



## National Animal Health Laboratory Network

### Avian Influenza (AI) and Exotic Newcastle Disease (END)

#### Surveillance Efforts

The National Animal Health Laboratory Network (NAHLN) is partnering with multiple State and Federal agencies to implement a comprehensive surveillance program for the early detection of AI in U.S. poultry and wild-bird populations.

##### Wild-Bird AI Surveillance

The U.S. Departments of Agriculture (USDA) and the Interior, State wildlife-management agencies, and other organizations have cooperated in developing a surveillance plan based on early detection of highly pathogenic AI (the H5N1 strain) if introduced into the United States via migratory birds. The plan focuses primarily on wild, migratory species, including ducks, geese, and shorebirds. In 2006, this surveillance plan was implemented with the help of USDA partners, including sample-collection support from State wildlife agencies and diagnostic-screening support by NAHLN laboratories and the U.S. Department of the Interior's National Wildlife Health Center in Madison, WI. All confirmatory testing of wild-bird samples is conducted by USDA's National Veterinary Services Laboratories (NVSL). Once diagnostic analyses are completed, all participant data are centrally located at the National Biological Information Infrastructure's Wildlife Disease Information Node.

##### Domestic Poultry AI Surveillance

Specialists on the Poultry Staff at the National Centers for Animal Health Programs and in the National Surveillance Unit at the Centers for Epidemiology and Animal Health (CEAH)—both subunits of the Veterinary Services (VS) branch of USDA's Animal and Plant Health Inspection Service (APHIS)—also have partnered to develop an AI surveillance plan for commercial poultry, live-bird markets, and backyard flocks. Implementation of this plan is also a multigroup effort involving State and Federal field staff for sample collection, NAHLN laboratories performing antigen-detection assays, National Poultry Improvement Plan-certified laboratories performing antibody-detection assays, NVSL performing all confirmatory testing, and VS' regional epidemiologists and CEAH performing centralized data collection and analysis.

#### Diagnostic Testing

A critical principle of the NAHLN is that participating laboratories across the country perform standardized tests for a particular disease. This protocol ensures that test results from each laboratory can be directly compared. To achieve standardized testing, NVSL provides test protocols, training for personnel running those tests, and annual proficiency testing to all participating NAHLN laboratory personnel. The AI antigen-detection assays being performed by NAHLN laboratories are real-time, reverse-transcriptase-poly-

merase chain reaction (rRT-PCR) tests developed and validated by USDA's Agricultural Research Service (ARS) at its Southeast Poultry Research Laboratory and NVSL's Diagnostic Virology Laboratory (DVL). There are separate AI rRT-PCR screening tests for matrix antigens (detection of all type A influenza viruses), H5-specific antigens, and H7-specific antigens. NAHLN laboratories perform the matrix test first and then test any suspect or positive samples for the H5 and H7 antigens. All samples suspect or positive on the H5 or H7 tests are sent to the DVL in Ames, IA, for confirmatory testing. NAHLN laboratory personnel also are trained and proficiency-tested for an END rRT-PCR developed and validated by the same ARS and DVL facilities and at the University of California-Davis. The END rRT-PCR would be used as a screening test in the event of an outbreak, and the DVL would perform the confirmatory testing. Currently, and including the DVL, there are 54 NAHLN laboratories approved to perform AI testing and 52 approved to perform END testing.

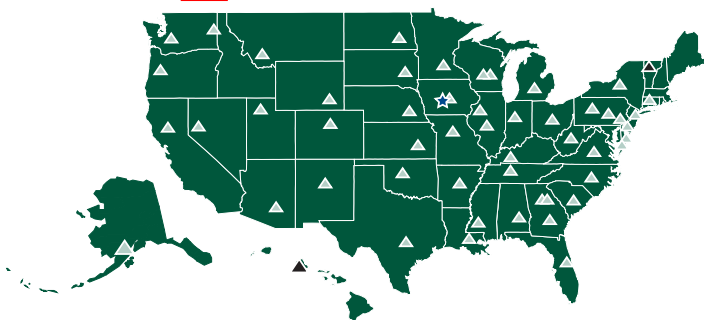
## Communication and Response Plans

Managing the threats posed by AI and END involves an appropriate response plan as well as diagnostic support. VS' Emergency Management team and APHIS-Wildlife Services' Wildlife Disease Surveillance and Emergency Response Program have worked very closely with personnel at VS' eastern and western regional offices, State animal health and wildlife officials, and other agencies to prepare comprehensive communication and response plans in the event that high-consequence AI or END virus is detected in the U.S. poultry or wild-bird populations.

## Contact Information

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- ▲ Laboratories approved for AI testing
- ▲ Laboratories approved for AI and END testing
- ★ National Veterinary Services Laboratories

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