absorbing the entire liquid contents.
- 5 Place all secondary containers in an approved leak-proof package capable of protecting the contents.
- 6 When shipping fresh tissues and/or swab samples, place a frozen ice pack (NOT dry ice) in the shipping container. Ice packs are unnecessary when shipping histologic samples only.
- 7 The paperwork should be placed between the primary and secondary containers or between the lid of the cooler and cardboard lid of the box.
- 8 Seal shipping container and label with sender and recipient's name, address, and phone number.
- 9 Label package with "Exempt Animal Specimen." Cover labels with clear tape.
- 10 Ship package, preferably by overnight delivery.

Air cargo shipment limits:

- Primary containers cannot exceed 1 liter or 4 kg (solids).
- Entire package cannot exceed 4 liters or 4 kg total.
- To ship large body parts, organs, or whole bodies exceeding these limits, seek a Special Provision A82. On the waybill accompanying the shipment, note: "Special Provision A82 (Title 49 CFR 172.102) or A81 (IATA) to exceed volume and weight limit. The quantity limits do not apply to animal body parts, whole organs, or whole bodies known to contain or suspected of containing an infectious substance, UN 3373, Biological Substance, Category B."