

National Avian Health Surveillance and Monitoring Expands

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Diseases such as avian influenza (AI) have emerged as animal health issues of heightened national importance. USDA's Animal and Plant Health Inspection Service (APHIS) Veterinary Services (VS) works closely with State and commercial industry on programs to monitor and test domestic poultry and wild birds to detect the occurrence of AI. Several individual States in cooperation with industry have established comprehensive monitoring and surveillance programs that exceed minimum national standards established by the agency.

Animal disease surveillance is the systematic collection, collation, analysis, and interpretation of related events occurring in animal populations, followed by timely dissemination of results to those involved in planning, implementation, and evaluation of prevention and control measures so that action may be taken. The primary Federal role in national AI surveillance is to collect data for disease management to include early disease detection, prevention, and control, and for information dissemination.

In response to domestic and international concerns, efforts to enhance surveillance and monitoring for AI in all its forms are expanding. Establishment of a system to collect AI surveillance data at the national level fulfills one component of a comprehensive, coordinated, and integrated surveillance network. The system will enable aggregation of disparate sources of data, allow conclusions to be drawn about AI in U.S. bird populations, and permit detection of changes in epidemiological parameters. Trading partners routinely request AI surveillance data. A surveillance database system will enable APHIS to provide test data by State and summarize the number of commercial and backyard flocks tested.

The Center for Animal Disease Information and Analysis (CADIA), Application Information Management (AIM) and Technology Application and Development Analysis (TADA) teams have completed and deployed the initial data entry modules for an Avian Health Surveillance Database (AVHS) data repository. The teams worked in partnership with the National Surveillance Unit (NSU); VS poultry staff and epidemiologists at Riverdale, MD; VS regional staff; the National Poultry Improvement Plan (NPIP) staff; Wildlife Services (WS); U.S. Geological Survey (USGS); and State and Federal animal health and diagnostic laboratory officials.

National Chicken Council Summary Reporting System

The National Chicken Council (NCC) represents the U.S. broiler industry. The NCC in January 2006 announced a voluntary AI monitoring program in which each participating company will test all broiler flocks that are slaughtered. At least 11 samples are taken from each flock on every farm. Samples are taken within 14 days of sending chickens to

slaughter. To date, 37 companies are participating, accounting for approximately 98 percent of broiler production nationally.

A joint project between the NCC, NPIP, NSU, and CADIA resulted in the development of a Web-based application for surveillance data entry. The data consist of summaries of laboratory test data voluntarily submitted by NCC members. The Web application is designed to be secure and easy to use.

The NCC AI surveillance testing was developed to be consistent with the proposed NPIP H5/H7 LPAI monitoring program, which was published September 26 as an interim final rule. The NCC program was initiated in advance of its publication to promote AI surveillance in the commercial broiler industry, ensuring AI-free status of chicken meat from the United States. It is anticipated that the ongoing NCC AI surveillance testing will be incorporated under the NPIP H5/H7 LPAI active surveillance plan described in the rule.

Wildlife Services Wild Bird Surveillance Module

In 2006, WS and State cooperators will collect a minimum of 75,000 bird samples and 50,000 environmental fecal samples. Sampling will be conducted in all 50 States, Guam, and the Mariana Islands in the South Pacific. A data entry application was developed to provide a method to enter field epidemiologic data on samples taken throughout the United States, manage the submission of test data to the associated laboratories, and send appropriate surveillance data to the HPAI Early Detection Data System (HEDDS), a USGS database. Surveillance data includes sampling of birds in addition to environmental sampling.

The interface and data structure will support collecting, viewing, editing, and securing the documentation of AI sample collection by wildlife biologists and other government officials. It will facilitate timely data submission to laboratories, as well as reporting and analysis by USGS biologists. Laboratory results will be reported electronically and the integration of submission information and lab results occurs such that a test record is created for each specimen tested.

In partnership with VS, a field collection Web interface and data structure was developed for WS and State wildlife agency biologists with the goal of reducing the number of data collection problems experienced by field personnel and to generally improve the quality and efficiency of sample data collection. The system provides user-friendly entry of the sample data collected throughout the United States in the surveillance of wild birds for AI, manages the submission of sample data to the associated laboratories, and sends appropriate test results and sample data to the USGS database. This module was deployed August 1, followed by training for WS users. The laboratory functions, including methods for pooling samples and referring samples to an alternative laboratory, was completed September 15 and is currently finishing a final test cycle. The final piece is a link to the USGS database, where the sample data will be stored for public viewing.

Live Bird Marketing System

Currently, 31 States voluntarily participate in the Federal-State-Industry H5/H7 Low Pathogenicity AI (LPAI) Live Bird Marketing System (LBMS) cooperative prevention and control program. Through Federal-State cooperative agreements, this program conducts AI surveillance in the LBMS industry sectors within the State. Functional surveillance requirements for database development are being identified for States enrolled in the program, initially focusing on the tri-State area of New York, New Jersey and Pennsylvania with the LBMS retail markets as a sampling location. Functional requirements for surveillance at various distributor sites and producer/supplier sites also will be evaluated. Currently, a standardized reporting spreadsheet developed by the LBMS program participants is being used to collect and report surveillance data to APHIS program coordinators, APHIS regional offices, and the NSU.

Relevant IT infrastructure developed through the California Pilot Project¹, implemented during the 2002-2003 exotic Newcastle disease outbreak, was used where possible. Data value and interface changes have been made to give the collection and storage devices a national look, feel and standard and adjust to distinctions made for the LBMS. Our immediate concern is to enhance the system to provide electronic field forms for lab submissions to meet the requirements for the LBM sampling as identified by New York, New Jersey and Pennsylvania. These three States have partnered in the initial design, development, and implementation of the LBM lab submission information management system.

The LBMS project was presented to the Live Bird Market Working Group Conference in September. Further deployment of the LBM lab submission information management system will be accomplished in joint partnership with the National and Regional Poultry Staffs, State and Federal animal health officials and the National Animal Health Laboratory Network labs. Deployment consists of initial discussions of requirements and needs for premises and contact data transfer, hardware, and training. The New England States (Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island and Vermont), Florida, Texas and California are next in line for deployment of the LBM lab submission information management system. The balance of States, including Delaware, Georgia, Illinois, Indiana, Kentucky, Maryland, Minnesota, Montana, North Carolina, Ohio, South Carolina and Virginia, will be scheduled in the first part of 2007 with the additional States added to the LBM working group to follow with deployment, also in 2007.

Next Steps

Some States are designing sentinel surveillance programs using backyard flocks as an early warning system. AVHS surveillance modules can be modified to facilitate the collection of field epidemiologic data and could be made available to States for sentinel surveillance upon request.

¹ The California Pilot Project, NAHSS Outlook, October 2005, http://nsu.aphis.usda.gov/outlook/issue8/ca_pilot_project.pdf

A Web site that will present summary surveillance data collected from various surveillance programs, including avian health surveillance, is currently being planned by the NSU and is expected to be launched in the near future.