

APPENDIX C

General Rabies Testing Information

Requesting Rabies Testing

Rabies testing questions must be directed toward the closest County Health Department or District Health Office. The MPHL will test specimens ONLY after the requestor has consulted with the appropriate MSDH county clinic or district office staff and obtained testing approval. The MPHL will provide testing at no charge for exposure events associated with public health significance as a public service.

Animals that bite humans

Wild animals

Raccoons, skunks, foxes, and coyotes are the terrestrial animals most often infected with rabies in the United States. All bites by such wildlife must be considered a possible exposure to the rabies virus. Small rodents like squirrels, hamsters, guinea pigs, gerbils, chipmunks, rats, and mice as well as lagomorphs including rabbits and hares are almost never found to be infected with rabies and have not been known to transmit rabies to humans.

Domestic animals

Healthy dogs, cats and ferrets that bite a person, other pets or livestock should be confined and observed for 10 days instead of euthanized and submitted for testing. Such animals should be evaluated by a veterinarian at the first sign of illness during confinement, and if the illness is consistent with rabies or the animal dies, then the animal's head should be removed and shipped on ice packs to the laboratory for rabies testing. Dogs, cats and ferrets that survive the 10-day quarantine period should not be submitted to the laboratory for rabies testing.

Bats

Indigenous rabid bats have been documented in all 49 continental states, including Mississippi. Bats that have interactions with people or domestic animals should be submitted for testing if contact with the bat involved a bite, handling where a bite cannot be ruled out, or bats that are found in a domicile with access to people or domestic animals when they were asleep, unconscious or incapacitated. If one or more bats escape capture, do not submit the remaining bats since recommendations regarding post-exposure prophylaxis will not be altered by testing only some of the bats.

Livestock and horses

Rabies testing should be performed on livestock and horses only if the animal has exposure to a known or suspected rabid animal. An owner of livestock or horse(s) suspected of having exposure to rabies should contact a veterinarian regarding the health of the animal(s) and the recommended tests. The MPHL will accept brain tissues or heads associated with exposed livestock and horses ONLY from the Mississippi Veterinary Research & Diagnostic Laboratory (Phone: 601-420-4700) or the Mississippi State University CVM Diagnostic Laboratory (Phone (662) 325-1104).

Refer to <http://www.cdc.gov/rabies/exposure/animals/domestic.html> for additional information from the CDC regarding the exposure risks associated with specific animal species.

Rabies Specimen Submission Guidelines

In general, only the following animals will be tested:

1. Wild animals (with the exception of rodents, rabbits or opossums) that bite/expose humans or domestic animals. Raccoons, skunks, foxes, and coyotes are the terrestrial animals most often infected with rabies in the United States.
2. Dogs, cats or ferrets that bite /expose humans and cannot be confined for 10 days of observation or that do not survive the 10-day confinement period.
3. Bats that have interactions with people or domestic animals.

Animals other than bats

Only the head of animals other than bats will be accepted for rabies testing. The MPHL is not equipped for animal disposal or animal necropsy. All heads must be removed by a veterinarian. Attempting to improperly remove an animal head may compromise the integrity of the brain material, rendering the specimen unsatisfactory for testing. MPHL staff **MUST** be able to identify specific brain anatomy for accurate testing. Intact animals decompose more rapidly than just the animal heads, decreasing our ability to provide accurate results. All animals must be euthanized to avoid damage to the brain. **Contact your local MSDH clinic or district office** to discuss whether the animal should be tested for rabies and to receive instructions on what steps need to be taken next. Before bringing the specimen to your local MSDH site, **TRIPLE** bag the specimen (animal head only) and make sure each of the three bags are securely closed to prevent leakage. Place the triple-bagged specimen into a hard-sided or Styrofoam box and secure the lid. Keep the specimen cool with ice packs surrounding the bagged specimen. **DO NOT FREEZE** or have ice directly on the specimen.

Bats

Bats must be submitted whole for rabies testing to allow the lab staff to speciate the bats prior to testing. Because bats are one of the natural reservoirs of the rabies virus, all bats should be treated as if infectious. Never touch a bat with bare hands. If the bat is presumed dead, take caution in case the bat is merely stunned or asleep. Take care to not crush the bat's skull. A damaged brain will render the bat unsatisfactory for testing. If unsure about the condition of the brain, continue with submission and the laboratory staff performing testing will make a final determination on the acceptability of the bat for testing. All efforts should be made to send only deceased bats. Submission of a live bat to the MPHL requires prior approval from the District Office **AND** the MPHL. In the event that submission of a live bat becomes necessary, packaging and transport of the live bat will need to be addressed. However, the following general guidelines should be followed when submitting live bats:

1. Refer to <http://www.cdc.gov/rabies/bats/contact/capture.html> for the CDC's guidance on how to capture a live bat. Anyone attempting to handle a live bat must always protect him/herself from potential bites by wearing impenetrable gloves.
2. The live bat should be contained in an **escape-proof** container (e.g. coffee can with tight fitting lid, or Tupperware container). **Do not** wrap the bat in anything that could hinder access to it (e.g. a cloth towel, packing material, etc.). Be sure to secure the lid **COMPLETELY** using duct tape if necessary to prevent the bat from escaping; it only takes a tiny opening for a bat to squeeze through and escape.
3. Place the sealed container with the bat in standard leak-proof plastic bag with zipper closure and ensure bag is sealed. If necessary, place the bagged container in a second leak-proof plastic bag with a zipper closure.
4. Contact your local MSDH County clinic or District Office prior to arriving at the health department to receive approval for testing.

Specimen Shipment

All specimens **MUST** be shipped to the MPHL through a MSDH county clinic or district office. The MSDH has a courier system in place that will deliver the specimens the next day to the MPHL. The MPHL will not accept specimens directly from private citizens or veterinarians; all specimens **MUST** be screened for exposure risk at the MSDH County or district office. Individuals delivering specimens directly to the MPHL will be referred to their local health department clinic or district office for exposure evaluation.

Rabies Testing Procedure

When the laboratory tests an animal for rabies, technologists examine three areas of the brain: stem, cerebellum, and hippocampus. The laboratory must examine a complete cross section of the brain stem and either the cerebellum or hippocampus to be confident that adequate samples have been tested. If the animal head has been compromised due to trauma or decomposition, the laboratory may not be able to generate a valid result

Turnaround Time and Reporting of Rabies Results

Routine Testing and Result Reporting of Rabies Specimens

- Specimens are tested daily Monday through Friday.

Weekend and Holiday Testing and Result Reporting of Rabies Specimens

- Specimens are not tested on the weekend but do receive priority testing on the following Monday.
- Specimens received after 8:00 a.m. and prior to 3:00 p.m. the day before a holiday will be tested the next working day.
- Emergency weekend or holiday testing will be performed only with approval from the Office of Epidemiology.

Result Interpretation

Positive

Test results indicate that the specimen was positive for rabies virus. The MSDH will assist primary physician with determining if rabies prophylaxis is needed. Further information is available on the CDC website (<http://www.cdc.gov/rabies/index.html>).

Negative

Test results indicate that the specimen was negative for rabies virus. Post-exposure prophylaxis following exposure to an animal that tested negative for the rabies virus. Further information is CDC website (<http://www.cdc.gov/rabies/index.html>).

Unsatisfactory

When the laboratory tests an animal for rabies, the technologists examine three areas of the brain: stem, cerebellum, and hippocampus. To be confident that they have an adequate sample for testing, the laboratory must receive a **complete** cross section of the **brain stem** and either the cerebellum or hippocampus. If the required brain parts are not received, they test what was received. If that part is positive, the specimen is reported as positive. However, if the part received is not positive, the specimen is reported as **unsatisfactory**. This is necessary because testing fewer areas of the brain may not lead to detection of a weak positive animal. If you receive an unsatisfactory report, the MSDH Office of Epidemiology will assist the primary physician with determining whether or not rabies prophylaxis is needed.

Inconclusive

An inconclusive report indicates that when the animal was tested for rabies, some material in the brain of the animal looked suspicious but could not be definitively identified as rabies virus. Prior to issuing an inconclusive report, the specimen is retested multiple times. If you receive an inconclusive report for rabies, the MSDH Office of Epidemiology will assist the primary physician with determining whether or not rabies prophylaxis is needed.

Rabies Testing

MSDH Shipment Procedure for Rabies Specimen

Specimens **MUST** be approved by the District Health Officer or designee prior to submission and in accordance with the Office of Epidemiology Manual. MSDH approved testing will be performed for exposure events deemed to meet public health significance. **Citizens may pay for private rabies testing on request if no human exposure risk is identified or if the exposure does not meet public health significance.**

Specimen Shipment Requirements:

Rabies specimens must be shipped to the MPHL in the designated MSDH rabies shippers. These shippers are grey, thermosafe brand metal chests that are numbered and assigned to specific health department locations. The MSDH clinic or office staff that approved the testing is responsible for ensuring that rabies specimens are properly shipped. The MPHL will reject any specimens submitted in non-MSDH rabies shippers.

Specimen Packaging Requirements:

- Don personal protective equipment.
- Place specimen (animal head or whole bat) in a leak proof plastic bag with a zipper- type closure. Verify that the bag is sealed.
- Place the bagged specimen into second leak proof plastic bag with a zipper-type closure. Verify that the bag is sealed.
- Place double bagged specimen into rabies shipper. Ship only one (1) specimen per shipper.
- Place cold packs between outer (second) specimen bag and shipper. **DO NOT USE LOOSE OR DRY ICE.** Use sufficient cold packs, to maintain a cool environment, even with a delay of one full day.
- Specimens should arrive cold but not frozen. Frozen samples must completely thaw before processing; this can delay testing up to 24 hours.
- Place **completed** Rabies Test Requisition form (Form 433) in the pocket inside the lid of the shipper. **Samples will not be tested until a completed Form 433 is received**. Care should be taken to ensure Form 433 arrives with the specimen.
- Securely close shipper. Make sure shipping label shows Public Health Laboratory.
- Place shipper with other specimens for MSDH courier pick up at the health department.
- Complete the fillable PDF **MPHL Rabies Electronic Submission Notification Document** at http://msdh.ms.gov/msdhsite/_static/resources/6814.pdf. After all information is typed into the document, choose "send by email" to send the form to the MPHL and the Office of Epidemiology. The completion of this notification document is critical for the laboratory to monitor the arrival of rabies specimens and to be able to notify the submitter if a specimen does not arrive as expected. Shipments that fail to arrive at the laboratory require investigation not limited to contact with the submitter and verification of sample disposition with full documentation of these activities. Testing will be delayed for any specimen received without prior notification.

Materials Supplied by the Laboratory (Call 601-576-7582 to request supply restocks.)

1. Rabies shippers (please see picture below): Gray, thermosafe brand chests. Shippers are to be used to transport animal carcasses and heads for rabies testing only. **NO OTHER LABORATORY SAMPLES OR SUBMISSIONS ARE ALLOWED IN THESE SHIPPERS.**
2. Disposable packing supplies: Each rabies shipper should contain a disposable lab coat, two Ziploc type bags, and a checklist for packing.
3. Rabies request forms: These forms are supplied using the standard procedure for laboratory requisitions. Ask for form number 433.

Materials Required But Not Supplied by the Laboratory

1. Disposable latex or plastic gloves.
2. Frozen cold packs. These may be obtained commercially or prepared by filling disposable plastic bottles with water and freezing. Every effort will be made by the laboratory to return commercial cold packs to the submitting health department location, but several should be kept on hand for multiple shipments and lost cold packs. Cold packs normally require at least 24 hours to freeze to enable appropriate shipping conditions.
3. Eye protection

