

REPORT OF THE COMMITTEE ON FOREIGN AND EMERGING DISEASES

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The Committee met on November 8, 2005, from 8:00 a.m. to 5:30 p.m. Attendance varied through the day, from 100 to 175 attendees. Drs. Corrie Brown and Alfonso Torres presided and conducted the meeting.

The mission statement for the Committee was reviewed as well as the protocol for membership on the committee. Responses to 2004 Resolutions were reviewed. The next edition of the Foreign Animal Diseases book was discussed; planned publication date is late 2006.

Dr. Bev Schmitt, United States Department of Agriculture (USDA), Animal Plant Health Inspection Service (APHIS), Veterinary Services (VS), National Veterinary Services Laboratory (NVSL), described the program for surveillance and education on exotic Newcastle disease.

Educational outreach and collection of samples in high-risk areas were implemented in eight target states, beginning in 2004. Several laboratories were added to the National Animal Health Laboratory Network (NAHLN) for new castle disease/avian influenza testing.

Drs. Dave Pyburn and John Korslund reported that during 2005, monies for classical swine fever (CSF) surveillance were identified and a plan developed. A program will be implemented in 2006 and will focus on high-risk states and Puerto Rico. There will be sampling from 34 slaughter plants and surveillance around "Yola" landings in Puerto Rico. Testing will be done in NAHLN laboratories.

Drs. T.J. Myers, A. Rhorer, F. Hegngi and P. Klein, described surveillance for low-pathogenic avian influenza. In May 2005, there was a new World Organization for Animal Health (OIE) Chapter Code regarding the definition of avian influenza implemented. Notifiable AI (NAI) is Highly Pathogenic Avian Influenza (HPAI), and all H5 and H7, regardless of pathogenicity, detected in poultry. All other subtypes are not reportable. With this new chapter, surveillance for NAI is very critical to ensure trade continuities. USDA is developing a national Low Pathogenic Avian Influenza (LPAI) monitoring program for all aspects of the commercial poultry industry. This will augment and expand existing AI surveillance, currently done by USDA, National Poultry Improvement Plan (NPIP) and states, and provide an integrated approach.

Ray Francis, USDA-APHIS, described the Agriculture Emergency Response Training (AERT) developed in collaboration with the Center for Domestic Preparedness in Anniston, Alabama. It is a 4-day course with full-scale practical exercises performed on the last day in a farm setting. Target audience is USDA-APHIS personnel, state and local agricultural emergency response personnel, and private veterinarians. All costs for non-federal employees are covered by the Department of Homeland Security (DHS).

Drs. Dick Slemons and Fred DeGraves, The Ohio State University, reported on a required rotation in the fourth year of the veterinary curriculum, during which students are involved in discussions of foreign animal diseases, and take part in emergency response training, including review of the incident command system and personal protective equipment.

Dr. Jane Rooney, USDA-APHIS-PDS, reviewed all foreign animal disease training in which USDA participates. In addition to the longstanding offerings of FADD, Wildlife FAD, and Smith Kilborne programs, there are new programs, FAD Practitioner, and FAD Awareness, both of which have prominent distance learning components. Training courses at universities were also highlighted, as were some DHS sponsored initiatives.

Dr. Thijs Kuiken, Erasmus University, The Netherlands, related the results of pathogenesis studies involving the inoculation of HPAI into domestic cats. An H5N1 virus from a fatal human case in Vietnam was used to infect cats via three routes: intratracheally, via ingestion (infected chickens), or through contact with infected cats. All cats became ill, with pneumonia, and abundant virus in the lung. There was multisystemic inflammation and replication of the virus in numerous sites. Excretion routes for the virus were respiratory, intestinal, and urinary tracts. Findings in cats were comparable to those in the human cases and this species could serve as a model for the human disease.

Dr. Ed Dubovi, Cornell University, reported on the emergence and spread of canine influenza. Earlier this year, investigation of respiratory disease in a shelter and five veterinary clinics in the New York City area revealed an influenza virus to be the cause. Hemagglutinin and neuraminidase genes from isolated virus were sequenced. Both mapped very closely with recent equine influenza genes circulating. Examination of serologic samples from multiple

states indicates that the virus is present in several geographic regions. Mortality rate is estimated at approximately 5 percent, although that data is still being collected.

Dr. Sabrina Swenson, USDA-APHIS-VS-NVSL, described the outbreak of vesicular stomatitis in the United States in 2005, with the first case beginning in May. New Jersey serotype was identified, similar to the strain that had circulated in 2004. The 2005 outbreak followed waterways, but with a slightly different path than what was seen in 2004.

Dr. Sandi Norman, Indiana Board of Animal Health, reported on an outbreak of rabbit hemorrhagic disease in Evansville, Indiana, in the summer of 2005. Tracebacks and advisories were initiated. Lack of requirements for reporting rabbit trade confounded locating the exact source of introduction, but Chinese rabbit meat was suspected.

Dr. Mark Thurmond, University of California Davis, described the FMD BioPortal, which is a system for real-time molecular and epidemiological characterization of FMD viruses. A country with FMD sends samples to the Plum Island Animal Disease Center, where full-length sequencing is undertaken. Information goes to BioPortal FMD, which analyzes the strain in various dimensions, including phylogenetic relatedness and mapping information. Access to the information is available to all.

Dr. Dorothy Geale, New Zealand Ministry of Agriculture and Forestry, narrated the story of Operation Waiheke, a hoax regarding the threat of FMD release in New Zealand. On May 9, 2005, a letter of extortion was sent to the prime minister, requesting cash and also tax reforms for farming communities. Disease investigation was launched immediately. Balance was found between adequate precautions and maintaining the industries. Total costs were \$2 million. Targeted areas to improve in the event of a real incident were found to be: Communication with producers and animal identification systems.

Dr. Alfonso Torres, Cornell University, updated the committee on the FMD Hemispheric Eradication Program. South America is moving toward FMD-free status, largely through the use of vaccination. Despite some recent outbreaks that have had media attention, there has been significant progress in expanding the FMD-free areas on the continent.

Dr. Tom McKenna, USDA-APHIS-NVSL, Foreign Animal Disease Diagnostic Laboratory (FADDL), explained the operation of the FMD Vaccine Bank. There are numerous stocks maintained for emergency use that will provide relatively early protection (4-7 days). It is a continuous process to add antigens to the vaccine bank and keep it current with respect to strains that are circulating in the world. For security reasons, specifics involving numbers of doses or actual stocks maintained are not available.

Drs. Larry Granger, Caroline Dube, Paul Kitching, Randy Crom, Claudio Cartwright and Barbara Corso (USDA-APHIS-VS and Canadian Food Inspection Agency) presented information on the use of FMD vaccine in the United States and Canada. The two countries have worked together to develop extensive decision tree analyses.

Dr. Rich Breitmeyer, California State Veterinarian, reported on studies in California on FMD and how vaccination would be utilized. Exercises examined delivery and dissemination logistics with FMD vaccine. Dairy workers could be utilized to administer the vaccine – this would promote biosecurity. However, sufficient quantities of the vaccine could not be obtained in a timely manner.

Dr Beth Lautner gave an update on the Plum Island Animal Disease Center. She reviewed Homeland Security Presidential Directive 9 and described the main missions as they pertain to foreign animal diseases and Plum Island. DHS has three scientific groups at Plum Island: Targeted Advanced Development, Bioforensics, and Disease Threat Assessment. There are extensive collaborations and integrations with ARS and APHIS programs. Dr. Kimothy Smith, DHS Office of Science and Technology, spoke about agriculture defense capabilities of the nation. The country currently lacks an integrated capability to study high-consequence zoonotic diseases in large animals and human (primate) models. It has been proposed that a new facility, NBAF (National Agro/BioDefense Facility) will be constructed an integrated institution – DHS, Department of Agriculture, and Department of Health and Human Services. There is no predetermined site for this facility.

Dr. Luis Rodriguez, USDA-ARS Plum Island Animal Disease Center, talked about research advances at the Plum Island Animal Disease Center. Dr. Elizabeth Reider has developed iDNA that will markedly decrease the ability of the FMD virus to replicate. Dr. Manuel Borca has made a live attenuated Classical Swine Fever virus vaccine that provides early protection and produces antibodies that are distinguishable from natural infection. Dr. Rodriguez has completed phylogenetic mapping of VS isolates – the 2004 and 2005 isolates are different from those in 1995 and close to viruses from endemic areas in Mexico.

Dr. David Swayne, USDA-ARS Southeast Poultry Research Laboratory, reviewed advances with highly pathogenic avian influenza. The rapid PCR test was modified to ensure that it would recognize both North American as well as Asian strains of HPAI. Also, diagnostic reagents were lyophilized and this has increased quality control in the HPAI PCR. Viruses from wild birds in Mongolia were characterized. Efficacy testing on a fowlpox-vectored vaccine was promising. Studies with inactivation of the virus in meat using heat showed that the virus was quickly inactivated and therefore minimal cooking should render meat non-infective.

Dr. Randall Levings gave an update of the status of the National Veterinary Services Laboratories. Modernizing of the laboratories is underway. The NAHLN continues to expand – there are now 49 laboratories in 41 states. USDA-APHIS is working with AAVLD to develop joint accreditation procedures.

Dr. Neville Clarke gave a progress report from the National Center for Foreign Animal and Zoonotic Diseases, a DHS Center of Excellence. There are three themes to the center – Biological Systems (FMD, RVF, AI, Brucellosis), Information Modeling and Analysis, and Education and Outreach. A pathomics platform is being assembled, using molecular genetics to examine host-pathogen interface. Rift Valley fever vaccine candidates are in the early stages of investigation. Cage-side tests for AI are under development. A live bird market study has evaluated exposure factors for various ethnic groups. Modeling on FMD spread is underway with UC Davis investigators. Education activities are targeting local industry groups and underserved communities. Master's programs geared toward practitioners of homeland security are already populated.

Dr. Mary McBride described the novel technologies used at Lawrence Livermore National Laboratories for high-confidence detection assays. There are multiplex assays for both antigen and antibody detection. There is ongoing collaboration with both U.S. and Canadian laboratories for high-consequence animal pathogens. Validation and commercialization are planned.

The Committee endorses the recommendation on disinfectants put forth by the Committee on Animal Emergency Management.

Five Resolutions were approved and forwarded to the Committee on Nominations and Resolutions for presentation to the general membership meeting for consideration.