NAHLN Surveillance and Preparedness

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NAHLN laboratories play a critical role in APHIS Veterinary Services' (VS) preparedness activities by providing rapid standardized testing and results reporting for foreign animal disease investigations in concordance with VS' Guidance Document 12001 and Foreign Animal Disease Preparedness and Response (FAD PReP) documents.

VS Guidance 12001

Policy for the Investigation of Potential Foreign Animal Disease/Emerging Disease Incidents

FAD PReP Materials and References

FAD PReP is the United States' comprehensive preparedness and response strategy for foreign animal disease (FAD) threats.

NAHLN Sample Chart for Regulatory Submitters

Our Work

NAHLN has collaborated with the National Veterinary Services Laboratories; Surveillance Design and Analysis; the Animal Commodity Health Centers; National Preparedness and Incident Coordination; and Wildlife Services to implement surveillance programs and preparedness measures. NAHLN laboratories routinely participate in surveillance programs for bovine spongiform encephalopathy, classical swine fever, chronic wasting disease, scrapie, influenza A virus of swine, and swine pseudorabies virus. Additionally, NAHLN laboratories stand ready to respond to disease outbreaks with staff who are proficiency tested and approved to conduct testing for avian influenza, virulent Newcastle disease, foot-and mouth-disease, and vesicular stomatitis virus when needed.

Surveillance and Preparedness by Disease

Learn more about how the NAHLN supports VS' surveillance and preparedness efforts for each of these diseases:

Expand All

Aquatic Animal Diseases

In the United States, aquatic diagnostic testing is provided by a variety of institutions including universities, research laboratories, private companies, and Federal fish health centers (for example, U.S. Fish and Wildlife Service). Adding

aquatic animal pathogen testing under the NAHLN scope addresses the need to build our Nation’s capacity to respond to aquatic animal disease outbreaks, support surveillance, maintain or expand U.S. export markets, and fulfill other regulatory purposes in an accessible, timely, accurate, and consistent way. Currently, NAHLN laboratories test for infectious salmon anemia virus, viral hemorrhagic septicemia virus, and spring viremia of carp.

African Swine Fever

Although there is currently no active surveillance program for African swine fever (ASF), a subset of NAHLN laboratories has trained and proficiency-tested analysts ready to participate in FAD investigations or surge capacity testing as needed. ASF is the most lethal transboundary disease affecting pigs, yet there is no treatment or vaccine against ASF. ASF has never been reported in the United States, but the viral disease has shown a great tendency for sudden and unexpected international spread over great distances. This is often associated with the legal or illegal transportation of virus- contaminated pig meat products, including food scraps in waste from ships and aircraft. Surveillance for ASF is currently being conducted through passive reporting of suspicious cases to State and Federal animal health officials.

Learn more about ASF

Bovine Spongiform Encephalopathy

The USDA has conducted surveillance for bovine spongiform encephalopathy (BSE) since 1990. In 2004, following the December 2003 detection of BSE in an imported cow, USDA implemented an enhanced BSE surveillance program to determine more accurately the prevalence of the disease in the U.S. cattle population. USDA concluded that the prevalence of BSE in the United States is extremely low (less than 1 case per million adult cattle), and in 2006, transitioned to an ongoing BSE surveillance program that tests at a level more commensurate with this extremely low level of risk. Ongoing BSE surveillance exceeds guidelines set forth by the World

Organisation for Animal Health (WOAH), providing for testing at a level 10 times that which is recommended by WOAH.

Personnel in BSE-approved NAHLN laboratories have provided BSE surveillance testing since 2004. These laboratories continue to conduct testing to detect BSE at the very low level of less than 1 case per million adult cattle, assess any change in the BSE status of U.S. cattle, and identify any rise in BSE prevalence in this country. The NVSL Pathobiology Laboratory in Ames, IA, performs surveillance and confirmatory testing on all samples identified as suspect (potential positive) for BSE by the NAHLN laboratories.

Learn more about BSE

Chronic Wasting Disease

Since 2001, APHIS has worked to develop and implement a chronic wasting disease (CWD) program to prevent and control this disease in farmed/captive cervids; establish a national CWD Herd Certification Program; and assist States and Tribes in CWD surveillance in wild deer, elk, and moose. The CWD interim final rule became effective on August 13, 2012, and established minimum Federal standards for a voluntary Approved State CWD Herd Certification Program (HPC). The CWD HCP is a cooperative effort between APHIS; State animal health or wildlife agencies; and farmed/captive deer, elk, or moose owners. The CWD program supports these efforts through ongoing surveillance in farmed cervid herds to detect CWD-positive animals and conducting follow-up investigations to trace CWD-infected animals to epidemiologically linked herds. The NVSL Pathobiology Laboratory in Ames, IA, performs confirmatory testing on all samples identified as suspect (potential positive) for CWD by the CWD-approved NAHLN laboratories.

Learn more about CWD

Classical Swine Fever

The classical swine fever (CSF) surveillance program was initiated in 2006 to detect CSF virus rapidly and monitor the risk of introducing the virus in the U.S. swine herd. The surveillance program targets five specific swine populations for testing:

- Sick pig submissions to veterinary diagnostic laboratories
- Slaughter swine with high risk of CSF exposure
- Feral swine
- Swine populations (including waste feeding operations) with high risk of CSF exposure in Florida, Texas, and Puerto Rico
- Swine highly suspicious for CSF and entered into a FAD investigation

NAHLN laboratories conduct CSF surveillance testing for the first two surveillance streams listed above; samples from the remaining three surveillance streams are tested at NVSL's Foreign Animal Disease Diagnostic Laboratory (FADDL), the CSF confirmatory laboratory. Additionally, NAHLN laboratories are able to support FAD investigations on CSF-suspect or rule-out animals. As outlined in VS Guidance 12001 (192.22 KB), if the State animal health official and VS Associate District Director agree, one set of samples collected during a FAD investigation can be sent to NVSL for confirmatory testing and a duplicate set of samples sent to the local NAHLN laboratory for a preliminary screening test to provide faster preliminary information for decision making.

Learn more about CSF

Foot-and-Mouth Disease

Currently, there is not an active national surveillance program for foot-and-mouth Disease (FMD) in the NAHLN laboratories. However, personnel in FMD-approved NAHLN laboratories maintain current training and proficiency testing status for preparedness purposes. This preparedness measure provides the option and confidence during a FAD investigation for duplicate sample collection, as outlined in VS Guidance 12001 (192.22 KB). If the State animal health official and VS Associate District Director agree, one set of samples collected during a FAD investigation can be sent to NVSL for confirmatory testing and a duplicate set of samples sent to the local NAHLN laboratory for a preliminary screening test to provide faster preliminary

information for decision making.

Learn more about FMD

Influenza A Virus in Avians

Currently under the NAHLN program, there is not an active surveillance stream for influenza A virus in avians (IAV-A). However, as part of their routine business outside of the NAHLN program, many of the NAHLN laboratories do conduct much IAV-A testing for various VS and State surveillance programs. Historically, NAHLN laboratories have partnered with APHIS Wildlife Services in the wild bird avian influenza surveillance program that was active from 2006 to 2011.

Personnel in IAV-A-approved NAHLN laboratories maintain current training and proficiency testing status for preparedness purposes and application to other avian influenza programs. The preparedness measure provides confidence and the option during a FAD investigation for duplicate sample collection, as outlined in VS Guidance 12001 (192.22 KB). If the State animal health official and VS Associate District Director agree, one set of samples collected during a FAD investigation may be sent to NVSL for confirmatory testing and a duplicate set of samples sent to the local NAHLN laboratory for a preliminary screening test to provide faster preliminary information for decision making.

Learn more about IAV-A

Influenza A Virus in Swine

The goals of the influenza A virus in swine (IAV-S) surveillance program are to:

1. Monitor the genetic evolution of endemic IAV-S to better understand endemic and emerging influenza virus ecology,
2. Make IAV-S isolates and associated epidemiologic data available for research and analysis, and

3. Select proper isolates for the development of relevant diagnostic reagents, updating diagnostic assays, and vaccine seed stock products.

The program was initiated in May 2009 with a focus on monitoring the pandemic H1N1 2009 [pH1N1 (2009)] virus in swine. As the human health threat of pH1N1 (2009) declined in 2010, IAV-S surveillance efforts were refocused on monitoring all current circulating IAV-S. Also in 2010, an anonymous submission protocol was adopted to encourage more industry participation and increase the number of samples available for monitoring IAV-S in the U.S. swine herd. IAV-S surveillance efforts are targeted toward these three swine populations:

- Case-compatible sick pig submissions to veterinary diagnostic laboratories
- Swine exhibiting influenza-like illness at first points of concentration or commingling events (i.e., markets, fairs)
- Swine populations that are epidemiologically linked to confirmed human cases involving IAV-S

NAHLN laboratories conduct IAV-S surveillance for the above-mentioned streams. The NVSL Diagnostic Virology Laboratory in Ames, IA, is the IAV-S confirmatory laboratory.

Learn more about IAV-S

Virulent Newcastle Disease

Currently, there is not an active national surveillance program for Virulent Newcastle disease (vND) in the NAHLN laboratories. However, personnel in vND-approved NAHLN laboratories maintain current training and proficiency testing status for preparedness purposes. This preparedness measure provides the option and confidence during a FAD investigation for duplicate sample collection, as outlined in VS Guidance 12001 (192.22 KB). If the State animal health official and VS Associate District Director agree, one set of samples collected during a FAD investigation can be sent to NVSL for confirmatory testing and a duplicate set of samples sent to the local NAHLN laboratory for a preliminary screening test to provide faster preliminary information for decision making.

Learn more about vND

Scrapie

USDA initiated the National Accelerated Scrapie Eradication Program in 2001 with the goal of eradicating scrapie from the U.S. sheep and goat populations. Since 2003, surveillance for the program has been conducted primarily through the Regulatory Scrapie Slaughter Surveillance (RSSS) program, which targets sheep and goat populations that have been recognized as having higher than average scrapie prevalence.

Other scrapie surveillance also targets scrapie-exposed and potentially exposed sheep and goats found through investigations of infected animals; clinical-suspect animals and other mature sheep and goats submitted to veterinary diagnostic laboratories; rabies-suspect animals that test negative for rabies; and voluntary on-farm testing of flocks with risk factors for scrapie or as part of the National Scrapie Flock Certification Program.

The NVSL Pathobiology Laboratory in Ames, IA, performs confirmatory testing on all samples identified as suspect (potential positive) by the scrapie-approved NAHLN laboratories.

Learn more about scrapie

Pseudorabies

The pseudorabies (PRV) surveillance program was initiated in 2009 as an extension of USDA's successful PRV eradication efforts. The program gathers surveillance data to support three specific objectives:

1. Rapidly detect PRV entry and infection in U.S. commercial swine
2. Demonstrate freedom from PRV in commercial herds
3. Monitor domestic sources of PRV

Targeted Populations (surveillance streams)

- Investigation and diagnosis of suspicious PRV cases

- Sick pig submissions to veterinary diagnostic laboratories
- Herds participating in routine serology and herd profiling
- Herds classified as high risk
- Herds with reported exposure to feral swine
- Cull sow-boars at slaughter
- Market swine at slaughter
- Feral swine

PRV-approved NAHLN laboratories provide the diagnostic testing for sick pig submissions, routine serology and herd profiling, high risk swine populations, swine with known feral swine exposure, and feral swine. The NVSL Diagnostic Virology Laboratory performs confirmatory testing for suspect and positive submissions for PRV.

Learn more about PRV

Vesicular Stomatitis Virus

In April 2006, VS' Deputy Administrator signed a decision memorandum that allowed for NAHLN laboratories located in States that had vesicular stomatitis virus (VSV) in 2004, 2005, or both to participate in a national testing program based on recommendations from the Vesicular Stomatitis Working Group. Personnel from the approved VSV NAHLN laboratories maintain current training and proficiency) on the Complement Fixation (CF) test for detection of VSV antibodies.

Activation of any of the VSV-approved NAHLN laboratories may occur when: (1) VSV is confirmed in the State of the NAHLN laboratory, and (2) the decision is made and communicated to activate the VSV-approved laboratory based on the need for additional capacity. This decision will be made by a group composed of the Situation Unit Leader, VS regions, NVSL representatives, State animal health official and VS Associate District Director of the specific State.

Once a VSV-approved NAHLN laboratory is activated, the laboratory is approved to test samples from **clinically ill** equine species with VSV-compatible clinical signs and located within the State of the NAHLN laboratory. Equine that are temporarily in the State of the NAHLN laboratory for purposes of a show, rodeo, sale, or other such events can be tested at the activated NAHLN laboratory. Samples from equine

located outside the State of the NAHLN laboratory should be forwarded to NVSL Ames for testing. Samples from clinically ill non-equine species (such as bovine), regardless of the State of origin, should be forwarded to NVSL-FADDL. Clinically ill equine can be tested **only** by NAHLN laboratory personnel that have been trained by NVSL DVL and passed the current proficiency panel.

Learn more about VSV

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