

REPORT OF THE COMMITTEE ON TRANSMISSIBLE DISEASES OF SWINE

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Vice Chair: Dr. Mark Engle, Colorado Springs, CO

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The Committee met on October 26, 2004 from 12:30 pm-5:30 pm. Approximately 15 committee members and 20 visitors were recorded on roll. The chair welcomed the Committee members and each was given the opportunity to introduce themselves.

Paula Fedorka-Cray gave an overview of the Collaboration on Animal Health and Food Safety Epidemiology (CAHFSE). This program has the potential to address many animal health issues and food safety issues, as well as national security issues. Current design calls for 48 sentinel farms collecting quarterly data. In addition, in-plant data for these farms will also be collected. Antimicrobial resistance testing is completed for *Campylobacter*, *Salmonella*, *Enterococcus*, and *E. coli* isolates. In the future, aggregate data will be available on a web site. Results from this long-term surveillance project within the meat-production system will:

- Monitor changes in pathogen prevalence;
- Monitor changes in pathogen antimicrobial resistance patterns;
- Indicate factors associated with resistance;
- Serve as the basis of hypotheses for on-farm and in-plant research; and
- Indicate factors which impact animal and human health.

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Eric Bush updated the Committee on activities within the National Animal Health Monitoring System (NAHMS). All *Swine 2000* reports have been released. There is a pending trend report derived from the last three studies. NAHMS is cooperating with the CAHFSE program in gathering data on production practices on the sentinel farms and in developing a web site to report findings. Bush reported on the re-organization of the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS), Center for Epidemiology and Animal Health (CEAH) into the National Center for Animal Health Surveillance (NCAHS). Work is ongoing on the development of the National Animal Health Surveillance System (NAHSS). Plans are being prepared for the *Swine 2006* study. Topics will include the non-ambulatory swine issue and general farm report.

John Korslund gave a historical perspective of the Classical Swine Fever (CSF) surveillance program. He then reported on the current status of CSF surveillance. Increased efforts have been made in surveillance, especially in high risk areas. A new polymerase chain reaction (PCR) test has been validated but not yet used for surveillance. It is sensitive and specific. Plans are being made for a new CSF Surveillance program, but at this point there is no formal program for CSF surveillance. A budget request will be made upon completion of the plan.

Mark Engle provided the Committee with an issue brief on emerging animal diseases and the recognition of these diseases. He highlighted differences between emerging diseases and foreign animal diseases. There are several recently emerged diseases in swine, including Porcine Reproductive and Respiratory Syndrome, Post-Weaning Multisystemic Wasting Syndrome, Porcine Dermatitis Nephropathy Syndrome and swine influenza. The Swine Futures Project serves as a "roadmap" for recognition of emerging animal diseases. Engle cited the importance for a coordinated surveillance system to detect emerging diseases. This system would include the use of state swine health advisory committees and a national swine health council. Communication and coordination is essential for success. Engle profiled the response to the Severe Acute Respiratory Syndrome outbreak in humans in 2003. A number of important lessons can be learned from the successful efforts to identify and respond to SARS. Keys to this success were adequate resources, central coordination and information sharing. The full text of Dr. Engle's report is included in these proceedings.

Mark Wagner provided a practitioner's observations on a case of high mortality in feeder swine in Minnesota. These pigs were imported from Canada. In this case, there was rising death loss over the course of the disease. Clinical presentation was coughing, lethargy, fevers

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and some CNS signs. Treatment was based on clinical signs. Concurrent infections of influenza and *Hemophilus parasuis* were confirmed. Treatment response was dismal. Total mortality was 673 out of 992 pigs (63 percent). The surviving pigs were virtually normal.

Jerry Torrison presented a second practitioner's perspective on the high mortality case. Twelve pigs were sent to the Minnesota Veterinary Diagnostic Laboratory representing dead pigs, downer pigs, normal-appearing pigs with a deep cough and normal pigs. Serology was also performed on pigs representing these same categories of pigs.

Kurt Rossow reported on the high mortality case from the perspective of the veterinary diagnostic laboratory. Gross lesions were seen in the lungs and meninges. Diagnostic tests included histopathology, bacteriology, molecular diagnostics, virology and serology. PCR tests were positive for BVD/Pestivirus. This was significant because CSF is caused by a pestivirus. Other positive results included *H. parasuis*, Type-2 porcine circovirus, and swine influenza (H1N2). The causative agent may have been swine pestivirus (BVD-like), but it is possible that the cause was a highly virulent *H. parasuis*. Further studies have been hampered by a delay of funding. The intent is to infect pigs with the pestivirus.

Samia Shawkey highlighted the response to the high mortality case by the USDA-APHIS-VS Foreign Animal Disease Diagnostic Laboratory (FADDL). The main concern was CSF. A foreign animal disease diagnostician was sent to the farm to collect samples. The samples were sent to FADDL at Plum Island for testing. Efforts concentrated on agent detection. A pestivirus was detected by PCR testing as well as virus isolation. Animal inoculation was also performed. Inoculated animals showed no clinical signs or gross lesions. No virus was isolated from inoculated animals. CSF was ruled out as a possible diagnosis. Future work will include genomic characterization. She recommended that foreign animal diseases be included in differential diagnoses for any case of high mortality in swine.

Jim Lewis gave his perspective as the owner of the pigs in the high mortality case. The mortality was the most dramatic aspect of this case. He was pleased with all the individuals, institutions and laboratories involved in this case. The actual financial loss of this case was \$62,000. He stated that they were still waiting for a definitive diagnosis for this case and was looking forward to more study of the isolated agents.

Vicki Bridges updated the Committee on the Center for Emerging Issues (CEI) at CEAH. CEI continuously examines the external environment for issues that may impact animal health. Efforts include disease tracking and analysis. CEI is working in concert with the National Surveillance System. The CEI is developing guidelines to approach emerging issues. An Emerging Veterinary Events (eVe) database has been developed. Work will continue on an Emerging Animal Health

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Issues Action Plan that will identify, investigate, assess, and respond. Communication will be essential in all aspects of the action plan.

The chair reported to the Committee that the two resolutions (29 and 30) approved by the Committee in 2003 were approved by the general membership. USDA responded to the resolutions. Copies of the resolutions and the responses were made available to the Committee.

Two resolutions was approved and forwarded to the Committee on Nominations and Resolutions for approval by the general membership. The resolutions addressed:

1. Development of a defined mechanism by USDA to detect, investigate, evaluate and respond to emerging diseases in swine.
2. USDA taking steps to protect the confidentiality of scientific data on microbial isolates.