Chapter 2 – Prevention and Preparedness

National Veterinary Accreditation Program

More than 10 years ago, APHIS began planning changes to strengthen the National Veterinary Accreditation Program. A final rule has been written to allow APHIS to implement significant improvements and changes to the program. Our new veterinary accreditation program uses Web-based initial accreditation training for program applicants, and two new categories of accreditation based on the species of animals for which veterinarians perform accredited duties. Category I animals are species other than: animals raised for food and fiber, horses, farm-raised fish, poultry, all other livestock, birds, and zoo animals that could transmit exotic animal diseases to livestock. Category II includes all animals. APHIS now requires supplemental regulatory training and renewal of veterinarians' accreditation every 3 years. Category I veterinarians will be required to complete three units of APHIS-approved supplemental training every 3 years; Category II veterinarians will complete six units every 3 years.

The program also includes provisions for program certifications, through which accredited veterinarians may receive additional training to perform specific functions, such as writing Johne's disease health certifications. These changes strengthen the important role of accredited veterinarians and provide them with enhanced tools to meet the challenges in U.S. disease prevention, preparedness, and response.

Emergency Planning and Preparedness

As leaders in animal health emergency (AHE) management, APHIS VS National Center for Animal Health Emergency Management (NCAHEM) develops strategies and policies for effective incident management and helps to coordinate incident responses. As a liaison to outside emergency management groups, NCAHEM ensures that emergency management policies, strategies, and responses are current with national and international standards.

In the event of an AHE, the NCAHEM role is to:

- Provide national guidance on disease surveillance and eradication strategy
- Augment State and local resources with critical veterinary supplies, equipment, and services
- Provide safety emphasis and leadership
- Support the acquisition of resources
- Resolve administrative, financial, legal, legislative, and disease control issues
- Coordinate and disseminate information

In responding to a domestic incident of a foreign animal disease (FAD), such as highly pathogenic avian influenza (HPAI) or foot-and-mouth disease (FMD), an understanding of the roles and responsibilities of each Federal department or agency helps to promote an effective and coordinated emergency response.

The National Response Framework (NRF) is the primary mechanism for coordination of the U.S. Government's response to terrorist attacks, major disasters, and other emergencies. Federal response to the detection of a FAD such as HPAI and FMD will be based on the response structure of the National Incident Management System (NIMS) as outlined in the NRF.

During the course of a FAD outbreak, the U.S. Department of Agriculture may request Federal-to-Federal support (FFS) from other Federal agencies. FFS refers to the circumstance in which a Federal department or agency requests Federal resources under the NRF that are not addressed by the Stafford Act or other mechanisms. This support is coordinated by the Department of Homeland Security (DHS) using the multiagency coordination structures established in the NRF and in accordance with the NIMS.

If a FAD outbreak becomes overwhelming or catastrophic, the U.S. President may declare a Federal disaster, or the Secretary of Agriculture may request that the Secretary of Homeland Security and DHS assume lead coordination for the Federal response.

Animal Health Emergency Response Corps

VS uses many sources to obtain the veterinary personnel needed to help meet the critical staffing needs of an AHE. One such source is the National Animal Health Emergency Response Corps (NAHERC). APHIS established the NAHERC in 2001 to respond to exotic disease outbreaks and other disasters that affect livestock, poultry, companion animals, and wildlife.

As of December 2010, 1,211 applicants have qualified for the NAHERC program. These include 504 veterinary medical officers and 707 animal health technicians who can be granted temporary Federal personnel status and dispatched to assist with an emergency response. The Corps has doubled in size since mid-2008.

The NAHERC program developed a NAHEMS Guideline for NAHERC Deployment and other materials to facilitate the recruitment and deployment of NAHERC members in the event of an animal health emergency.

2010 Animal Health Emergency Management Highlights

Contagious Equine Metritis

The contagious equine metritis (CEM) investigation that began in 2008 was completed in 2010. CEM is a highly contagious venereal disease of horses caused by the bacterium *Taylorella equigenitalis*. During testing for semen export purposes, a Quarter Horse stallion was found to be culture positive for *T. equigenitalis* in December 2008. This finding triggered an extensive regulatory response and investigation to search for additional positive horses, determine the extent of the outbreak, identify the potential source of the outbreak, and ultimately return the United States to CEM-free status.

During the investigation, more than 1,000 exposed horses were traced to locations in 48 States. Diagnostic testing found a total of 28 horses, including 22 stallions, 1 gelding, and 5 mares to be culture positive for *T. equigenitalis*. Epidemiologic and diagnostic analyses indicated that all of the positive horses were linked to a single common source; most likely a Fjord stallion imported into the United States in 2000. The *T. equigenitalis* strain from the imported stallion subsequently spread to other stallions by undetermined indirect mechanisms at shared breeding facilities and to mares by artificial insemination and live breeding. Based on the results of the outbreak investigation and additional testing performed on stallions around the country, the APHIS determined that the United States is free of CEM.

Preparedness and Response Update

The significant threat and potential consequences of FADs and the challenges and lessons learned from FAD outbreaks have led to the development of the Foreign Animal Disease Preparedness and Response Plan, also known as “FAD PReP.” The FAD PReP is a public-private-academic partnership to raise awareness, define expectations, and improve capabilities for FAD preparedness and response.

FAD PReP is not a stand-alone FAD plan. Instead, it is a comprehensive U.S. preparedness and response strategy for FAD threats. Strategies are provided and explained in a series of different types of integrated documents, as illustrated and described below.

Significant FAD PReP products developed in 2010 were new National Animal Health Emergency Management System Guidelines, a new Highly Pathogenic Avian Influenza Response Plan Redbook, a new Foot and Mouth Disease Response Plan Redbook and the Secure Egg Supply Plan.

Note: SOP = standard operating procedures.

National Veterinary Stockpile

The National Veterinary Stockpile (NVS) was established as part of Homeland Security Presidential Directive–9 (HSPD–9). Issued in February 2004, HSPD–9 establishes a national policy to defend U.S. agriculture and food systems against terrorist attacks, natural disasters, and other emergencies. The NVS mission is to deliver critical veterinary supplies to any location nationwide within 24 hours.

2010 National Veterinary Stockpile Highlights

In 2010, NVS:

- Procured large-animal handling depopulation equipment and placed it in strategic locations around the country for rapid deployment
- Procured supplies and equipment to build a Push Pack Training set
- Positioned countermeasures in multiple locations to reduce delivery times and prevent weather, sabotage, or other events from delaying our deployment
- Developed Vaccine Ancillary Supplies Push Pack Module's
- Completed cold storage build-out at one of our distribution centers for use as an intermediate depot for vaccine storage
- Conducted Navajo NVS Logistics Training Workshop in Window Rock, AZ in preparation for full scale exercise.
- Continued to qualify commercial partners who can provide large numbers of trained personnel with equipment to assist States that lack personnel to depopulate, dispose, and decontaminate.

National Response Preparedness

The NCAHEM establishes and nurtures relationships with other Federal government agencies as well as international and national stakeholders as part of the APHIS VS animal health emergency preparedness strategy.

NCAHEM preparedness and partnering activities include:

- Participating on interagency and international working groups and assignments to identify resources and clarify roles in an animal health emergency
- Developing methods to obtain and analyze surveillance information within USDA and APHIS
- Leading implementation of the USDA/Department of Homeland Security foreign animal disease modeling analysis center and contributing funding to additional modeling efforts through cooperative agreements
- Coordinating the development and deployment of emergency disposal and decontamination tools through international, Federal, State, industry and academic working groups and partnerships

Interagency Partners

Formalizing agreements and defining roles and responsibilities in advance of a catastrophic animal health emergency or an intentional introduction of a foreign animal disease is paramount for an effective, coordinated government-wide response. NCAHEM works with interagency partners to accomplish these activities within USDA, the Department of Health and Human Services, the Department of Justice (DOJ), and DHS.

In June 2010, NCAHEM lead a table top exercise with the DOJ's Federal Bureau of Investigation to examine the interaction and coordination of a response during a FMD outbreak in livestock. Exercise participants included other program areas within APHIS as well as USDA Office of the Inspector General (OIG) and USDA Office of Homeland Security and Emergency Coordination (OHSEC). The exercise resulted in the drafting of a Standard Operation Procedure (SOP) that is being formalized in a Departmental level memorandum of understanding (MOU). The OHSEC will finalize the MOU.

NCAHEM also continues to work with our DHS Office of Health Affairs (OHA) and Federal Emergency Management Agency (FEMA) interagency partners to prepare for a catastrophic agricultural emergency. Together, NCAHEM and OHA developed a tiered approach to incident management. As the tiers progress from tier 3 through tier 1, the incident complexity increases as does OHA's involvement. APHIS and OHA have also defined high-level roles and responsibilities for each agency. A table top exercise to test Federal-to-Federal support through FEMA for agricultural emergency response and to refine the response process is planned for 2011.

Other partnerships include assigning a Veterinary Medical Officer to the Centers for Disease Control and Prevention and assigning a VMO to the National Center for Medical Intelligence (NCMI). The partnership with the NCMI provides APHIS access to classified and open-source information on a variety of foreign health issues, particularly agricultural and zoonotic threats to the United States. The partnership also provides APHIS foreign situational awareness and analytic products on agricultural topics that give context to a wide range of Federal customers. Participation in the Interagency Agricultural Intelligence working group also enables an outlet to discuss domestic and foreign issues that affect the food and agriculture sector.

Working Group on Emergency Management - Animal Health Quadrilateral Meeting

The Animal Health Quadrilateral (QUADS) Emergency Management Working Group (EMWG) was established in 2000 to consider common emergency response operational issues, facilitate technical exchange and training opportunities, and other related matters. Through this collaboration, the member countries (Australia, Canada, New Zealand, and the United States) are able to share pertinent information, data, and guidelines to support improved animal emergency response in each country.

The EMWG coordinates the activities of four emergency response and preparedness subgroups: the depopulation, disposal, decontamination (3D) technical working group, the training technical working group (inactive in 2010), the zoning and compartmentalization working group, and the EpiTeam.

The projects undertaken throughout the year by the EMWG include the following:

- **EMWG**
  - The multiyear FMD response policies comparison project was initiated at the end of 2009. The project goals are to facilitate information sharing on approaches to key aspects of FMD preparedness and response and to identify points of difference. This project will also assist each member country in the review and update of their respective contingency plans. The policies for each country, in relation to nine main issues such as movement controls and zones, were entered into a matrix to facilitate comparison. The matrix is currently being validated, updated, and commented on by all four countries.
  - An International FMD Vaccine Strategic Reserves Network was established to enhance information sharing and to promote bilateral agreements for collaboration.

- **Compartmentalization Working Group**
  - The QUAD's Compartmentalization Working Group developed and streamlined a template questionnaire based on current World Organization of Animal Health (OIE) standards to use as a tool to evaluate the practicalities of implementing compartmentalization. The final report will be submitted at the 2011 QUADS meeting.

- **EpiTeam**
  - Phase 3 of a multiyear FMD model comparison project involving Australia (AusSpread), New Zealand (InterSpread Plus), and USA/Canada (NAADSM) was completed. The studies involved using realistic outbreak scenarios with actual farm and livestock movement data from Ireland. The final report will be submitted at the 2011 QUADS meeting.

  - The EpiTeam initiated a modeling course framework project to develop course materials to promote good practice in the application of modeling in animal health policy. The materials also enhance the understanding and linkages between all the key players in this field. A course outline was developed and work continues on development of course materials.

Modeling

Due to the complexities of mathematical modeling, there is a great need for collaboration and understanding between individuals and agencies involved in the development and use of models in animal health policy. Participants should come from across the policy, technical, and advisory modeling communities to ensure efficient development of animal health modeling.

A key theme to be stressed is the importance of "good practices" which include clear communication and collaboration between all entities to ensure accuracy and transparency in model development, interpretation, and application.

2010 Modeling Highlights

- Entered 2009 paper Certificates of Veterinary Inspection for cattle to be used to develop a data-driven network model for cattle movement in the United States
- Developed the Brucellosis Management Area Model; a stochastic simulation model used to evaluate the risk of *Brucella abortus* to cattle in proposed control zones
- Developed and applied simulation models of HPAI and FMD disease spread within and between infected but undetected herds and flocks to inform emergency management and business continuity by proactive risk assessments

- Initiated the development of the second version of the Farm Location and Population Simulator to generate livestock and poultry animal populations and locations to support disease spread and other modeling efforts
- Through the use of simulation modeling, the potential consequences of FMD being introduced into Kansas and Wisconsin were assessed and the possible effects of several control measures (e.g., vaccination) were compared. These simulations were made possible, in part, based on data collected by National Animal Health Monitoring System (NAHMS) surveys

Developed detailed and informed input parameters to simulate the spread and control of HPAI in South Carolina. This scenario can be used to evaluate various control strategies, as a tool for emergency preparedness and response planning, for cost analysis, or to compare model outputs using actual versus simulated population data.

Depopulation, Disposal, and Decontamination Collaboration

In 2010, NCAHEM continues to lead the way in depopulation, disposal, and decontamination (3D) research, planning, and outreach to inform stakeholders on 3D practices that take into account possible negative environmental effects.

International Working Group – As a member of the QUADS countries (Australia, Canada, New Zealand, and the United States) 3D Technical Working Group, APHIS participated in developing a database of recent, ongoing, and planned 3D research in each participating country. This effort was undertaken to help identify research gaps that can be prioritized and addressed collaboratively by member countries. The gap analysis and report (with recommendations) was submitted to the QUADS Emergency Management Working Group in December 2009 for review and approval before distribution. However, since that time, funding for projects to fill capability gaps was severely reduced. Consequently, no new collaborative projects were initiated among the QUADS countries. Existing information and research data continues to be freely shared.

National Security Working Group – APHIS serves as co-chair of the Decontamination and Disposal Working Group of the Foreign Animal Disease Threats Subcommittee (National Science and Technology Council). The subcommittee identifies, prioritizes, and coordinates research related to animal disease decontamination and disposal in collaboration with other Federal agencies. Due to the relationship between depopulation and disposal, the group is being expanded to include depopulation. Research projects related to disinfectant efficacy, swine mass depopulation, and fugitive emissions from disposal processes were initiated in 2009. In 2010, DHS funded a new project related to developing a system for safely moving dead stock out of movement control zones for disposal purposes.

Online Emergency Management Tools – The APHIS Carcass Disposal Working Group (composed of subject matter experts from VS and other APHIS units) developed an Emergency Management Tools Web site that provides a carcass disposal decision tree and several online training modules. Detailed information is available on composting, onsite burial and treatment, secure transport, offsite burial and treatment, and cleaning and disinfection. The database function, which identifies disposal sites in the United States, was expanded to include rendering plants. The Web address is http://www.aphis.usda.gov/emergency_response/tools/aphis_disposal_tree.shtml.