



Guidelines for the Removal of Animal Heads for Rabies Testing

I. PURPOSE

The purpose of this document is to outline a procedure which can be utilized to decapitate animals and submit satisfactory specimens for rabies testing, which will allow for accurate test results. The procedure is also intended to outline recommended precautions to prevent accidental human exposure while handling animal specimens.

Whenever possible, local animal control officers should be involved when an animal bite or potential rabies exposure occurs. Animal control may be contacted to assist with head removal for rabies testing and to ensure the head is shipped for testing appropriately and in a timely manner.

The New Jersey Public Health and Environmental lab (NJPHL) performs rabies testing in the state of New Jersey. PHL accepts heads or brains of most animals such as dogs, racoons, cats, etc.; bats should be submitted whole (see rabies submission guide for further laboratory submission instructions).

For large animals (horses, cattle, deer, Bear...) the submission of the brain may be preferable to the entire head when the size of the animal makes transport difficult. The entire brain should be removed intact (including medulla, cerebellum and hippocampus) and sent in for testing. When submitting the brain instead of the head, care should always be taken to ensure that the brainstem is included.

The NJDOH does not accept large animals or livestock heads for testing. Livestock can be submitted to the NJ Department of Agriculture Diagnostic Lab. They will then provide NJPHL the brain for testing. NJDA Diagnostic Lab: <https://nj.gov/agriculture/ahdl/contact/>

All specimens submitted for testing must be accompanied by a NJDOH Rabies submission form (Vir-16) <https://www.nj.gov/health/forms/vir-16.PDF>

II. RECOMMENDED SUPPLIES

1. Sharp knife and sharpener
2. Optional- sharp hacksaw, dehorner, lopping shears, pruning shears, or brush cutters
3. Protective clothing (PPE):
 - i. Heavy waterproof autopsy gloves or use 2 pairs of disposable latex style gloves
 - ii. Mask (disposable)
 - iii. Safety glasses, Goggles and/or Face Shield
 - iv. Coveralls and/or waterproof apron
 - v. Shoe Covers (optional)
 - vi. Plastic Protective arm sleeves (optional)

For additional reference on how to properly put on and remove PPE, please see the CDC procedure available here: <https://www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf>

4. Newspaper, disposable plastic bag, or absorption matt to lie under area of head removal to catch body fluids (if procedure not performed in tub or table with drain)
5. Cleaning Supplies
 - i. Detergent
 - ii. Disinfectant
 - iii. Paper towels
 - iv. Plastic trash bags

III. PROCEDURE

1. Head removal for animal carcasses (NOTE: These methods are suggestions. Use the technique with which you are most familiar and feel most comfortable).

Step 1

- a. Lay animal on its back and extend the head by pushing top of nose toward ground or bend neck back over edge of table.
- b. Locate the larynx. Immediately behind the larynx (see Figure 1 below), using a sharp knife, make an incision through the skin and continue cutting down through the trachea and esophagus to the backbone
- c. If you have cut in the correct place, you can identify the membrane covering the spinal cord between the first vertebrae (atlas) and the skull (occipital bone). The joint made by these two bones can be visualized and palpated as the animal's head is flexed and extended.
- d. Disarticulate the atlanto-occipital joint. It is possible to dissect the ligaments connecting this joint, but probably easier and faster to hyperextend the head and manually tear the ligaments. You will hear and feel a snap when this is accomplished.
- e. After disarticulation of the atlanto-occipital joint, the remaining muscle and skin can be cut with a knife to completely free the head from the body.

Step 2

- a. Some individuals may prefer to cut through the vertebra instead of disarticulating the joint. After cutting down to the backbone, use shears or a hacksaw to cut through the first vertebra. DO NOT use an axe, hatchet or power saw because of the danger created by flying debris or aerosol viral particles.
2. Packaging
 - a. See document/link on NJ PHEL (<https://www.nj.gov/health/phel/public-health-lab-testing/rabies/>) webpage titled, "Guidelines for Packaging and Transport of Animal Rabies Specimens."
 - b. **Each animal should be individually identified and packaged.**
 3. Clean up
 - a. Instruments and contaminated surfaces should be washed with detergent and water and disinfected with a virucidal solution such as bleach (100 ppm), alcohol (40-70% ethanol), iodine (25 ppm), or quaternary ammonium (1-256 dilution) compounds.
 - b. The body of the animal should be incinerated or properly disposed of according to local guidelines and regulations. Heads submitted to the NJDOH cannot be returned to owner or veterinarian.

Figure 1: Procedure diagram

