



## CHAPTER 5

# Emergency Management and Response

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Foreign animal disease (FAD) outbreaks involving pathogens that harm livestock and crops can have a profound impact on the Nation's infrastructure, economy, and export markets. Veterinary Services (VS) is charged with preventing FADs in the United States, rapidly detecting FADs should they occur (see chapter 2), and responding effectively to control or eradicate them.

### Prevention Methods

VS has the authority and responsibility to prevent and exclude FADs by prohibiting imports of animals, animal products, veterinary biologics, and other materials that pose a risk of introducing diseases. VS bases its FAD exclusion activities on the results of risk assessments that examine the disease status of the exporting country, information about the country's surveillance systems and other infrastructure, and documentation from site visits (see chapter 6). U.S. import requirements and provisions of the Bioterrorism Act are enforced at ports-of-entry by agriculture specialists from U.S. Customs and Border Protection (CBP). Every day, these specialists screen thousands of passengers, all types of cargo, and international mail at more than 140 ports-of-entry. At some ports, detector dogs search for hidden items. At other ports, officials use low-energy x rays that detect the presence of organic materials such as fruits and meats. As a component of CBP, agriculture is also an integral part of various automated targeting systems used to identify and

track the contents of containers before they reach U.S. shores. Personnel from the U.S. Department of Agriculture (USDA), the Food and Drug Administration (FDA), and CBP work together at the National Targeting Center to analyze information based on scientific risk-assessment and pathway analysis and identify shipments for further inspection. In addition, VS veterinarians conduct point-of-entry inspections and require quarantines of live animals and birds offered for import.

Constant monitoring of international FAD events and conditions that might lead to disease emergence is vital in preventing disease incursions. This global animal health information is collected from many sources, including the following:

- International organizations such as the World Organization for Animal Health (OIE) and the Food and Agriculture Organization of the United Nations;
- Overseas U.S. Government personnel such as those from APHIS, the Foreign Agricultural Service, and the Food Safety and Inspection Service;
- Ongoing monitoring of news reports; and
- Other U.S. Government agencies such as the Armed Forces Medical Intelligence Center, which gathers information on the status of both human and animal diseases throughout the world.

APHIS' International Services (IS) unit is implementing the International Safeguarding Information Program, which is designed to place IS personnel in jobs at many new duty stations around the world, to gather specific pest and disease information.

VS personnel scan open-source electronic information for FAD information and then assess, analyze, and process risk events for agency decisionmakers. VS also prepares impact worksheets for new occurrences of disease in foreign countries and examines an affected country's production and trade in potentially infective products, the potential for U.S. exposure, and trade implications.

## FAD Emergency Response

The U.S. emergency response to FAD events involves a partnership between various Federal, State, tribal, local, and private-sector cooperators. Written response plans and guidelines address all areas of an emergency response such as the initial field investigation; local disease control and eradication activities; emergency management, including line of command, planning, logistics, and resources; and interagency coordination. An effective emergency response requires extensive preparation and coordination. Emergency preparedness includes activities such as monitoring response plans, workforce training, and test exercises.

### Overview

Most disease incidents begin with a suspicious event or unusual situation. In the animal health arena, the first lines of defense and detection are the individuals who work directly with livestock on a routine basis such as brand inspectors, market workers, owners, producers, private veterinarians, and accredited veterinarians. Findings suggestive of FADs are reported to the Federal Area Veterinarian-in-Charge (AVIC) or the State Veterinarian, who initiate investigations.

The State and Federal counterparts work cooperatively using standard procedures for investigating suspect and confirmed FADs. The Federal AVIC or State Veterinarian in that State will immediately assign the most readily available FAD diagnostician to conduct a complete investigation. Trained at the USDA research center at Plum Island, NY, these diagnosticians are skilled in recognizing clinical signs of FADs and in collecting appropriate samples to send to the National Veterinary Services Laboratories in Ames, IA, the Foreign Animal Disease Diagnostic Laboratory, or both.

If the field diagnosis indicates that the incident is highly likely to be an FAD, initial response activities include State quarantining of the premises, interviewing the producer, instituting biosecurity measures, assessing the most probable source of infection, and determining the possible spread of disease through contact, movement, and inventory records. The initial response will be activated using the local, State, and Federal agricultural authorities of the affected States. The Secretary of Agriculture has broad authority and discretion for responding to and eliminating animal disease. When needed, USDA authorities will be used to augment those of the States and to provide a portion of the funding for the response.

National policy for FAD eradication is coordinated using the National Animal Health Emergency Management System (NAHEMS) guidelines. These guidelines are designed for use at any of three levels of response commensurate with the severity of the outbreak, including a local or limited response, a regional response, and a national response. VS evaluates the disease situation in the United States and works to implement controls or "regionalize" any remaining affected areas. In this way, disease eradication resources are focused in key areas, and animals in other parts of the country can be classified disease free, making them eligible for interstate movement, slaughter, and export. VS also works with agricultural officials in other countries and with OIE to relay critical disease-monitoring information and to keep export markets open for animals or regions certified disease free.

### NAHEMS Topics

Topics covered in the guidelines include the following:

- Field investigations of animal health emergencies,
- Implementation of an animal emergency response using the Incident Command System,
- Disease control and eradication strategies and policies,
- Operational procedures for disease control and eradication,
- Site-specific emergency management strategies for various types of facilities,
- Administrative and resource management, and
- Educational resources.

After the disease has been eradicated from the country, APHIS officials meet with Federal, State, tribal, and local cooperators to assess FAD response activities. Such assessments aid in the development of new strategies for sharing resources and improving response efforts.



## The Changing World of Emergency Management

### Structure of Emergency Management System

APHIS created the Emergency Management System (EMS) in response to concern from animal industry groups and State animal health officials about the Nation's ability to prepare for, and respond to, emergency animal disease situations.

The EMS focuses on preventing the introduction of animal diseases of foreign origin by responding to outbreaks quickly and efficiently at the Federal, State, and local levels; developing and implementing mitigation strategies to minimize the impact of negative animal health events on the Nation's food supply or its livestock and poultry industries; developing procedures to handle negative animal health events in an environmentally safe way; identifying resources locally, regionally, and nationally capable of mounting these responses; developing streamlined avenues for animal producers to obtain assistance during the recovery phase of an emergency; and educating and training veterinarians, producers, and the general public about the threats regarding FADs.

The Emergency Management and Diagnostics (EMD) division within VS develops strategies and policies for effective incident management and coordinates incident responses. As a liaison with outside emergency management groups, EMD ensures that VS emergency management policies, strategies, and responses are current with national and international standards.

This structure helps deliver services better tailored to Homeland Security Presidential Directives 5, 7, 8, and 9; the National Response Plan; USDA regulations; and VS mandates. To these ends, EMD has three functional divisions: Interagency Coordination Staff (ICS), Preparedness and Incident Coordination (PIC), and the National Veterinary Stockpile (NVS) staff.

The ICS is responsible for creating partnerships with Federal, State, and local entities to strengthen early disease detection and rapid response at all levels. The ICS takes the lead role for the implementation of the National Incident Management System. The group has staff liaisons working directly with Department of Homeland Security, U.S. Department of Health and Human Services, Centers for Disease Control, and the Department of Defense to ensure that subject matter expertise is available within these agencies for all necessary planning and communications activities.

The PIC staff develops agency response plans for the most dangerous animal diseases that pose a risk to U.S. agriculture. The group works closely with industry and stakeholders to identify the highest risk diseases, resource availability, and best strategies in disease mitigation.

The NVS is tasked with providing the best possible protection against an intentional or unintentional FAD introduction or the occurrence of a natural disaster affecting animal agriculture and the food system. The NVS staff is tasked with establishing methodology needed to address the most important FADs and has begun to stockpile identified supplies, vaccines, and materials needed for a response to these FADs. The NVS is discussed in more detail later in this chapter.

### **Emergency Management Activities and Accomplishments in 2005**

ICS efforts in 2005 include establishing a uniform operational policy and guidelines for animal health emergency management and in particular the role of the Area Emergency Coordinator (AEC) program. This ensures that AEC functions and activities reinforce a uniform approach to animal health emergency planning and response.

APHIS AECs work as outreach and liaison officers with States, tribes, local governments, and industry to enhance their emergency response systems and preparedness for responding to disease incursions or acts of bioterrorism and to respond effectively and efficiently to all hazardous animal-health incidents. APHIS currently has 17 AECs in place.

EMD took the lead in the creation and management of the APHIS National Avian Influenza (AI) Response Team. EMD reviewed AI-related documents for the Secretary of Agriculture during his Farm Bill Forum visits to Alaska, Georgia, North Carolina, and Washington and material for the Under Secretary's AI briefing book. In November 2005, EMD staff also participated in a USDA workshop on highly pathogenic AI (HPAI) to determine gaps in USDA policies, plans, and technological capabilities related to that disease. EMD identified personnel for training to qualify for performing diagnostic capability assessments as requested by countries preparing for, or responding to, AI outbreaks.

Other notable accomplishments by EMS include the following:

- Working with Plant Protection and Quarantine in advancing the Offshore Pest Information System, which expanded in 2005 to include animal health;

- Helping establish credential standards for veterinary responders to animal emergencies;
- Helping coordinate agricultural and veterinary assistance and restoration of areas affected during the hurricane season;
- Assembling training options from States, universities, and Federal agencies to continue to improve National Animal Health Emergency Response Corps capabilities;
- Leading the initial APHIS headquarters response to an outbreak of rabbit hemorrhagic disease in Indiana;
- Developing a strategic plan for increasing awareness of public practice careers;
- Implementing an online Exotic and Emerging Animal Disease course available to all 28 veterinary schools; and
- Participating in an interagency working group on agroterrorism training.

## **NVS**

### **Background**

In February 2004, the President issued the Homeland Security Presidential Directive-9 (HSPD-9), which led to the establishment of the NVS. The NVS is to contain animal vaccines, antivirals, therapeutic products, and other supplies to respond to an intentional or unintentional introduction of FADs and biological threat agents that would affect agriculture, the Nation's food system, human health, and the Nation's economy.

Stockpiling vaccines, reagents, personal protective equipment, and other supplies and materials represents a change in USDA's approach to managing animal and plant disease outbreaks by providing rapidly available supplies of vaccines, therapeutics, and countermeasures for use against naturally occurring animal disease outbreaks or agroterrorism. The NVS is designed to address current shortfalls in the U.S. supplies by acquiring, configuring, and maintaining critical veterinary equipment and supplies to ensure that systematic measures are in place to eradicate multiple introductions of the most damaging livestock and poultry diseases and to deploy veterinary resources and essential logistics within 24 hours of an adverse agricultural event.

The United States currently stockpiles vaccines against foot-and-mouth disease (FMD) and AI. The North American FMD Vaccine Bank is managed through an agreement between USDA and its Mexican and Canadian counterparts, and the AI Vaccine Bank is part of USDA's low-pathogenicity AI (LPAL) national program. In addition,

with sufficient long-term funding, the NVS will contain a repository of ready-to-use veterinary supplies for at least eight other priority FADs.

Functional requirements address the following:

- The threat diseases or agents (including vectors) for which the NVS Program must stockpile, maintain, and deliver countermeasures;
- The comparative priority of each threat disease and causative agents;
- Animal industries potentially affected by each agent and geographic centers or distributions of those industries;
- The number of animals at risk with each agent and animal densities typical for each type of industry as needed to determine the size and characteristics of animal populations the NVS Program must protect;
- The response time required to counter emergency outbreaks and expected durations of response measures; and
- Policy, economic, research, surveillance, and epidemiology needs and the respective priorities of these and other needs related to the functional capabilities of the NVS.

The NVS Steering Committee advises APHIS' Deputy Administrator for VS on any animal vaccine, antiviral, therapeutic product, or other supplies (personal protective equipment, disinfectants, syringes, and pesticides) needed to respond quickly and appropriately to the most damaging animal diseases affecting human health and the economy. The steering committee organizes and integrates advisory panels (working groups) to make recommendations to the Deputy Administrator. The steering committee also develops national strategies for NVS functional requirements, policies, and investment strategies needed to meet NVS responsibilities.

### **NVS Achievements in 2005**

The NVS Steering Committee identified eight FADs that pose a significant threat to American animal agriculture, and this action in turn provides guidance in identifying supplies to be stockpiled.

An FMD outbreak training exercise was held in 2005 with Rapid Response Teams, incident management actions, and interagency coordination at an Incident Command. Management and actions related to movement and quarantine, appraisal, vaccination, euthanasia, and disposal were employed and evaluated.



A draft business plan for the NVS was presented to the NVS Steering Committee in October 2005. The plan was designed to provide a common understanding of the mission, capabilities, and concept of operations for the NVS.

The NVS Steering Committee identified an additional antigen for the North American FMD Vaccine Bank.

## NAHLN

The NAHLN is part of a national strategy to coordinate the capabilities of Federal, State, and university laboratories. By combining Federal laboratory capacity with the facilities, professional expertise, and support of State and university laboratories, the NAHLN will enhance the response to animal health emergencies, including bioterrorist events, emerging diseases, and FADs.

The NAHLN is a cooperative effort between the American Association of Veterinary Laboratory Diagnosticians (AAVLD), APHIS, and the Cooperative State Research, Education, and Extension Service (CSREES). The NAHLN is directed by a steering committee made up of representatives from these three organizations and the National Assembly of Chief Livestock Health Officials.

Key elements of the NAHLN include the following:

- Standardized, rapid diagnostic techniques that can be used at the State, regional, and national levels;
- Secure communications, alert, and reporting systems;
- Modern equipment and experienced personnel trained in the detection of emergent and foreign diseases, including outbreaks initiated by bioterrorists;
- National training, proficiency testing, and quality assurance programs;
- Upgraded facilities to meet biocontainment and physical security requirements; and
- Support of regional and national animal health emergency training exercises that test and evaluate the communication and reporting protocols of the network.

In 2002, 12 State and university diagnostic laboratories were selected to enter into cooperative agreements funded by the DHS. These agreements formally initiated the network and focused on rapid assays for eight FADs: African swine fever, AI, classical swine fever (CSF), contagious bovine pleuropneumonia, exotic Newcastle disease (END), FMD, lumpy skin disease, and rinderpest.

The NAHLN has evolved into a multifaceted laboratory network. Each facet focuses on a different disease but uses a common platform for testing. Since 2002, State and university laboratories have been added to the NAHLN to assist with chronic wasting disease, scrapie, and END testing. By the end of 2005, the NAHLN encompassed 49 State and university laboratories in 41 States (fig. 31).

APHIS has provided support and various services to NAHLN State and university laboratories, including lab equipment, training in diagnostic techniques, proficiency tests, reference reagents, electronic communication-reporting tools, and fee-for-service testing. CSREES has proposed continued and increased merit-based infrastructure funding for the network. State and university laboratories have enhanced laboratory biosecurity and physical security, collaborated in the design of reporting and emergency tools, and, with facilitation from the AAVLD, improved laboratory quality assurance.

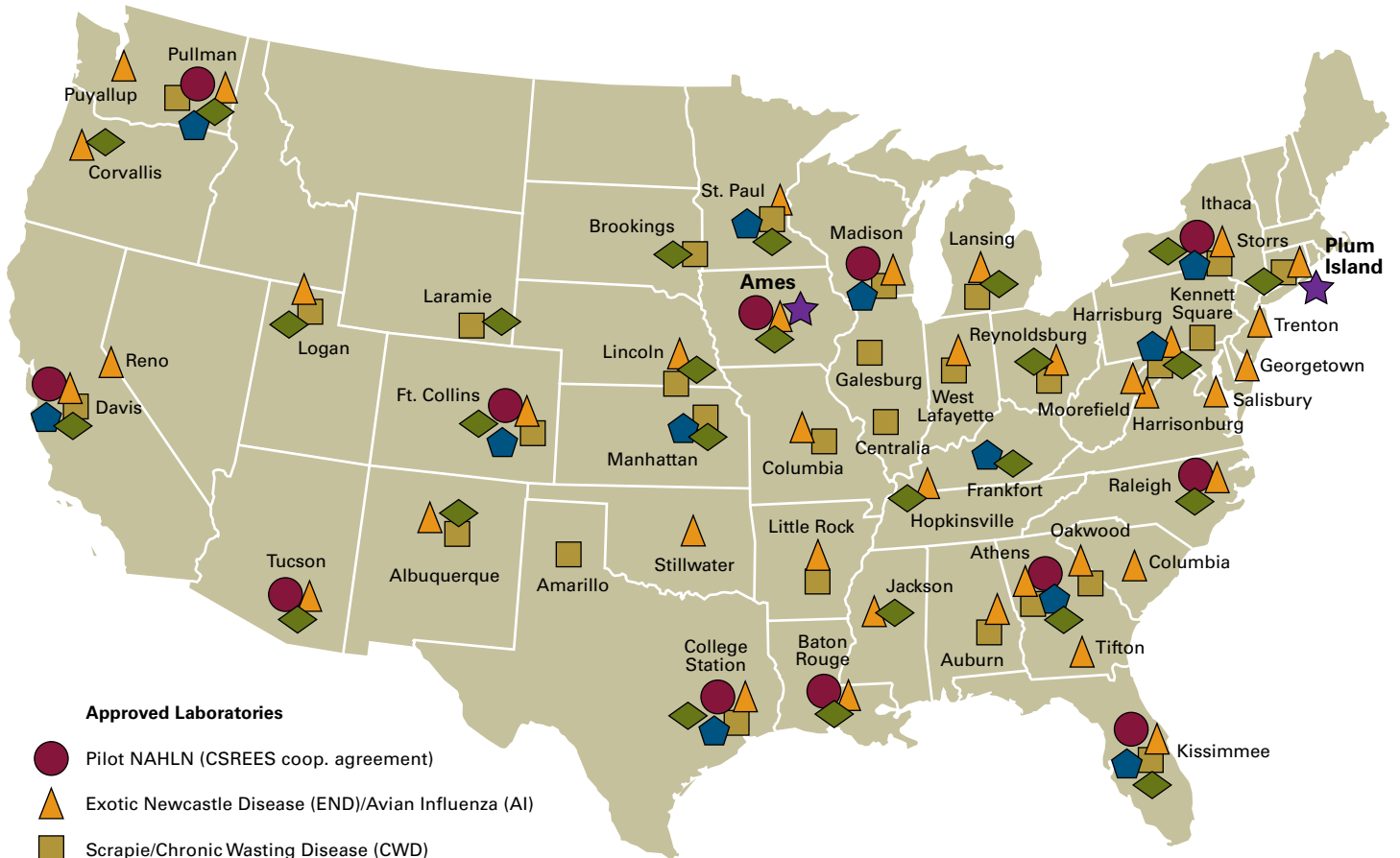
### NAHLN Achievements in 2005

A “Train the Trainer” program has been developed and implemented to train NAHLN personnel to conduct, and then provide training for, the FMD and CSF rapid assays. In April and May 2005, classes were provided at four NAHLN laboratories (Davis, CA; Athens, GA; College Station, TX; and Madison, WI). Twenty-eight participants completed the course and were proficiency tested in June 2005 to assess their ability to perform the real-time PCRs for CSF and FMD. Those passing the proficiency test have provided training to others in their laboratories. This program has increased the number of laboratories trained to conduct the CSF and FMD assays from 14 to 29 and has increased the number of certified individuals from 24 to over 100.

APHIS and its NAHLN partners can now test up to 10,000 samples per week for bovine spongiform encephalopathy; 4,800 samples per week for chronic wasting disease; and 4,800 samples per week for scrapie. AI and END surveillance programs using the NAHLN have been developed and implemented in 39 laboratories with the capacity to test 18,000 samples each day.

FIGURE 31: **NAHLN network.**

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**Approved Laboratories**

- Pilot NAHLN (CSREES coop. agreement)
- ▲ Exotic Newcastle Disease (END)/Avian Influenza (AI)
- Scrapie/Chronic Wasting Disease (CWD)
- ⬠ \*Bovine Spongiform Encephalopathy (BSE)
- ◆ \*Classical Swine Fever (CSF)/\*Foot and Mouth Disease (FMD)
- ★ National Veterinary Services Laboratories

\*For specified agents, not all laboratories are currently participating in surveillance testing.