



Animal Health Diagnostic Center

College of Veterinary Medicine, Cornell University
In Partnership with the NYS Dept of Ag & Markets

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Field Necropsy Kit

This kit has been assembled to facilitate proper collection and submission of samples from field post mortem examinations for all domestic species, when it is not practical to deliver the entire carcass to a necropsy service. It is critical to obtain as many of the samples as possible in the prescribed manner. While this kit can be used for collecting and shipping fetal/abortion samples, both a ruminant and an equine abortion kit are available, with more pertinent instructions and history forms for abortion diagnostics

Note that we are requesting both fixed and fresh tissues from some of the same organs or systems. Fresh tissues should be chilled immediately and sent (with frozen cold packs) to the Animal Health Diagnostic Center as soon as possible, as described at the end of this form. Transport media for agent isolation have also been included, especially to facilitate the identification of anaerobic bacteria, or collect samples for bacterial culture, or from samples likely to experience contamination or overgrowth during collection or holding during transport to the laboratory

A thorough history is important. Fill out the necropsy kit submission form and include as much information regarding the death of the animal as possible. Please attach additional documents, if applicable, such as treatment records or antemortem test results. The submitting veterinarian must sign the submission form.

This kit will also facilitate shipping samples in compliance with regulations applying to the handling of potentially hazardous materials.

If you have any questions regarding this kit, please call Dr. Belinda Thompson at the Animal Health Diagnostic Center (607-253-3900); for ordering additional kits contact the AHDC Shipping Department (607-253-3935).

The following is a highly recommended **necropsy reference**:

The Necropsy Book. King, Roth, Dodd and Newson, eds. Charles Lewis Davis, DVM Foundation, Gurnee, FL. This is an inexpensive, convenient, and very practical paperback guide to necropsy procedures and interpretation of post mortem findings. It is available from the Charles Lewis Davis Foundation:

<https://store.cldavis.org/index.asp?PageAction=VIEWCATS&Category=18>

For access to an interactive web site on bovine necropsy examinations please use the following URL to: <http://w3.vet.cornell.edu/virtualvet/> Veterinarians performing necropsies on other species may also find this a useful reference. This module provides a step-by-step video demonstrating the bovine field necropsy, diagnostic sample collection, packaging, and shipping procedures. The visual reference section contains images and descriptions of normal tissues and gross pathologic lesions. Versatile search parameters support both diagnostic and educational uses.

A free copy of the DVD for a "Video Guide to the Necropsy Examination" can also be requested by AHDC clients, by calling our diagnostic supply center (607-253-3935).

Contents of Kit

Note: You must provide the knife and bone cutters or axe for opening the carcass and brain case. In addition, you will need two 12 ml syringes and 18 G x 1 ½" needles for fluid aspiration. You may want a supply of extra scalpel blades. For inoculating microbiological media with minimal contamination, you may need a heat source such as a small portable torch and a spatula or flat blade to sear tissues. Unfrozen ice packs are included in the kit. Include frozen packs when returning samples to the lab.

Shipping Box

Insulated Foil Pouch

2 Freezer Packs

1 small pouch for anaerobic transport media (95kPa-rated; appropriate for air cargo)

1 large pouch for other fresh samples (95kPa-rated; appropriate for air cargo)

2 Jars (1 Liter) with 10% buffered Formalin

Pre-printed specimen labels

2 Medium zipper lock bags (~8"x10") for re-bagging fresh tissues

2 Large, heavy zipper lock bags (~10"x12") for re-bagging formalin jars

12 small zipper lock bags for individual fresh tissues (~6"x6")

1 zipper lock bag (~6"x9") for fluid tubes

1 Fecal cup (2 ounce)

String (for tying off loops of bowel)

Absorbent material (6-slot pouch, 2 large sheets)

2 Red-top blood collection tubes

1 Green-top (heparinized) blood collection tube

1 Plastic snap-top vial containing Phosphate Buffered Saline

2 Scalpels

3 Amies transport media (without charcoal) with swabs

1 Port-A-Cul anaerobic transport medium tube with swab

1 single tube Styrofoam mailer for (Port-a-cul)

1 large zipper lock bag (~9"x12") for paperwork

Necropsy Kit Submission Form

Instruction sheet

Sample Necropsy Fee Schedule

Toxicology Sampling Instructions

NYS Rabies Laboratory Instructions (Shipping kit available from County Public Health Department Office)

Contents of Kit

Supply Order form

Biological Substance, Category B/UN 3373 label

Formalin shipping label*

Shipper's Declaration of Dangerous Goods*

- * It is necessary to use these only in certain shipping circumstances. Current DOT regulations classify Formalin as a hazardous material for air shipments. For explanation, see "Procedure for Collecting, Packaging and Submitting Samples" included with kit.

Test & Fee Schedule: Field Necropsy Kit

Fees to Submitting Veterinarians (effective June 1, 2009)

Samples	Tests Performed	Fees to Submitting Veterinarians (effective June 1, 2009)	
		Out-of-State	NY State Ag & Mkts Contract
Fresh Tissues			
Tissue depends on system affected	Aerobic culture	\$28.00 per tissue cultured	\$0.00*
Wound fistula, liver, muscle, GI lumen, etc	Anaerobic culture	\$41.75 per tissue cultured	\$0.00*
Tissue depends on system affected	Fungal culture	\$27.50	\$0.00*
Tissue depends on system affected	Viral FA	\$16.50 per Virus	\$0.00*
Tissue depends on system affected	Other FA tests(Lepto, Chlamydia, Toxoplasmosis, etc)	\$16.50 per agent	\$0.00*
Tissue depends on system affected	Virus Isolation	\$55.25	\$15.00
Skin (Bovine)	BVD Antigen Capture ELISA	\$5.50	\$0.00*
Toxicology Samples	Various tests as indicated by history and consultation with toxicologist	Cost greatly varies by indicated test	Cost greatly varies by indicated test
Heart Blood (heparinized)	Blood Selenium	\$16.50	\$16.50
Heart Blood (heparinized)	Various Toxicology tests	Cost greatly varies by indicated test	Cost greatly varies by indicated test
Heart Blood (clot tube)	Various serological tests for antibody detection	Cost varies by indicated test	\$0.00*
Colon contents	Fecal Exam for parasites	\$22.00	\$0.00*
Fixed Tissues			
Complete set of tissues	Histopathology	\$85.00	\$0.00*
NYS Contract Fee (12/1/08) (see AHDC Test & Fee Schedule for qualifications)		Not applicable	*\$50.00/case, includes items marked with asterisk above
Total Fee		\$85 +fees for additional indicated testing, including bacteriology, virology, parasitology, toxicology (Cost can exceed \$350)	\$50.00 + fees for additional indicated tests, such as VI or toxicology
Field Necropsy Kit purchase price		\$35.00 each (not included above)	\$35.00 each (not included above)

Fees subject to change; updated to June 1, 2009.

Instructions

Procedure for Collecting, Packaging and Submitting Samples

SUSPECT ANTHRAX CASES – DO NOT OPEN CARCASS

Collect blood from percutaneous cardiac puncture, jugular vein, or other peripheral blood vessel into both a red-top and a purple-top (EDTA) blood collection tube. Call laboratory to advise of sample in transit. Submit sample for blood smear examination and blood culture. Outer package must be labeled appropriately with “Biological substance, Category B/ UN 3373” label. **DO NOT PROCEED WITH NECROPSY.**

RABIES SUSPECT CASES

Rabies testing in NYS is performed at the NYS Department of Health Rabies Laboratory. All submissions must be accompanied by a completed health department rabies history form, and the county public health office must be notified in advance. Test results are obtained more quickly, and there are fewer opportunities for accidental exposures, if the samples are submitted directly to the NYS Rabies Laboratory. See the enclosed instructions regarding rabies testing samples. The NYS Department of Health provides shipping kits containing all the appropriate materials and paperwork through the county offices. Samples suitable for other CNS testing can be collected from the remainder of the brain and submitted with this kit. **PLEASE NOTE ON THIS KIT SUBMISSION FORM IF SAMPLES HAVE BEEN SENT TO ANY RABIES DIAGNOSTIC LABORATORY.** Additional information is included in these instructions regarding automatic BSE, Scrapie, CWD or Arbovirus testing of rabies-negative samples in NYS.

FIELD NECROPSY

Photographs or digital images of carcasses and lesions are welcome and encouraged; please include with paperwork or call laboratory if sending separately. **Wear gloves and other appropriate personal protective equipment. This may include but is not necessarily limited to coveralls or impervious gowns, boots aprons, masks, goggles or face shields.**

1. Record permanent ID. Please note estimated post-mortem interval and if carcass is severely autolysed.
2. Observe external carcass for abnormalities (e.g., wounds, discoloration, distortion of limbs, head, etc.) and record on the submission form. This may require manipulation or rolling of the carcass. **If a toxic insult is a consideration in the differential diagnosis, review the special toxicology sampling information included with this kit before proceeding.**
3. Open the abdomen and thorax of the carcass. Observe and record any gross abnormalities before and while removing organs or samples.
4. Remove pluck (tongue, larynx, trachea, esophagus, lungs and heart) from head, neck and thorax.

5. Obtain heart blood. Using a 12 ml syringe with an 18 G 1 ½ in. needle, attempt to secure 3 to 10 ml of heart blood. It may be necessary to carefully incise the left ventricle and aspirate blood from the surface. (Pleural and Peritoneal fluids may be used if blood is not available). Express blood into a green-topped (heparinized) blood collection tube. If possible, obtain a second 10 ml of blood and fill a red-topped blood collection tube. If heart blood is clotted and no body cavity fluid is available, a blood clot can also be collected and placed into one of the zipper-lock tissue bags.
6. Obtain urine. Using another 12 ml syringe with an 18 G 1 ½ in. needle, aspirate up to 10 ml of urine from the urinary bladder and put the urine into a red-top blood collection tube.
7. Remove the brain from the head.

Collect Fresh Specimens

- a. Brain: Collect appropriate specimens for the state rabies laboratory before taking any other samples or dividing brain (send to state rabies lab, not the AHDC; see enclosed instructions for NYS). Place 1" x 1" portions of cerebellum, brainstem and cerebrum into each of 2 different labeled zipper lock bags for microbiology and toxicology. The remainder of the brain needs to be placed in the largest formalin jar. For livestock, it may be necessary to split the brain between the two largest containers. The best fixation will be achieved if the brain is sliced every 0.5 cm most of the way through ("bread-loafed"), leaving about 0.5-1.0 cm of tissue unsliced along the ventral portion to keep the parts together.
- b. Skin (bovine): 1/4 – 1/2" piece of ear skin. Place into plastic snap-top vial containing phosphate buffered saline.
- c. Adipose (fat): obtain a sample 2" x 3", if possible. Place in labeled zipper lock bag.
- d. Liver: submit a large portion (1" x 2"). Place in labeled zipper lock bag.
- e. Kidney: submit a large portion (1" x 2"). Place in labeled zipper lock bag.
- f. Eyeball: submit intact eyeball. Place in labeled zipper lock bag.
- g. Colon contents: collect approximately 2 teaspoons of colon contents for parasitology. Place in labeled fecal cup (do not fill more than 1/3 full).
- h. Stomach contents: Collect approximately 2 tablespoons of simple stomach or rumen contents. Place in labeled zipper lock bag. If possible, freeze stomach contents ASAP prior to packaging for shipment.
- i. Additional fresh tissues: Collect additional fresh tissues for microbiological testing, depending on disease presentation. For example, collect lung if respiratory disease is suspected. Collect multiple samples if lesions are noted or if disease may affect different parts of the same organ system, such as small intestine, cecum and large intestine. Small lymph nodes can be submitted whole. Larger lymph nodes can be sampled for microbiology, such as the retropharyngeal, bronchial, mesenteric or peripheral lymph nodes, by collecting ½ - 1" pieces. Place all fresh tissues in labeled

zipper lock bags. A sheet of preprinted labels has been included to facilitate labeling fresh tissues.

Inoculate Microbiological Transport Media

It is appropriate to inoculate special transport media whenever **anaerobic cultures** are indicated, to avoid bacterial contamination and overgrowth when samples can not be shipped promptly, or when the prosector wants to direct the exact site of sampling for culture. A Port-a-cul anaerobic transport media tube is included for anaerobic culture of appropriate tissue (for example, intestine or muscle when Clostridial infection is suspected). This media will also support aerobic and fungal culture. Amies transport media has also been included for taking swabs of tissues for which aerobic or fungal culture, without anaerobic culture, is most appropriate (for example, lungs). When sampling from solid tissues, the surface of the tissue sample should be decontaminated by searing with a heated blade or flaming with alcohol, and then a stab incision is made with a sterile scalpel blade before inserting a sterile swab. When sampling hollow organs such as loops of bowel, it may be necessary to open a segment with a clean scalpel or scissors and swab the interior. Septicemias are best defined by culturing the same organism from more than one site (for example, GI tract and liver or lymph nodes). If the carcass is noted to be severely autolysed, culture may not be worthwhile. Consult with laboratory bacteriologists before requesting culture of severely autolysed carcasses.

Assemble Fresh Specimens

Label and place **anaerobic transport media**, if used, in its own Styrofoam mailer to protect from breakage and temperature extremes. Place this inside the small, 95kPa-rated pouch and place in shipping box (**DO NOT chill or pack in contact with the freezer packs**).

Place labeled blood tubes, and urine and skin sample vials, into slots in the absorbent pouch. Roll up. Place it, with any inoculated and labeled Amies transport media, into a labeled zipper lock bag. Place all fresh tissue bags and the fecal cup into the second, labeled zipper lock bag. Place these packets inside the largest 95kPa-rated Specimen Pouch. Seal pouch according to printed instructions. Place pouch inside the insulated foil pouch with 2 frozen ice packs, and zip shut.

Collect Fixed Specimens

Nervous System:

1. Brain: put the remainder of the brain, into the formalin jar(s) if not already done (The best fixation will be achieved if the brain is sliced every 0.5 cm most of the way through, ie "bread-loafed," leaving about 0.5-1.0 cm of tissue unsliced along the ventral portion to keep the parts together). It may be necessary to divide it for fixation and shipping into two jars (large livestock).
2. Peripheral nerves: collect a segment (1") of a peripheral nerve, such as the sciatic.
3. Spinal Cord: collect one or more sections, from cervical, thoracic, and lumbar areas, by disarticulating or sawing through the spinal column at various levels.

Other tissues: cut thin ($\frac{1}{4}$ "/0.5-1.0 cm) sections of each of the following tissues and place in the other jar of formalin. Where lesions are recognized, include sections that incorporate both normal and abnormal appearing tissue, when available. You may use the following 2 pages as a check list or to record additional information pertinent to particular samples collected, including the nervous system. Label and attach them to the submission form if notations have been made.

GI System:

1. Tongue
2. Liver
3. Esophagus
4. Gall bladder
5. Stomach (sample each compartment, if ruminant)
6. Pancreas
7. Duodenum
8. Jejunum
9. Ileum
10. Cecum
11. Colon

Lymphoid System:

1. Bone marrow (Fracture a long bone or rib, exposing marrow, and include piece with exposed marrow. Adults: collect near end of long bones; large livestock: ribs work well.)
2. Mesenteric, tracheobronchial and peripheral lymph nodes
3. Thymus
4. Spleen

Respiratory System:

1. Larynx, if indicated
2. Trachea
3. Lung: Include at least sections of cranioventral, middle and dorsal portions, but include representations of lesions and normal sections, if gross lesions are recognized.

Endocrine System:

1. Adrenal gland
2. Parathyroids
3. Thyroid
4. Pituitary

Urinary System:

1. Kidney
2. Urinary Bladder
3. Ureter, if indicated
4. Urethra

Reproductive System:

1. Representative samples of male or female genital tract and gonads. Include fetal and fetal membrane samples, if indicated, for pregnant female. Separate comprehensive ruminant or equine abortion diagnostic kits are available for fetal sampling through the AHDC diagnostic supply center (607-253-3935)

Musculoskeletal System:

1. Skeletal muscle
2. Bone: if indicated
3. Diaphragm

Cardiovascular System:

1. Pericardium, if indicated
2. Myocardium
3. Aorta

Integumentary System:

1. Skin
2. Nail, hoof, horn, if indicated

Special Senses:

1. Eye
2. Ear, if indicated

Miscellaneous: Any other tissues, lesions, or multiple sections of previously listed tissues.

Additional notes (including neurologic system), if indicated:

Assemble Fixed Specimens

Check to make sure each formalin container is tightly closed and not leaking. Place each formalin jar, with an absorbent sheet, inside a heavy zipper lock bag.

PACKING AND SHIPPING SAMPLES

1. Place the insulated specimen pouch and the bags containing the formalin jars inside the shipping box. Anaerobic transport media, if used, will be in its own pouch in the box.
2. Complete the Necropsy Kit Submission form; place the form and any supplemental history or pictures into the large document zipper-lock bag; place them inside the box. If you have digital images, you can also enclose a disk. If you want to send digital images as e-mail attachments, enclose a note to that effect, and an appropriate e-mail address will be provided to you once the case is assigned to a pathologist. The shipping declaration original and 2 copies will be attached to the outside of the box, if necessary (see below).
3. Close box and tape shut.
4. Put mailing label on outside of box.
5. Put "Biological Substance, Category B/UN3373" label on the outside of the box.
6. Return the specimens for testing ASAP. Next day delivery is recommended. If shipping on a Friday for Saturday delivery, "Saturday Delivery" must be specifically requested; "Next Day" shipments sent on Friday are generally delivered on Monday. (Take any additional steps necessary to protect package from extreme cold or heat).

- a. **Ground** Shipment - next day service available within some regions

If shipping by UPS **Ground** service or US Postal **Ground** service, DO NOT apply the Formalin shipping label and DO NOT use the "Shipper's Declaration for Dangerous Goods."

- b. **Air** Shipment – next day delivery available from most areas within the continental USA. (*Note: This package WILL NOT be accepted by UPS Air service or US Postal Air service.*)

If shipping by FedEx, **complete all yellow shaded portions** of the "Shipper's Declaration For Dangerous Goods" form. Please type or print for legibility. Make two (2) copies of the declaration and include with the original (total of 3 copies) in the re-sealable adhesive pouch. To outside of box, APPLY both the Formalin shipping LABEL and the POUCH containing all copies of the completed "Shipper's Declaration for Dangerous Goods."

Thank you!

Field Necropsy Kit

Sample Collection for Suspected Toxicology Cases

The general instructions in this field necropsy kit will guide the prosector to collect samples that are appropriate for many toxicological investigations, even if, at the time of the necropsy, a toxin is not suspected. The classic necropsy fresh/frozen sample set for toxicological investigation includes:

- Brain
- Liver—without gall bladder
- Kidney
- Fat
- Urine
- Aqueous humor or intact eyeball
- Skin
- Heart blood (collected into heparinized tube/green top vacuum blood collection tube)
- Collect these last
 - Stomach/rumen content
 - Intestinal content/feces

Each tissue type should be placed in a separate container.

If a particular toxin or class of toxins is suspected of being involved in animal morbidity or mortality, you may also want to collect various other samples, depending on possible routes of exposure:

- Environmental samples
- Feed samples
- Water samples
- Heparinized whole blood (20 mls or more, green-topped blood collection tubes) from live animals
- Urine from live animals

You may also want to consult with the laboratory or toxicologist about any special sampling requirements. It is especially important to contact the laboratory in advance of sending any samples for a case which may be involved in litigation or forensic investigation, requiring chain-of-custody handling. The Toxicology section of the Animal Health Diagnostic Center can be reached at: 607-253-3974 or 607-253-3470.

In most cases, toxicology samples should be stored frozen until tested.

The goals of any toxicology investigation should be to:

- Identify the source(s) of the toxicant

- Identify any contributing factors
- Assess the level of contamination
 - Assess possible interventions
 - Assess any risk to the food chain

Some obvious questions to consider:

1. Are feed and chemical storage containers on the premises labeled properly?
2. Are feeds stored with chemicals?
3. Is feed stored appropriately to prevent spoilage?
4. Is there any visible mold or in feedstuffs, or do feedstuffs smell moldy?
5. What are the potential environmental, facilities, or home environmental risks?
Are there any recent obvious changes in the environment or management?
6. Do the animals have access to trash, building materials, medicines, including those intended for other species, toxic plants, or substances provided by non-caretakers?

Sample handling

- Always wear appropriate personal protective equipment when performing necropsy exams or collecting potentially hazardous samples. Wearing gloves may also be important in protecting sample integrity.
- Change gloves between samples (this is particularly important to assess differences in contaminant concentrations)
- Order of collection – Sample from least contaminated to most
- Adequate sample amount (250 g +)
- Appropriate containers depend on analyses required
 - Glass (not ideal for shipping; may require secondary packaging)
 - Plastic
 - Aluminum foil
 - Call the laboratory to determine the proper container
- Separate containers for tissues (zipper-lock bags work well)
 - Properly label with: Date/time, collector, animal, tissue
 - Collect GI content last
- Proper storage
 - Freezing in most cases
 - Some analytes require rapid transport to the laboratory

Field Necropsy Kit

Rabies Submission Information

Test Sample Collection and Submission for Rabies

Studies done on materials from rabies positive animals have indicated that in some cases, the rabies virus may only be detected unilaterally. That is, if submissions include only half the brain, on a longitudinal section, the diagnosis of rabies could be missed. Because the NYS Department of Health never wants a situation to arise in which a sample is called NEGATIVE that might, in fact, be positive, any submission that does not clearly include a complete cross section of the brain stem, plus adequate cerebellum, will be called “unsatisfactory for examination”, unless rabies virus is actually detected. In cases involving human exposure by an animal suspected to have rabies, an “unsatisfactory for examination” result will lead to a recommendation to proceed with post-exposure prophylaxis.

FOR ALL CASES OF POSSIBLE RABIES, YOU SHOULD NOTIFY YOUR COUNTY PUBLIC HEALTH DEPARTMENT AND SUBMIT THE RABIES EXPOSURE HISTORY FORM WITH THE SPECIMEN. ONLY THE COUNTY HEALTH DEPARTMENT CAN ARRANGE FOR EMERGENCY RABIES TESTING. See the enclosed flow-chart to understand how the determination for emergency testing and post-exposure treatment is determined.

Whole Brain Removal

In a cooperative effort between Pat Burke, prosector for the Cornell Veterinary Pathology Service and the Animal Health Diagnostic Center, we prepared a picture handout to help illustrate the sample required for rabies diagnosis, after the entire brain is removed from the head. Figures 1 and 2 illustrate sampling for small animal brains, for example when other diagnostic testing may be desired. Figures 3 through 6 illustrate sampling from large animal brains, when it is desirable to retain appropriate brain tissue for other diagnostic testing, such as histopathology, bacteriology or virology. The cerebellum and brainstem samples must be placed in a small, crush-resistant plastic canister or tub, then sent to the NYS Rabies lab in the standard New York rabies specimen shipping container, available in every NYS county Public Health Office. The remainder of the brain can be reserved for fixed tissue and fresh tissue diagnostics at the Animal Health Diagnostic Center, as described in the necropsy kit instructions.

Small Animals and Wildlife

The NYS Rabies laboratory will accept entire heads from companion animal species and small wildlife. The NYS Rabies laboratory will not forward samples to the laboratory at Cornell, so no samples will be available for other diagnostic procedures.

Rabies testing for NYS animals is only performed by the NYS Rabies Laboratory, and samples should routinely be submitted directly to them. The Pathology service at Cornell will assist by removing a brain and preparing the sample for submission, in cases only requiring rabies and BSE/Scrapie testing, for a fee of \$50. Complete necropsy exams are available for neurologic

cases in which a definitive diagnosis will be pursued, with the understanding that a negative rabies diagnosis will be obtained prior to the completion of many laboratory procedures. If you submit an entire brain to our laboratory for diagnostic testing, where appropriate, we will send brain tissue to the rabies laboratory, however rabies results will be delayed by additional shipping time. A rabies shipping fee is charged in addition to any other fees.

Livestock

Do not submit entire heads from livestock species. If the only testing required for livestock species is to rule out rabies and BSE/Scrapie, the brain stem and cerebellum can be removed through the foramen magnum, using the following guidelines:

1. Sever the head between the occipital bone and the atlas (first vertebra).
2. Insert a sharp knife with a long, thin blade into the foramen magnum, being certain it is within the dura mater.
3. Using a circular cutting motion (similar to coring an apple) carve out a plug of tissue by making deep circumferential cuts around the inside of the bony cavity and dorsally until the knife tip hits the dorsal aspect of the cranium.
4. Remove the knife, and using a long pair of forceps, reach into the foramen and pull out the excised chunks of CNS. A long-handled spoon, such as an ice tea spoon, will facilitate this step.
5. The first tissue to exit will be the brainstem sample, which should be relatively intact. Submit the brain stem. (See figure 6 in picture handout.) The rabies laboratory must be able to recognize a **complete cross-section of the brain stem**. In the event that an intact section can not be obtained, such as in a gun shot death, a complete segment of the **cervical spinal cord** can also be submitted.
6. With continued effort, pieces of the easily recognizable, highly convoluted cerebellum will be removed. **Remove as much cerebellum as possible. When cerebellum is submitted in many pieces, rabies testing personnel will make a judgement that they have at least 1/3 or more of the entire cerebellum in order to call the testing conclusive.**

Do not chemically fix the tissue. Preserve by refrigeration, only. **DO NOT FREEZE**. The cerebellum and brainstem samples must be placed in a small, crush-resistant plastic canister or tub, then sent to the NYS Rabies lab in the standard New York rabies specimen shipping container, available from your county health department. The NYS Rabies laboratory will not forward samples to the laboratory at Cornell.

Cattle - BSE Testing

The NYS Rabies Laboratory will submit tissues to test for Bovine Spongiform Encephalopathy (BSE) on every rabies-negative bovine brain submission. Please follow the guidelines to make sure that appropriate tissues are collected and submitted.

Horses and Camelids – Arbovirus Testing

If the only testing desired on a NYS source equine brain sample is for Rabies and the arboviruses West Nile virus and Eastern Equine Encephalitis virus, then brain submission to the NYS rabies laboratory only will be sufficient. All equine brains found to be negative for rabies during northern arbovirus transmission seasons are automatically forwarded to the NYS Department of Health Arbovirus Laboratory. Both PCR and virus isolation for arboviruses is performed. Indicate on your rabies submission paperwork that WNV and EEE results need to be reported back to you in a timely fashion. Negative results are not routinely reported for the arboviruses through this surveillance program. The NYS Rabies laboratory will not forward samples to the laboratory at Cornell.

Sheep and Goats – Scrapie Testing

The NYS Rabies Laboratory will submit tissues to test for Scrapie on every rabies-negative ovine or caprine brain submission. Please follow the guidelines to make sure that appropriate tissues are collected and submitted. For herds participating in the voluntary Scrapie eradication program, it may be desirable to take additional diagnostic samples. Please call the NYS Scrapie coordinator with any questions (518-858-1424). The NYS Rabies laboratory will not forward samples to the laboratory at Cornell.

Deer – Chronic Wasting Disease Testing

The NYS Rabies Laboratory will submit tissues to test for CWD on every rabies-negative cervid brain submission. Captive deer herds should contact their state area veterinarian for all neurological deaths. Wild deer CWD testing is supervised by the NYS Department of Environmental Conservation. The NYS Rabies laboratory will not forward samples to the laboratory at Cornell.

If you have any questions about a specific case, please call the NYS Rabies Laboratory, and discuss the details with director Robert Rudd, @ 518-869-4257 (518-527-7369 after hours).

See also:

The NYS Rabies Laboratory website (www.wadsworth.org/rabies/prof/livestock)

For more specific information about rabies diagnostic testing in animals, see:

http://www.cdc.gov/ncidod/dvrd/rabies/professional/publications/DFA_diagnosis/DFA_protocol-b.htm.

In addition, you may contact Dr. Belinda S. Thompson, Veterinary Support Services, Animal Health Diagnostic Center, College of Veterinary Medicine, Cornell University, for questions regarding rabies diagnostic sampling, shipping and case coordination. Phone 607-253-3908 or 607-253-3900; Cell 607-759-5866; bt42@cornell.edu