

STATE OF COLORADO

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Colorado Department
of Public Health
and Environment

West Nile Virus Surveillance Guidelines for the Submission of Dead Bird Specimens

BACKGROUND: Following its 1999 introduction in New York City, West Nile virus (WNV), a mosquito-borne disease never reported in the Western hemisphere, has spread nationwide reaching Colorado in 2002. As with other arboviruses, WNV is maintained in a bird-mosquito-bird cycle and transmitted to mammals including humans via bites from infected mosquitoes. Over 160 species of birds have been infected with WNV, although members of the Family Corvidae (crows, ravens, magpies, and jays) appear to be highly sensitive to infection and experience significant mortality rates. The high mortality, and the ease of identifying these large, conspicuous birds, makes them a good sentinel animal.

BIRD SPECIMENS: At this time, appropriate bird specimens eligible birds for testing are restricted to corvids: the American crow (*Corvus brachyrhynchos*), the common raven (*Corvus corax*), the Black-billed magpie (*Pica hudsonia*) and jays: {gray (*Perisoreus canadensis*), stellar (*Cyanocitta stelleri*), blue (*Cyanocitta cristata*), western scrub (*Aphelocoma californica*), and Piñon (*Gymnorhinus cyanocephalus*) jay}. Birds will be tested using an oral swab specimen and a rapid dipstick assay that is known to work for corvid species. This testing technique does not work on some bird species and has not been validated for most species. Testing of other birds, such as raptors, would be conducted at the state laboratory and requires **prior** approval from CDPHE.

Birds must have recently died (<48 hours) to be considered for testing. Carcasses that are decomposed, desiccated or maggot-infested should not be sampled. Bird submission should be coordinated through a single point of contact in each county health department. Preprinted lab requisition forms are provided. All requested data should be entered including the date the dead bird was discovered, species (if known), and location (e.g., address, cross streets, etc.) found. To calculate latitude and longitude points for mapping purposes it is critical that a good street address is provided.

TESTING CONSIDERATIONS: The purpose of bird testing is to provide early warning of WNV activity and to determine areas of increased risk of human exposure. The purpose of bird testing is **not** to diagnose every case of avian WNV. Due to limited diagnostic resources, local health departments, nursing services or designated county WNV point of contact will be responsible for determining which eligible dead bird specimens will be tested based on local surveillance needs.

Sample Considerations:

- Location of dead bird. Will the bird provide information on the risk potential for human exposure? Birds from towns, suburbs or cities should be a higher priority than birds from remote areas. If the presence of WNV has already been established in an area by previous surveillance, will additional bird submissions provide any new information? Would it be better to dedicate laboratory resources to other areas where WNV has not been detected yet?
- For areas where WNV activity has been established (i.e., horse cases, dead bird, etc.) and there are no plans or intent by local officials to initiate mosquito control, further dead bird submissions are not warranted.
- If numerous dead birds from a specific location are reported, it is not necessary to submit all eligible dead birds for testing.
- In all instances, whether a bird is eligible for submission or not, documenting dead bird reports can be useful for mapping and tracking patterns. If requested by the local health department, information should include the date the bird was found, species of bird (if known), and the location (e.g., street address, cross streets nearby, longitude/latitude, etc.).

SPECIMEN COLLECTION: If the local county health department has indicated they would like to test the dead bird, the entire carcass should be submitted. Although there is no evidence that WNV can be transmitted by direct contact, gloves should be worn when handling dead birds. Carcasses can be collected with a shovel or using an inverted plastic bag to pick-up the carcass then pulling the bag around it. Specimens should be sealed in plastic (large “zip-lock” freezer bags work well) and refrigerated as soon as possible. Birds collected for submission should be refrigerated at 35-40° F until the oral swab is collected. When pickup or delivery of a dead bird will be delayed, such as over a weekend, the carcass should be frozen. To dispose of dead birds that will not be tested, follow the collection procedure described and deposit the carcass in the trash.

FIELD COLLECTION OF AVIAN ORAL SWABS: No bird carcasses will be accepted by participating labs for testing. All bird specimens will be submitted to the lab in the form of an oral swab.

Materials supplied by local agency for Avian Oral Swab Collection:

- **Gloves** (latex-free gloves are recommended)
- **Eye protection/goggles** to protect from splattered material during swabbing
- **Trash bag** for disposal of bird carcass
- **Optional:** Respirator (N95) for covering the nose and mouth of the field collector

Bird Kit (10 pack) supplied by CDPHE (303-692-3074) for Avian Oral Swab Collection:

- 1 – Instruction Sheet
- 1 – Map of Regional Testing Laboratories and County designations
- 20 – Dacron swabs
- 20 – Screw-cap tubes, 1.5 ml
- 10 – Shipping containers (double-mailer)
- 10 – Biohazard labels
- 10 – Diagnostic specimen labels
- 1 – Sheet Sample Collection Number labels
- 10 – Requisition Forms, #272

Swabbing Procedure:

1. Transfer a sample collection number label to the Avian Swab Requisition form (#272) and a duplicate sample collection number label to each of the two 1.5 ml screw-cap sample collection tubes. On form #272 indicate the bird species and provide all other specimen and location information requested. **Samples accompanied by incomplete forms will not be tested.** SEE ATTACHED EXAMPLE of Bird requisition #272
2. Put on gloves and face/eye protection. Respirator use is optional.
3. Open the specimen container and remove the bird, or expose the beak through the plastic bag. Classify the bird type by comparison with identification chart; if no clear match, check “other”.
4. Open the beak and check for any maggots or signs of decay.
5. If maggots or decay are present, discard the sample; otherwise, proceed to step 6.
6. Use a Dacron swab to swab the interior of the bird’s beak and throat making sure to swab under the bird’s tongue.
7. Place the tip of the swab into the screw-cap tube and break the shaft from the swab so the Dacron portion of the swab fits in the vial.
8. Seal the tube with the cap and tighten securely.
9. Collect a second swab sample from the bird beak/oral cavity; repeat steps 6-8.
10. Place the screw-cap tubes in the metal sample container. Add strips of newspaper or paper towels to prevent movement of the tubes within the container.
11. Put the metal sample container into the cardboard mailer and affix labels for submission to your regional testing laboratory (Return address, biohazard, and diagnostic specimen labels). Refer to MAP for the address and lab contact of the assigned regional laboratory for your county.
12. Change gloves between specimens to prevent cross-contamination.

Criteria for Specimen Rejection by the lab:

- Absence of specimen identification number or lab issued requisition form
- Incomplete or incorrectly filled out requisition form
- Presence of maggots or larvae in sample
- Uncapped specimen tube or damage to specimen tube
- Outdated sample (specimen must be received within **2 weeks** of collection date)

SHIPMENT OF SPECIMENS:

- Place the sealed specimen tube(s) and the **completed** requisition form(s) in the supplied shipping container; place the return mail label on the packet and ship via UPS or Greyhound bus service delivery to the appropriate laboratory. Account numbers for shipping WNV surveillance specimens were provided to the person designated as the county point of contact.
- Test results will be mailed to the submitting agency. In addition, updated Excel spreadsheets of all WNV tests from the county will be e-mailed to designate county point of contact. Notification to the agency or individual who submitted the dead bird will be the responsibility of the local health department.



Colorado Department of Public Health and Environment

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LABORATORY USE ONLY

REQUEST FOR ANALYTICAL SERVICES

Collection # **00015**

CUSTOMER

CustomerID: EN000020
Name: Denver City-County - Public Works Dept.
Address: 5440 Roslyn St, Door E-1 QA Materials Lab
City/ST/Zip: Denver, CO 80216
Contact:
Phone: 303-286-6476
Contract
Doctor Name: C. Smith
Doctor Phone:

SPECIMEN INFORMATION

Collected: []/[]/[] Time: []:[] [] a.m.
 month day year hour min [] p.m.

Collected by: CS

SPECIMEN

- ASPIRATE
- Carcass
- Culture tube or plate
- Serum/plasma
- SWAB

SOURCE

- BLOOD
- LYMPH NODE
- THROAT/ORAL

OTHER _____

OTHER _____

ANIMAL/BIRD

Stellar's Jay dead

species

- CROW
- MAGPIE
- BLUE JAY
- RAVEN
- OTHER _____

dead, euthanized, other

- SEX MALE
 FEMALE

Human bite? YES NO unknown

Bite location

NAME OF PERSON BITTEN

1300 County Rd 2

ADDRESS

Craig CO

CITY STATE ZIP

Mo Flat

COUNTY

COMMENTS / HISTORY

SOURCE AND CLINICAL HISTORY MUST BE PROVIDED. FOR PLAGUE or TULAREMIA SPECIMENS, PROVIDE EXPOSURE HISTORY, RECORD NAME OF PERSON BITTEN OR EXPOSED

**SAMPLE
DO NOT USE**

TEST ORDER

MICROBIOLOGY

- CULTURE
- CONFIRMATION, isolate identification

Molecular Testing

- WEST NILE VIRUS
- ST. LOUIS ENCEPHALITIS
- WESTERN EQUINE ENCEPHALITIS

OTHER _____

SEROLOGY

- RABIES
- PLAGUE

OTHER _____

LARS Internet Address: <http://www.cdphe.state.co.us/lr/lrhom.ht>

Report #272Req, Animal-Bird Rev 10/30/02