

Canadian Food Inspection Agency / Agence canadienne d'inspection des aliments



# RABIES GUIDANCE INFORMATION FOR PROVINCES AND TERRITORIES

**MODULE 2**

**Sample Collection and Submission to CFIA Rabies Lab**

**START**

Canada

**OBJECTIVES**

- A** Submitter's Responsibilities - Transportation of Dangerous Goods
- B** Sample collection
- C** Sample Submission - Packaging and Shipping
- D** DOs and DON'Ts
- E** Review
- F** Packaging Video

00:00 / 00:53

**A Submitter's Responsibilities - Transportation of Dangerous Goods**

- Submitter (shipper) must comply with all applicable legislation related to [Transport of Dangerous Goods](#) within Canada
- Proper identification, handling, packaging and shipping ensures:
  - Reduced risks to public, transporters and laboratory staff
  - Prompt delivery to CFIA rabies lab
  - Maintenance of sample quality which promotes timely and accurate test results

00:00 / 00:41

**B** Collection of Sample

1 Information required for Rabies Sample Submission Form

2 What To Submit

3 Disarticulation of the head

4 Extraction of a brain

5 Sample Quality

**B** Collection of Sample

1 Information required for Rabies Sample Submission Form

- Species
- Exposure information
- Sample location - longitude and latitude in decimal degree format
- Preservative
- Condition of carcass, e.g. damage to the head, presence of quills, bullets, sample deterioration, etc.
- Email addresses for up to four parties that need to be notified of the result, e.g. provincial co-ordinator, intermediary party (veterinary clinic), etc.

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**B** Collection of Sample

2 What To Submit

- **entire head** for most animals
  - include **proximal cervical spinal cord** if the head is damaged e.g., shot or crushed
- no part of any animal submitted for rabies testing can be returned to the affected party, so if the body needs to be retained (e.g., a pet for burial), remove and submit the entire brain
- **entire carcass** for small animals (<500g), e.g., bats
- **entire brain** and **proximal cervical spinal cord** for large animals (>100 kg), including all livestock
  - if it is not possible to submit the entire brain, collect portions of brain tissue bilaterally from the **cerebellum**, **hippocampus**, and **brainstem**.

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**B Collection of Sample**

**3 Disarticulation of the head**

- humanely euthanize the animal
- remove head at base of skull with an axe, knife, or hand saw
  - one method is described in detail at: <http://nmhealth.org/erd/healthdata/documents/REMOVINGANIMALHEADSFORRABIESTESTING001.pdf>
- Leave head intact and do not remove skin, ears, snout, etc.



Image of properly prepared dog head



Images of improperly prepared dog heads

- Disinfect collection site and tools used - e.g., using a fresh solution of 10% household bleach
- Dispose of carcass in compliance with local legislation

**B Collection of Sample**

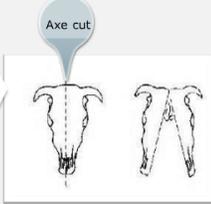
**4 Extraction of a brain**

- remove head at base of skull with an **axe, knife, or hand saw**
- secure head with dorsal aspect upright
- skin head from neck to snout across the cranium
- make 3 cuts with a chisel or hand-saw such that they penetrate full depth of the cranium, and intersect above the eyes (Fig. A)
- pry the cut piece of cranium free from the underlying brain
- extract the brain (and spinal cord proximal to brain stem)

**A.**



**B.**



**B Collection of Sample**

**5 Sample Quality**

**Decomposing Samples**

- Test sensitivity is decreased for decomposing samples
- Samples exhibiting decomposition should still be submitted for testing following a suspected human/domestic animal rabies exposure - It may still be possible to get a definitive **positive** result
- Severely decomposed samples may be declared unfit for testing

**Infested Samples**

- Remove any visible maggots - these will consume brain tissue during transit and may cause a sample to be declared unfit for testing
- Spray head/carcass with insecticide if fleas, ticks or other insects are evident

**Temperature Control**

**THERE IS NO NEED TO FREEZE SAMPLES PRIOR TO SHIPMENT**

- this will cause testing delays - keep sample cool with ice packs

**C** Sample Submission - Packaging and Shipping

- 1 Packaging and Shipping
- 2 Packaging
- 3 Shipping
- 4 Weekend and Holiday Testing

Navigation icons: Home, Help, Close, Previous

**C** Sample Submission - Packaging and Shipping

 **Packaging includes**

- Unique identifier and Sample submission form
- Sample classification and selection of mode of transportation
- Assembling the package

 **Shipping includes**

- Markings and Labels
- Shipping Documentation
- Laboratory Reception

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Navigation icons: Home, Help, Close, Previous

**C** Sample Submission - Packaging

- 1 Unique Sample Identifier
- 2 Submission Form
- 3 Sample Classification (TDG requirements)
- 4 Packaging Materials checklist
- 5 Packaging Process

Navigation icons: Home, Help, Close, Previous

**C Sample Submission - Packaging**

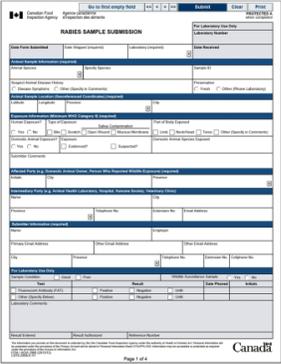
**1 Unique Sample Identifier**

- A unique identifier **MUST** be assigned to each Sample and **MUST** match the Sample ID supplied on the submission form
  - Assigned by submitter
  - Alpha-numeric uppercase letters only e.g., R20145K-000
- Durable, adhesive labels, printed with indelible ink OR commercially-available identification tags can be used
- The unique identifier is attached to the primary package

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**C Sample Submission - Packaging**

**2 Submission Form**



00:00 / 00:55

**C Sample Submission - Packaging**

**3 Sample Classification (TDG requirements)**

- Dictates the required packaging for shipping under Transportation of Dangerous Goods legislation
- Classification of infectious substances depends on nature of pathogen, nature of sample and whether sample is suspected of containing the pathogen
  - "Biological Substance, Category B"
  - "Exempt Animal Specimen"
- Determination made by a doctor, scientist, veterinarian, epidemiologist, genetic engineer, microbiologist, nurse, coroner, or laboratory technologist / technician
- TDG certification is required for Biological Substance, Category B materials

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**C Sample Submission - Packaging**

**4 Packaging Materials checklist**

- ✓ Primary package - 2 plastic bags OR one screw-cap plastic container and one plastic bag
- ✓ Secondary package - single plastic bag; if shipment by air, must be pressure capable to 95 kPa
- ✓ Absorbent material
- ✓ Rigid Ice packs
- ✓ Rabies Sample Submission form
- ✓ Unique Sample ID
- ✓ Sturdy outer container, e.g. fibreboard box; if shipment by air, must meet required 1.2 m drop test
- ✓ Outer Package Labels/Markings

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**C Sample Submission - Packaging**

**5 Packaging Process**

**Primary package**

1. place a single Sample into an appropriately sized screw-cap container (brain, bat) OR into a leak-proof plastic bag (animal head or small carcass) and seal.
2. place container or plastic bag with Sample into a leak-proof plastic bag and seal.
3. Apply Unique Identifier to outside of primary package.
4. Place completed Sample Submission Form into a plastic bag, seal it and attach it to the secondary package.

**Secondary package**  
if shipment by air, must be pressure capable to 95 kPa

1. Wrap primary package with absorbent material.
2. Place wrapped primary package into secondary package.
3. Seal securely.

00:00 / 02:22

**C Sample Submission - Packaging**

**5 Packaging Process**

**Outer Shipping Container, e.g., Sturdy fibreboard box**

- Used to protect sample in transit
- If shipping by air, must meet 1.2 m drop test

1. Place a layer of newsprint into the container to cushion package - do not use Styrofoam or other granular material
2. Add rigid ice packs if ambient shipping temperature >5°C
3. Place the secondary package in the container
4. Cover with additional cushioning material
5. Secure container with tape and attach all required labels and markings

00:00 / 00:45

**C Sample Submission - Shipping**

- 1 Markings and Labels
- 2 Shipping Options
- 3 Laboratory Selection - sample type and suggested regional boundaries
- 4 Laboratory contact information and hours of operation

Navigation icons: Home, Help, Close, Back

**C Sample Submission - Shipping**

**1 Markings and Labels**

FROM: DR. BLACK  
 XXX ANIMAL CLINIC  
 123 WHITE ROAD,  
 CITY, PROVINCE A1B 2C3  
 (123)555-5555

TO: R-UNIT, OTTAWA LABORATORY FALLOWFIELD  
 CFA  
 3851 FALLOWFIELD ROAD  
 OTTAWA ON K2J 4S1  
 (343) 212-0340



UN3373

**BIOLOGICAL SUBSTANCE,  
 CATEGORY B**  
EMERGENCY 24 HOUR CONTACT NUMBER (123)555-5555

Shipper's waybill must also state: "Biological Substance, Category B, UN3373" (if shipped by air, add PI 650)

00:00 / 01:51

**C Sample Submission - Shipping**

**2 Shipping Options**

**Courier**

- Accepts Infectious Substances for transport
- Service to both Ottawa and Lethbridge labs, Monday - Friday

**Airlines**

- Some airlines will accept Infectious Substances, check with carrier for policies
- For air freight, notify the laboratory in advance

**Medical Laboratory Transport**

- Check with carrier for availability

**Bus lines**

- Currently do not accept Infectious Substances, only Exempt Animal Specimens

00:00 / 00:26

**C Sample Submission - Shipping**

**3 Laboratory Selection - sample type and suggested regional boundaries**

**Lethbridge:**

- animal samples (except primates) from BC, AB, SK, MB, YK, NT, NU (Kivalliq and Kitikmeot regions), and ON (Thunder Bay and west ).

**Ottawa:**

- animal samples from ON (east of Thunder Bay), QC, NB, NS, NL, PEI and NU (Qikiqtaaluk region).
- all human and primate samples and for all samples that are formalin-fixed.

00:00 / 00:30

**C Sample Submission - Shipping**

**4 Laboratory contact information and hours of operation**

**LETHBRIDGE:**  
 R-Unit, Lethbridge Laboratory  
 Canadian Food Inspection Agency  
 Township Road 9-1  
 Lethbridge, AB T1J 3Z4  
 Phone: (403) 382-5559  
 Fax: (403) 382-5562  
 Email: [LethbridgeRabiesLAB@inspection.gc.ca](mailto:LethbridgeRabiesLAB@inspection.gc.ca)  
 Hours of Operation: 7 am - 3 pm Mountain Time

**OTTAWA:**  
 R-Unit, Ottawa Laboratory Fallowfield  
 Canadian Food Inspection Agency  
 3851 Fallowfield Road  
 Ottawa, Ontario K2J 4S1  
 Phone: (343)212-0340  
 Fax: (343)212-0202  
 Email: [OLF\\_Rabies-LOF\\_Rage@inspection.gc.ca](mailto:OLF_Rabies-LOF_Rage@inspection.gc.ca)  
 Hours of Operation: 8 am - 4 pm Eastern Time

00:00 / 00:09

**C Sample Submission - Weekend and Holiday Testing**

- Diagnostic testing is available on weekends/holidays if certain criteria are met AND if testing is requested in advance.
- Shipping options are limited outside of normal business hours. It is the responsibility of the submitter to ensure that the sample can be delivered to the laboratory for testing on the weekend or holiday, prior to making a request for testing.

**Criteria for testing:**

- The animal is reasonably suspected of being rabid, based on a thorough investigation including consideration of the animal species involved, its behaviour at the time of the exposure, presentation of clinical signs consistent with rabies, geographical area, and for domestic animals, potential for previous contact with a rabid animal.
- The person has suffered a WHO Category III exposure (i.e., single or multiple transdermal bites or scratches, licks on broken skin, contamination of mucous membrane with saliva).
- There is a medical contraindication to receiving post-exposure prophylaxis.
- The attending physician or Medical Officer of Health provides the laboratory with the name and telephone number of a contact who is readily available to receive and act upon the result on the day of testing. The laboratory must be able to speak with an individual, test results will not be left on an answering machine.

00:00 / 01:03

**D** DOs and DON'Ts

1 Sample Collection

2 Packaging

3 Shipping

00:00 / 00:30

**D** DOs and DON'Ts

1 Sample Collection

**Sample Collection DOs**

- Be vaccinated against rabies
- Don appropriate personal protective equipment - gloves, coveralls, face shield
- Humanely euthanize the animal without damaging head / brain
- Ensure all insects / parasites are dead or removed - e.g.. treat for fleas, ticks; remove maggots
- Remove any sharp objects - needles, darts, bullets, etc.
- Submit portions of brain tissue collected bilaterally from hippocampus, cerebellum and brain stem if entire brain cannot be submitted

**Sample Collection DON'Ts**

- Don't use any kind of power saw to remove the head
- Don't alter the size of the head by removing the ears, snout, skinning
- Don't use ether or freezing as euthanasia methods for small animals/bats
- Don't use buckets or cans as Secondary Packaging

**D** DOs and DON'Ts

2 Packaging

**Packaging DOs**

- Use newsprint or paper towel as absorbent material for wrapping
- Use rigid gel packs for cooling
- Use a pressure capable bag for secondary packaging if shipping by air
- Give each sample its own primary package, unique identifier and submission form
- Place brain tissue or bats into rigid plastic containers
- Attach a completed copy of Rabies Sample Submission Form to secondary package

**Packaging DON'Ts**

- Don't use thin bags that are easily punctured
- Don't use opaque bags e.g., orange biohazard bags
- Don't use wet ice, soft gel packs, frozen water bottles or dry ice
- Don't wrap ice packs in newsprint
- Don't freeze Sample(s)
- Don't use Styrofoam or similar granular packing material

**D DOs and DON'Ts**

**3 Shipping**

**Shipping DOs**

- Ensure all required markings and labels are on the Outer Shipping Container
- Ensure correct address and contact numbers for lab
- Contact carrier regarding shipping requirements and their schedule
- Track your shipment and call the carrier if it does not arrive as expected

**Shipping DON'Ts**

- Don't use Biohazard label on Outer Shipping Container
- Don't use the word Rabies on Outer Shipping Container - use "R-UNIT"

**E Review**

**Submitter**

- Collects rabies suspect Sample and relevant data
- Assigns a unique identifier to Sample
- Completes, electronically submits, and prints a copy of the Rabies Sample Submission Form
- packages Sample for shipment in accordance with TDG
- Ships Sample to CFIA rabies laboratory

**CFIA rabies laboratory**

- Receives submission form data; notifies submitter
- Receives Sample
- Notifies submitter that sample is received and under test
- Issues Report of Analysis (ROA) when testing completed

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**F Packaging Video**

RABIES SAMPLE PACKAGING

00:03 / 10:16