

Standard Operating Procedures:

**Response Plan to a Report of Notifiable Avian
Influenza Virus**

November 2005

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Introduction

This plan specifies actions to be taken to respond to a positive laboratory result for notifiable avian influenza (NAI). Notifiable avian influenza is defined by the Office Epizooties des International (OIE) in the Terrestrial Code chapter on Avian Influenza. Response actions will begin upon receipt of a suggestive or positive result on a screening test for NAI virus at a designated National Animal Health Laboratory Network (NAHLN) laboratory and other laboratories. Many additional actions will be taken upon receipt of a presumptive positive diagnosis from the National Veterinary Services Laboratories (NVSL). A full response will be initiated upon receipt of a confirmed positive diagnosis for NAI from the NVSL. The actual field circumstances surrounding a presumptive or confirmed NAI case may require modification of response actions specified in this plan. Responses to highly pathogenic avian influenza versus low pathogenic avian influenza may differ.

Suspected NAI cases which are reported for foreign animal disease (FAD) investigations will still be addressed per current FAD procedures as detailed in Veterinary Services (VS) Memorandum 580.4. Nothing in this document supersedes actions specified in VS Memo 580.4.

1.0 Response Actions

Many of the tissue or swab samples collected as part of a surveillance program for NAI will initially be screened using a rapid test at a designated NAHLN laboratory by trained personnel who have passed proficiency testing by the NVSL. The sources of these samples will generally be veterinary diagnostic laboratories that have received veterinary practitioner submissions from sick birds.

The rapid screening test for tissue or swabs will be a real-time reverse transcriptase polymerase chain reaction (rrRT-PCR) assay for NAI virus RNA. If results of the assay are inconclusive or positive, as defined by NVSL Standard Operating Procedures, confirmatory testing must be performed at the NVSL (see section 1.1).

If NAI positive results are found, actions under section 1.5 will be carried out, as applicable.

The NVSL may also receive isolates of AIV from NAHLN and other poultry testing laboratories. Confirmatory testing and subtyping will be performed by NVSL followed by pathogenicity testing.

1.1 Suggestive or Positive Results on rrRT-PCR, virus isolation and/or serology

The following actions will be taken when a suggestive or positive result for NAI .

1.1.1 Actions by NAHLN laboratory

- Report the result immediately to the NVSL, as designated in NVSL Standard Operating Procedure

- Report the result to the State Veterinarian and Area Veterinarian-in-Charge of their State.
- Immediately submit to the NVSL all appropriate specimens for confirmatory testing and a completed VS Form 10-4. Those specimens with suggestive results of H5 or H7 will be designated as a “Priority 2” submission as a FAD investigation (see VS Memo 580.4 for Priority 2 delivery options).
- Enter results and all other appropriate data into the NAHLN database.

1.1.2 Actions by the NVSL

- NVSL will use appropriate confirmatory assays. See section 1.3., paragraph 1.

1.1.3 Actions by VS and/or State Field Personnel in the State where the NAHLN Laboratory is Located, the State of Sample Collection, and/or the State of Last Known Premises of Residence of the Source Bird

- Secure all paperwork and any identification materials associated with the submission.
- Determine the source of the submission and the reported status of illness of the source bird (i.e., was this submission from a bird with NAI compatible illness or from a “healthy” bird?).
- Determine last known premises of residence of the bird of interest (source bird). If the specific source of the submission or the last premises of residence cannot be determined, every attempt must be made to determine, with as much specificity as possible, the limits of the geographical area in which the bird of interest could have last been resident.
- If sample of interest was collected at slaughter, collect initial information necessary to track conveyances used and confirm that no movements occurred out of the slaughter facility holding area (do not yet begin actual tracing operations).
- Communicate all information gathered to the VS Regional Office and VS Emergency Management (EM).

1.1.4 Actions by VS Headquarters Personnel

- Begin compiling information to be utilized in technical briefings should a presumptive positive and/or confirmed positive diagnosis be found on testing at the NVSL.
- If necessary, hold conference calls with the VS Regional Office and appropriate local, State, and Federal authorities to obtain needed information.

1.1.5 VS Notifications

1.1.5.1 Internal to VS

- NVSL notifies EM by telephone.
- NVSL notifies the Area Veterinarian in Charge (AVIC) for the Area from which the sample was submitted.
- AVIC notifies the submitter

- EM notifies, by telephone, the Deputy Administrator (DA) and the Regional Director (RD), or other designee, of the VS Region(s) involved.
- RD ensures that all AVICs involved have been notified (may be three or more Areas/States, if known and if different: State of last residence of bird, State of sample collection, and State of sample testing).
- EM notifies the Director, Centers for Epidemiology and Animal Health (CEAH).
- EM notifies the Associate Deputy Administrator (ADA), National Animal Health Policy and Programs (NAHPP).
- Notified VS personnel should make any other internal notifications as appropriate for a "Priority 1" sample submission.

NOTE: No External Notification Shall occur until confirmatory testing has been performed at NVSL

1.2 Negative NAI Results at the NVSL for Suggestive or Positive Result

If all initial test results at the NVSL are negative (i.e. everything in the first 24 hours of NVSL testing) for a suggestive or positive result all parties notified in section 1.1.5 will be notified of those negative results. No actions under section 1.3 will be initiated (i.e., there is no presumptive NAI case). Efforts to isolate virus (if applicable) will continue at the NVSL until a final NAI diagnosis is determined.

1.3 Presumptive Positive NAI Diagnosis at the NVSL

A presumptive positive diagnosis (presumptive case) of NAI is defined as at least one positive test result (rrtPCR, VI followed by HI) for H5 or H7 at the NVSL on a sample from a bird with a suspect case¹ of NAI.

A presumptive positive diagnosis at the NVSL will trigger the actions given in this section, if those actions have not already been performed.

The NVSL will also be testing tissues or swabs submitted from FAD investigations and other sources. If a presumptive positive diagnosis is obtained at the NVSL from any such submission, any actions not already completed from sections 1.1.3 through 1.1.5, or in this section (1.3), must be performed.

Note: If epidemiologic and other information collected through actions in sections 1.3.1 and 1.3.2 indicates that the occurrence of NAI is highly likely, response actions should commence as per section 1.4.1 (Response to a Highly Contagious Disease), even if the positive diagnosis (case) has not yet been confirmed by the NVSL.

1.3.1 Actions by VS and/or State Field Personnel in the State of the Last Known Premises of Residence of the Source Bird and/or the State of Sample Collection

- Issue quarantine or hold order for the last known premises of residence of the positive bird.
- A FAD investigation must be completed on the last known premises of residence using procedures in VS Memorandum 580.4. The FAD diagnostician or other field staff should be prepared to provide (prior to the confirmatory test results being available, if possible) as much information as can be gathered on any illness currently occurring on the premises and on the presumptive positive bird, including signalment (as appropriate: species, age, breed, sex, and use), clinical signs, last known premises of residence and movement history, characteristics of the last premises of residence and of any other premises where the bird is known to have resided. Digital photographs of clinical signs, post mortem lesions, and the birds' living environment should be submitted when possible.
- Trace back of the positive bird should begin; the ultimate goal is to find its premises of origin (birth), if other than the last known premises of residence, but the priority for tracing should be focused on the last 42 days prior to clinical illness.
 - Begin tracking any conveyances used to move the positive bird, especially during a period beginning at least 42 days prior to development of initial clinical signs of illness.

¹ Suspect case is defined as a tentative diagnosis of NAI by an accredited veterinarian or FADD based on one or a combination of the clinical signs described in the APHIS-VS National Surveillance Unit case definition for notifiable avian influenza, in consultation with State Animal Health Officials and the Area Veterinarian in Charge. If no clinical illness is known to have existed in the source bird (i.e., there is no suspect case), follow actions in section 1.6.

- If the sample of interest was collected at slaughter, begin tracking conveyances used and confirm that no movements occurred out of the slaughter facility holding area.
- Trace backs and trace forwards must be initiated for all other birds from the premises of last known residence covering a period beginning from at least 42 days prior to development of initial clinical signs of illness, including conveyances used and levels of pre- and post-movement biosecurity, cleaning, and disinfection.
- Enter FAD and tracing investigation information into the Emergency Management Response System (EMRS) "instance" created for this investigation (see section 1.3.3).

1.3.2 Actions by VS Regional Personnel

- An Incident Complexity Analysis Team (ICAT) should be deployed immediately following the FAD investigation to assess the extent and complexity of the incident. Factors such as type of operation involved, State and Federal resources available at the local level, potential duration of the investigation, and regional resources available will be incorporated into the group's report. This report will be used as a basis for obtaining and allocating additional resources required by the incident. The report should be provided to the Regional Director and to EM so that the funding requests and other documents can be prepared.

1.3.3 Actions by VS Headquarters Personnel

- The EMRS Team Leaders at the CEAH will be instructed by EM (or VS Regional Office, after discussion with EM) to create an appropriate EMRS instance.

1.3.4 VS Notifications

1.3.4.1 Internal to VS

- NVSL notifies EM by telephone.
- NVSL notifies the AVIC of the Area that submitted the sample.
- AVIC notifies the submitter
- EM notifies, by telephone, the DA and the RD, or designee, of the VS Region(s) involved.
- RD ensures that all AVICs involved have been notified (may be three Areas/States, if known and if different: State of last residence of bird, State of sample collection, and State of sample testing).
- EM notifies the ADA, NAHPP.
- EM notifies the Emergency Management Leadership Team (EMLT).
- EM notifies the Director, CEAH.
- DA notifies the entire VS Management Team (VSMT).

1.3.4.2 External to VS

- NVSL notifies the sample submitter (NAHLN laboratory or other).

- RD ensures that all State Veterinarians involved have been notified (may be three States, if known and if different: State of last residence of bird, State of sample collection, and State of sample testing).
- EM notifies the USDA OHS.
- EM notifies the APHIS OEMHS.
- EM notifies the DHS at the PIADC.
- The DA notifies the APHIS Administrator's Office (AO).
- The DA notifies poultry industry representatives (National Chicken Council [NCC], National Broiler Council [NBC], U.S. Poultry and Egg Association [USPEA], National Turkey Federation [NTF], etc.).
- The DA notifies the USDA Food Safety and Inspection Service (FSIS).
- EM notifies CDC, and HHS.
- EM notifies APHIS LPA.
- EM notifies APHIS Wildlife Services (WS).
- EM notifies APHIS International Services (IS).
- After the on-premises FAD investigation is completed and all internal notifications are made, EM sends out by e-mail an "EMOC Warning."

Note: After all VS internal and external notifications, APHIS LPA will notify the media and general public in coordination with States and other Federal agencies involved in the response.

1.4 Confirmed Positive NAI Diagnosis at the NVSL

Isolation of NAI virus at the NVSL from a sample collected from a bird with a suspect case of NAI and identification as an H5 or H7 subtype with subsequent determination of high pathogenicity² will constitute a confirmed positive diagnosis (confirmed case) of HPAI. Upon determination of a confirmed case of HPAI, a full HPAI response will be initiated. Actions associated with this response are described below. Response to a diagnosis of low pathogenic avian influenza is detailed separately.

Note: If confirmation of a HPAI diagnosis occurs before, or without, any presumptive positive diagnosis, all actions associated with a presumptive positive diagnosis (section 1.3), that have not already been completed, will be initiated immediately upon confirmation.

² Classification of the isolate as HPAI by assessment of pathogenicity via:

- intravenous pathogenicity index greater than 1.2 or by causing at least 75% mortality within 10 days in 4 to 8 week old chickens infected intravenously; or if no mortality occurs,
- determination of the base sequence of the hemagglutinin precursor protein (HAO) cleavage site to identify viruses that have the capacity to become highly pathogenic.

1.4.1 Response to HPAI

The response to control and eradicate HPAI will commence as quickly as possible after confirmation of a positive diagnosis of HPAI and will follow the National Animal Health Emergency Management System (NAHEMS) guidelines. The terminology, goals, and guidelines given in "Response Strategies: Highly Contagious Diseases" should be followed.

The scope of the response and the requirement for Federal resources will be based on results of the ICAT assessment and on communication with the responsible State and local officials. The ICAT assessment may also indicate that one or more NAHLN laboratories will need to scale up rrRT-PCR testing capacity for HPAI to meet potential demand.

1.4.2 VS Notifications

1.4.2.1 Internal to VS

- NVSL notifies EM by telephone.
- NVSL notifies the AVIC of the Area that submitted the sample.
- AVIC notifies submitter.
- NVSL notifies the Select Agents group of the Technical Trade Services Team in the National Center for Import and Export.
- EM notifies, by telephone, the DA and the RD, or designee, of the VS Region(s) involved.
- RD ensures that all AVICs involved have been notified (may be three Areas/States, if known and if different: State of last residence of bird, State of sample collection, and State of sample testing).
- EM notifies the ADA, NAHPP.
- EM notifies the EMLT.
- EM notifies the Director, CEAH.
- DA notifies the VSMT.

1.4.2.2 External to VS

- NVSL notifies the sample submitter (NAHLN laboratory or other).
- RD ensures that all State Veterinarians involved have been notified (may be three States, if known and if different: State of last residence of bird, State of sample collection, and State of sample testing).
- EM notifies the USDA OHS.
- EM notifies the APHIS OEMHS.
- EM notifies the DHS at PIADC.
- DA notifies the APHIS AO.
- DA notifies poultry industry representatives (NCC, NBC, USPEA, NTF, etc.).
- DA notifies the USDA FSIS.
- EM notifies CDC, and HHS.
- EM notifies APHIS LPA.

- EM notifies APHIS WS.
- EM notifies APHIS IS.
- After the on-premises FAD investigation is completed and all internal notifications are made, EM e-mails an EMOC Warning.
- Within 24 hours of confirmation, the Sanitary International Standards Team (SIST) notifies the World Organization for Animal Health (OIE) of the finding.

Note: After all VS internal and external notifications, APHIS LPA will notify the media and general public in coordination with States and other Federal agencies involved in the response.

1.5 Positive Results on Sera, but not Tissues or Swabs (Antibody Positive Only)

The NVSL may confirm the finding of antibodies to AIV in sera collected either from ill or “healthy” birds, for which tissues are negative on all agent detection tests (e.g., due to a late timing of sampling relative to the course of infection in the source bird) or for which no tissue specimens are available for testing. These birds will be considered to be “non-definitive” cases, not presumptive cases; however, further agent detection testing should be undertaken.

1.5.1 Actions on Findings of AI Positive Serum without Positive Tissue/Swab Results

- Actions under sections 1.1.3 and 1.1.4, plus the actions in section 1.3.1, will be carried out. The FAD investigation should focus on finding signs of illness in other birds resident on the last known premises of residence of the seropositive bird and collecting swabs and tissue specimens for HPAI testing (i.e., agent detection tests). Tracheal and cloacal swabs (or feces) from live suspect birds; or feces and pooled organ samples from dead suspect birds (trachea, lungs, air sacs, intestine, spleen, kidney, brain, liver, and heart).
- If no ill or dead birds are found on the last premises of residence, sera should be collected from a variety of resident birds including any recent arrivals. A general guideline is to collect sera from all birds in any group of interest that has 30 or fewer birds, and from a total of at least 30 birds in larger groups of interest (a group of interest may be all birds in one barn, all birds of a certain age range, or all birds on a premises, depending on the characteristics of the birds, groups, and premises in question).
- Depending on the results of the premises investigation, intensified area surveillance may need to be implemented, including measures discussed in section 1.7.

1.5.2 VS Notifications

- Internal and external notifications should be as given in section 1.1.5.

1.6 Positive Results on Tissues or Swabs (Agent Detection Positive or NAI Virus Isolation), but no NAI Compatible Illness in Source Bird

For positive results that would otherwise meet the definition of a presumptive or confirmed case (i.e., positive results on an agent detection test or NAI virus isolation at the NVSL), but for which the source bird is not known to meet the definition of a suspect case (e.g., the bird is not known to have been ill), the FAD investigation and other actions in section 1.3.1 will be carried out. Birds in this category can be considered to have cases of “possible infection” with an NAI virus, rather than having presumptive or confirmed cases of NAI. If an NAI virus has not been isolated, isolation attempts should continue at the NVSL.

The FAD investigation should focus on finding signs of illness in other birds resident on the last known premises of residence of the positive bird. If any suspect birds are found during the investigation, tracheal and cloacal swabs should be collected from all ill birds and actions under section 1.3.2 (e.g., ICAT assessment) should be carried out. If no signs of illness are found, sera should be collected from a variety of resident birds including any recent arrivals. A general guideline is to collect sera from all birds in any group of interest that has 30 or fewer birds, and from a total of at least 30 birds in larger groups of interest.

Note: If no definitive last premises of residence can be determined, actions under section 1.7 should be followed to intensify surveillance in the area believed to contain that premises.

1.6.1 VS Notifications

1.6.1.1 Internal to VS

- NVSL notifies EM by telephone.
- NVSL notifies the AVIC of the Area that submitted the sample.
- AVIC notifies submitter.

- EM notifies, by telephone, the DA and the RD, or designee, of the VS Region(s) involved.
- RD ensures that all AVICs involved have been notified (may be three Areas/States, if known and if different: State of last residence of bird, State of sample collection, and State of sample testing).
- EM notifies the ADA, NAHPP.
- EM notifies the EMLT.
- EM notifies the Director, CEAH.
- DA notifies the VSMT.

1.6.1.2 External to VS

- NVSL notifies the sample submitter (NAHLN laboratory or other).
- RD ensures that all State Veterinarians involved have been notified (may be three States, if known and if different: State of last residence of bird, State of sample collection, and State of sample testing).
- EM notifies the USDA OHS.
- EM notifies the APHIS OEMHS.

- EM notifies the DHS at PIADC.
- DA notifies the APHIS AO.
- DA notifies poultry industry representatives (NCC, NBC, USPEA, NTF, etc.).
- DA notifies the USDA FSIS.
- EM notifies CDC, and HHS.
- EM notifies APHIS LPA.
- EM notifies APHIS WS.
- EM notifies APHIS IS.
- If evidence of HPAI compatible illness is found during the on-premises FAD investigation, an EMOC Warning should be distributed after all internal notifications have been made.
- SIST makes appropriate notifications to the OIE, if any, based on specific findings and circumstances.

Note: After all VS internal and external notifications, APHIS LPA will notify the media and general public in coordination with States and other Federal agencies involved in the response.

1.7 Specific Premises of Last Residence is not Definitively Known for Presumptive or Confirmed HPAI Case

There is a small probability that it will not be possible to determine the last premises of residence of a bird found to have had a presumptive or confirmed case of NAI. In such a situation, NAI surveillance activities will need to be intensified in the smallest geographical area that can be determined to have likely contained the last premises of residence. This area may be as large as the entire United States, but generally should be, at largest, a single State or a small group of States.

Any *potential* premises of last residence that can be identified should be investigated and tested as given in section 1.6. If no premises in the area can be determined to be more likely than others to have been the source of the bird in question, surveillance will need to be implemented to target additional populations of poultry, potentially including risk-based targeted on-farm testing of “healthy” poultry and testing of poultry at slaughter. Testing of non-commercial (e.g., backyard) poultry in the area may also be prudent.

Testing of healthy poultry may require collection of swabs or sera from a potentially large percentage of poultry premises in the geographical area, depending on the type of production, biosecurity practices, and other risk factors that are identified. Premises that have closed production systems and good biosecurity practices may be less likely to have introduced a disease like NAI, so they might be a lower priority for testing, unless other risk factors for individual premises are identified (e.g., proximity to non-commercial poultry). Premises with poor biosecurity or regular introduction of outside stock should be considered higher risk. Collection of swabs of any dead or ill birds from all such higher risk premises should be considered. Depending on the number of such premises, testing of a portion of all poultry

going to slaughter or to markets in the area may be a more practical and efficient method of finding positive birds in the shortest possible time period.

2.0 Response Structure

The response to a confirmed NAI case will be handled through Incident Command System (ICS) procedures. The ICS allows for a flexible, scalable response that can be staffed according to the size and complexity of each investigation. Specific needs for the response structure will be based on results of the ICAT report and on consultation with the State and local jurisdictions affected. Organization of the response will comply with the National Response Plan and the National Incident Management System.