

REPORT OF THE COMMITTEE ON FOREIGN AND EMERGING DISEASES

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The Committee met on November 16, 2010 at the Hilton Hotel, Minneapolis, Minn., from 8:00 a.m. to 5:30 p.m. There were approximately 150 members and guests present. The beginning of the session reviewed the 2009 resolution and the U.S. Department of Agriculture (USDA) and Department of Interior (DOI) response to the resolution.

Presentations:

DHS Science and Technology Update

Dr. Michelle Colby, Agricultural Program Manager, Department of Homeland Security

This presentation provided an update on recent activities within the Department of Homeland Security's Science and Technology Directorate related to foreign animal disease (FAD) countermeasures. This included progress reports on the development of the adenovirus vectored Foot and Mouth Disease (FMD) vaccine; as well as projects to facilitate the importation of vaccines and diagnostics for FMD and other

FAD's. In addition a new program start (Agricultural Screening Tools) within the DHS S&T Agricultural Program was described. A brief overview of the DHS Centers of Excellence Program was also provided.

NVSL Update

Dr. Beth Lautner, Director, National Veterinary Services Laboratories (NVSL), USDA

Many training functions were conducted in the new facilities at the National Centers for Animal Health in Ames, Iowa where NVSL is co-located. Key activities in the Diagnostic Bacteriology Laboratory included testing over 30,000 horses for piroplasmiasis, development of a new rapid *Salmonella enteritidis* rule-out assay, and laboratory support for the tuberculosis program and wildlife surveys. Significant NVSL resources were devoted to conducting the pre-import and import testing for the World Equestrian Games. The Diagnostic Virology Laboratory continued to conduct swine, poultry and wildbird influenza surveillance with the swine testing transitioning to an anonymous swine surveillance program. NVSL now has an aquaculture facility which will provide reagent production and diagnostic assay development capabilities. The Pathobiology Laboratory adapted a new procedure using formalin-fixed paraffin-embedded tissues for Western blot testing for scrapie differentiation. More than 20 different proficiency tests were made available to other laboratories. The National Animal Health Laboratory Network (NAHLN) instituted an enhanced laboratory review process and provided quality management system training to more than 85 participants from 53 laboratories. The NAHLN Coordinating Council held its first meeting and identified as a top priority completion of a strategic plan that includes meeting surge capacity needs with a regional laboratory concept, detecting and responding to emerging diseases including zoonoses, and providing support to food safety and toxicology laboratory networks.

Foreign Animal Disease Diagnostic Laboratory (FADDL) Update

Dr. Bill White, Director, Foreign Animal Disease Diagnostic Laboratory, Plum Island Animal Disease Center, USDA

FADDL has a new Director, Dr. William R. White, who began the position October 25, 2009. Bill was formerly Senior Staff Veterinarian at FADDL for several years and responsible for the FAD schools there. FADDL also selected a new Head of the Reagents and Vaccines Services Section, Dr. Fernando J. Torres-Velez. Fernando is a veterinary pathologist who trained at the University of Georgia and CDC, and has worked most recently at the NIH. FADDL has grown to 50 staff members with permanent or term status. FADDL has a variety of missions, including the diagnostic testing on domestic and international accessions for a broad range of FADs, the most important being FMD and CSF. In the last fiscal year, FADDL performed 102 domestic diagnostic accessions and assisted diagnostic investigations in 11 countries on 4 continents. FADDL is an FAO FMD Reference Laboratory, and is preparing applications to the OIE for OIE Reference Laboratory in FMD and twinning with the State Central Veterinary Laboratory in Mongolia on FMD. A top priority for FADDL is its support of the NAHLN, and last FY it proficiency tested 42 laboratories for FMD and CSF, and introduced real-time PCR for ASF and rinderpest in 12 laboratories. To maintain modern diagnostic capability, FADDL this FY entered into interagency agreements with DHS on Improvement of CSF antibody ELISA, development of 3D FMD ELISA as a DIVA test, evaluation of a lateral flow device (penside) for detection of FMD, and continued development of panviral microarrays. Finally, in FY11 FADDL plans to submit articles to peer-reviewed scientific journals on comparison of different clinical samples in early diagnosis of CSF, FMD in feral swine, and FMD in pronghorn and mule deer. In addition, an atlas on transboundary animal diseases will be published for international distribution in early FY11 by the OIE and USDA.

Plum Island Research Update

Dr. Luis L. Rodriguez, Plum Island Animal Disease Center U.S Department of Agriculture

The Foreign Animal Disease Research Unit at PIADC has the overall mission of "conducting research to develop and transfer solutions to agricultural problems of high national priority." Despite having a very small research team (8 SY or PI scientists) they cover a broad range of disciplines including veterinary medicine, virology, molecular biology, bioinformatics, pathology and immunology. This highly productive team remains very active in cutting edge research (>25 peer-reviewed publications and patent applications in FY2010). The ARS CRIS projects fall within the Animal Health and Production National Program, all these projects are coming to the end of their life cycle and new projects will be prepared in 2011 to be subject to scientific peer-review through the Office of Scientific Quality Review. The new research projects will focus on:

- Intervention Strategies to Support the Global Control and Eradication of Foot-and-Mouth Disease Virus (FMDV)
- Countermeasures to Control Foreign Animal Diseases of Swine
- Ecology and pathogenesis of Re-Emerging VSV in North America

Update on FMD research:

Foot and mouth disease (FMD) is one of the most economically and socially devastating diseases affecting animal agriculture throughout the world. Although FMD mortality is low, millions of animals have been killed in an effort to rapidly control and eradicate the disease. The causing virus (FMDV) is a highly variable RNA virus occurring in seven serotypes. FMDV is one of the most infectious agents known, affecting cloven-hooved animals.

Although killed antigen FMD vaccines have been available for decades, there is little to no cross protection across serotypes and subtypes and the immunity they induced to maintain appropriate levels of protection. Despite the vaccines' shortcomings, their use has been the basis for eradicating FMDV from Europe and controlling the disease in many parts of the world through mass vaccination campaigns, albeit at a very high cost. Despite these control efforts, FMDV thrives in endemic regions usually located in poor countries having significant impact on millions of people dependent on livestock for food and their livelihood.

There is a need for vaccines that are inexpensive to produce, easy to deliver and induce long-term immunity. Also there is need for better integrated strategies that fit the specific needs of endemic regions. Only when these critical components are available will the global eradication of FMDV be possible.

Update on Research Program of the DHS Center of Excellence for Emerging and Zoonotic Animal Diseases (CEEZAD)

Igor Morozov, Science Project Manager, DHS CEEZAD, Kansas State University, College of Veterinary Medicine

CEEZAD was recently funded by the Department of Homeland Security as one of the Co-Leads for the DHS Program on Zoonotic and Animal Disease Defense. Together with the other Co-Lead, Foreign Animal and Zoonotic Disease Defense Center (FAZD), CEEZAD addresses challenges posed by high priority foreign animal and zoonotic diseases. The purpose of CEEZAD is to conduct research, develop technology and train a specialized workforce to successfully defend US pre-harvest agricultural systems against agro-terrorism, other catastrophic events, and emerging animal pathogens. CEEZAD research program addresses development of vaccines (Theme 1), diagnostic assays and detection devices (Theme 2), epidemiological studies and modeling (Theme3), and education and outreach on zoonoses (EOO). Vaccine efforts are focused on Rift Valley Fever, Avian Influenza, and development of vaccine platforms for both known and unknown foreign and zoonotic animal pathogens. Theme 2 projects are focused on development of accurate, field-deployable assays and devices to rapidly detect RVFV, FMDV, AIV, and other emerging animal pathogens. Theme 3 projects include epidemiological studies for RVFV, FMDV, AIV and predictive models that can be used as decision tools to effectively prevent, control and/or curtail such diseases. The Center coordinates its research efforts with various private animal health or biomedical companies to assure that research results are translated into products. The Center's Education Outreach Overlay provides an integrated platform to translate and communicate novel findings from CEEZAD and other entities on emerging and zoonotic diseases in real time to critical audiences, including general public, health care providers, and veterinary professionals.

FAZD Update

Dr. Tammy Beckham, Director, Foreign Animal and Zoonotic Disease Defense Center, Texas A&M University

The National Center for Foreign Animal and Zoonotic Disease Defense (FAZD Center) performs research and develops products to defend the nation from high-consequence foreign animal and zoonotic diseases. Founded in April 2004 as a Department of Homeland Security Center of Excellence, the FAZD Center was renewed in 2010 as a joint-Center with the Kansas State Center for Excellence in Emerging and Zoonotic Diseases. The FAZD Center performs basic and applied research in three thematic areas to include biologics (vaccines and detection), information analysis and education and outreach. The Center works to develop countermeasures for high consequence foreign and zoonotic diseases as well as information analysis tools (epidemiological and economic models) for transboundary and zoonotic diseases. Recent highlights of the Center include a second-generation DIVA vaccine candidate for RVF that is being developed in cooperation with an industry partner at University of Texas Medical Branch in Galveston and

Texas A&M University. Tools for information analysis and integration of data are being utilized to inform policy makers and develop new solutions for incident command and emergency management. The Centers' Education and Outreach component strives to engage and empower first responders and the nations next generation of homeland security workforce.

Policy and Preparedness in North America for FADs Post 9/11: Preparedness in Canada

Dorothy W Geale, Senior Staff Veterinarian, Canadian Food Inspection Agency

Foreign Animal Disease Preparedness in Canada after 9/11 can be divided into five phases:

1. Preparedness in Canada prior to 9/11

Preparedness prior to 9/11 was built on the concepts of OIE List A diseases and a culture of veterinarians playing virtually all roles in emergency response. This epoch came to an end with CFIA veterinarian involvement in the 1997 CSF outbreak in the Netherlands, the North American FMD Vaccine Bank's Tripartite Exercise 2000 and the February 2001 outbreak of FMD in the UK.

2. September 2001 to May 2003

In September 2001, a national FMD Forum was held in Ottawa focusing on lessons learned from the UK FMD disaster, the need to engage all stakeholders particularly industry and integration with Emergency Preparedness Canada. Funding for emergency management became available as preparedness for agro-terrorism. Much progress was made in elaborating plans, procedures and protocols. This culminated for Canada with the diagnosis of BSE in May 2003 and the focus of emergency response went to this "trade restrictive" new "endemic" disease.

3. June 2003 to August 2006

Various task forces dealt with the consequences of the diagnosis of BSE and its crippling effect on Canadian industry. Globally the rapid transboundary spread of H5N1 [HPNAI] shook the world. Zoonotic exotic disease response occupied FAD planners. In 2004, HPNAI was diagnosed in British Columbia. The CFIA was thrust into a logistically complex outbreak with a lack of detailed protocols for new recruits and the increasingly involvement of politics. It was a Ministerial decision to depopulate of all poultry in the lower mainland of BC. Many procedures were developed including whole barn depopulation and disposal of poultry. Funding for preparedness flowed from the public purse.

4. August 2006 to present

Recovery from BSE brought attention to diseases exotic to Canada, but present in the USA such as bluetongue and anaplasmosis. The US serotypes of Bluetongue were removed from Canada's "reportable disease list" to negotiate re-opening the US border to trade in cattle. The focus for FAD response started to shift to FMD which had little activity since 2003. Projects were initiated with PANAFTOSA in South America under Department of Foreign Affairs funding. The big difference from earlier NAI planning was the use of the term, "resource neutral" within the CFIA as the emergencies were deemed over. Identification of H1N1 in Mexico with the first swine herd diagnosed in Canada brought a resurgence of preparedness activity for influenzas. This was relatively short-lived for animal health as the OIE and FAO lobbied that swine were the victims here not the propitiators. Following a national bovine serological survey, pockets of anaplasmosis were subject to eradication activity.

5. Future vision

The CFIA was audited for Animal Disease Emergency Preparedness by the Office of the Auditor General in August 2010. Summary conclusions are that plans are in place for NAI and FMD but updates for these and plans for other FADs are not assigned deadlines or tracked to completion; significant work is needed to enhance FMD preparedness; lessons learned are not systematically tracked and addressed so that similar issues continue to be identified over the years; successful application of NAI plans and procedures in Saskatchewan in 2007 and BC in 2009 cannot be generalized to predict success in future outbreaks due to the uniqueness of FADs and outbreak situations. The CFIA will continue its North American collaboration for FAD response through the NAAHC and NAFMDVB as well as building on synergies with the QUAD (Australia, Canada, New Zealand and USA) emergency preparedness. Laboratory preparedness has recently been renewed from SPP initiatives in 2007. Global warming may exacerbate vector borne FADs for all.

National Bio and Agrodefense Facility (NBAF) Update and Site Specific Risk Assessment

Jamie Johnson, Director, Office of National Laboratories, Department of Homeland Security Science and Technology

This presentation focused on the national need for the National Bio-and Agrodefense Facility and a response to the National Academy of Sciences (NAS) review of the Site Specific Risk Assessment (SSRA) for the NBAF. The United States needs to be on the frontline of livestock animal health research and defend America against foreign animal, emerging, and zoonotic diseases, yet the U.S. currently does not have a modern research facility capable of effectively studying and developing vaccines for some of the most serious threats to our food supply and agriculture economy. The NBAF will allow the U.S. to conduct comprehensive research, develop vaccines and anti-virals, and provide enhanced diagnostic capabilities to protect our country from numerous and foreign animal and emerging diseases. The Plum Island Animal Disease Center has been a great national asset but is now approaching the end of its life.

In FY 2010, Congress directed DHS to complete a site-specific risk assessment (SSRA) to determine the requisite design and engineering controls for the NBAF and inform the emergency response plans with city, regional, and State officials in the event of a release of a pathogen and submit the SSRA to the National Academy of Sciences (NAS) for evaluation. The SSRA was developed by a team of over 130 federal employees and subject matter experts. The SSRA used a thorough and robust methodology to assess risk and identify strategies to mitigate those risks. In their evaluation, the NAS found the SSRA to be an important first step in an iterative process aimed at identifying and minimizing risk, and supported the need for the capabilities the NBAF provides.

The NAS report was a calculation of the cumulative risk over a 50-year period and was based on very early-stage risk calculations of a notional facility with no additional mitigation measures in place. As DHS continues facility design, which will include robust and multi-layered mitigation measures, we will incorporate NAS' recommendations. DHS will not build or operate the NBAF unless it can be done in a safe manner. DHS will continue to work with the USDA and the Center for Disease Control, to ensure all recommendations from the SSRA are properly implemented and all biosafety and biosecurity requirements have been met. No permits will be issued by USDA and/or CDC until all requirements are met.

National Academies' Report on NBAF Site Specific Risk Assessment

Ron Atlas, National Academies of Science.

The Department of Homeland Security has selected Manhattan, Kansas, as the location for a new, state-of-the-art research facility that will study foreign animal and zoonotic diseases. The SSRA performed by DHS was submitted to the NAS for evaluation. The NAS review panel was instructed to review only the adequacy and validity of the SSRA, and not the site selection, itself.

This report evaluates the site-specific risk assessment conducted by the DHS. The report's authoring committee commended the DHS for performing the SSRA within a remarkably short time frame, and found that the risk assessment used appropriate methods and made many legitimate conclusions. The NAS review panel noted that the SSRA was a notable first step in the process, but needs more development.

The committee determined that the SSRA is not entirely adequate or valid because of several shortcomings with respect to the potential risks and impact scenarios and some limitations in executing and analyzing the data. The risk assessment did not account for the overall risks associated with operating the facility in Manhattan, Kansas, nor did it account for the risks associated with work on the most dangerous pathogens in a large animal facility.

The NAS committee observed that the SSRA estimates provided by the DHS show that there is at least a 70 percent chance over the facility's 50 year lifespan of foot-and-mouth disease virus being released outside the laboratory and causing an infection.

The NAS review committee noted that the SSRA overlooked some important site-specific factors that could elevate the risks of spread of a disease pathogen originating from the laboratory. The proximity of the proposed laboratory to other animal facilities was a cause for concern. The committee also determined that the highest risks originated from human error and that safe practices were of paramount importance in mitigating a disease outbreak.

The report concluded by stating that clearly a facility such as this is needed, however, further risk analysis is needed to determine the extent to which these measures would reduce risk. Ultimately the policy makers will need to decide whether the risks of constructing the NBAF in Manhattan, Kansas, are acceptable. If construction and operation should proceed as planned, the DHS will need to consider steps that minimize risk and impact.

Recognition of the Global Eradication of Rinderpest

Dr. Sherrilyn Wainwright, Food and Agriculture Organization, United Nations

Rinderpest has been known for many millennia, and, wherever it occurred, it has been the most dreaded animal disease, strongly affecting livestock, rural livelihoods and food security. It is an acute, highly contagious, viral disease of cattle, domesticated buffalo and some species of wildlife. At one time, epidemics of rinderpest occurred regularly in Eurasia. In 1889, cattle shipped from India carried the rinderpest virus to Africa, causing an epidemic that established the virus on the continent. Initially, approximately 90% of the cattle in sub-Saharan Africa and many sheep and goats died. Wild buffalo, giraffe and wildebeest populations were decimated. Some consider this epidemic to have been the most catastrophic natural disaster ever to affect Africa.

In 1994, the Global Rinderpest Eradication Programme (GREP) was launched with FAO spearheading an initiative to consolidate gains in rinderpest control and to move towards disease eradication. In close association with the World Organization for Animal Health (OIE), GREP was conceived as an international coordination mechanism to promote the global eradication of rinderpest and verification of rinderpest freedom. From the outset, this ambitious initiative set its goal for global rinderpest eradication by 2010. This is the second time that a disease has been eradicated worldwide after smallpox in humans. As with smallpox, the eradication of rinderpest was based on the use of vaccination. In some countries, rinderpest vaccination created opportunities for “One Health” teams to operate in the villages thereby increasing the vaccination rate of children.

The eradication of rinderpest was accomplished by a world-wide commitment and support to

1. establish the geographical distribution and epidemiology of the disease;
2. contain rinderpest within the infected eco-systems;
3. eliminate reservoirs of infection through rigorous early detection, reporting and response systems.

Once evidence accumulated that the virus had apparently been eradicated, activities progressively focused on establishing surveillance systems to prove the absence of the disease. This model emphasizes the basic requirements that are needed for effective disease prevention, control and elimination, and validates the importance of sustainable programs to address current and future infectious disease threats under the umbrella of “One Health”.

See <http://www.fao.org/news/story/en/item/46383/icode/> for more information

Recent Outbreak of Foot-and-Mouth Disease (FMD) in Cattle and Swine, Japan

Dr. Shiro Yoshimura, Food Safety and Consumer Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries

An overview of the introduction of serotype O FMD outbreak in Japan during 2010 was presented. This presentation complemented Dr. Samia Metwally's presentation on current FMD movement and outbreaks in Asia. In 2010 Japan experienced an outbreak of the South East Asia serotype O. 292 farms were infected. Animals infected included cattle, swine and water buffalo. There were approximately 174,000 swine (out of a total of 211,000 animals) infected. Control measures instituted included vaccination to slaughter. Outbreaks of FMD previous to this in Japan included one in 2000. The outbreak included approximately 600M U.S. dollars just in compensation. The origin of the outbreak and source is not known.

Current Situation of Foot-and-mouth Disease in Asia

Samia Metwally, DVM, PhD, Foreign Animal Disease Diagnostic Laboratory, Plum Island Animal Disease Center, USDA-APHIS

Prevalent foot-and-mouth disease (FMD) serotypes in Asia are A, O and Asia1. The recent spreads of FMD virus to the Far East heighten the risk for onward transmission to more distant countries including those that are FMD-free. The reach of FMD viruses normally found in mainland Southeast Asia (SEA) into PR China and Republic of Korea (ROK) was depicted during 2010. The latest concern is outbreaks of the SEA topotype (Mya-98) of serotype O affecting Japan in March 2010 and the ROK one month later. Prior to 2010, Japan had not experienced FMD outbreaks since 2000 and similarly the last report of FMD in ROK was in 2002. Closely related viruses have also been recovered from PR China and detected in Mongolia and Russia during early 2010. In this context, it is worth remembering that the 1999/2001 FMD pandemic due to the O Pan Asia virus caused outbreaks in PR China, ROK and Japan prior to those in South Africa and Europe.

A similar pattern of spread was seen in 2009/2010 for a SEA strain of serotype A. PR China reported cases in Hubei province in January 2009, after which outbreaks due to related viruses were reported throughout 2009 in other parts of the country. Further spread of this genetic lineage occurred in the ROK during January-March 2010, the first time that this serotype has been reported in the country.

A new lineage of A Iran-05 virus emerged in Iran in 2003. As the virus has been circulating in the region, five sublineages were further spread. These sublineages were spread in Iran (2003-2008), Afghanistan (2004-2007), Saudi Arabia (2005), Turkey (2005-2008, 2009), Jordan (2006), Pakistan (2006), Bahrain (2008) and Iraq (2009).

These events are not unprecedented and these findings provide evidence for the porous nature of the borders between countries in SEA and the Middle East and highlight the continued threat posed by FMD as a transboundary disease in these regions.

Rift Valley Fever and Africa

CJ Peters, MD, PhD, University of Texas Medical Branch

This presentation covered the history and current status of Rift Valley Fever in Africa. The presentation reviewed the complexities of the disease transmission and the ecology of RVF transmission. The current status of RVF research and current vaccines was reviewed. Control strategies and controversies in human infections and methods of infections of humans was discussed. The current studies on MP-12 and the new DIVA MP-12 NsM at UTMB were presented.

Needs for Laboratory Capacity Building in Africa to Support Transboundary Disease Diagnostics

Linda L Logan DVM, PhD, Department of Veterinary Pathobiology, College of Veterinary Medicine, Texas A&M University

Since February 2006, 12 African countries have reported outbreaks of HPAI in poultry. Many of these H5N1 outbreaks in poultry were short lived. In 2010, Egyptian Health Authorities reported 22 human cases with 9 deaths from HPAI to the WHO. In 2008, Togo and Nigeria were the only sub-Saharan countries to report HPAI cases in poultry. In 2009 and 2010 no HPAI has been reported in sub-Saharan Africa. In reality there is very little passive or active surveillance ongoing in Africa for transboundary diseases due to lack of funds for such activities. USDA APHIS International Services has targeted capacity building activities to strengthen national laboratories and epidemiology surveillance in West and Central Africa for HPAI. APHIS works closely with other international partners such as USAID, the FAO ECTAD, African Union and the OIE to support the Regional Animal Health Center in Bamako, Mali. This platform provides support for laboratory networks and quality assurance, strengthens the level of poultry disease surveillance and education on poultry biosecurity. Most African national veterinary services are underfunded, understaffed and inadequately equipped. Most lack laboratory capacity and inadequate equipment and supplies to detect HPAI and other poultry diseases. There is a lack of an effective livestock and poultry trans-boundary disease surveillance throughout most of Africa. Disease surveillance is critical to rapid detection, reporting and response to incursions of HPAI. Very little is known about the common risk factors for introduction of HPAI and spread of the virus in Africa. It remains unknown whether HPAI is truly absent in Africa. It is difficult to predict if and when further future HPAI outbreaks will occur in Africa. With the advent of rinderpest eradication and the diminished funds for HPAI surveillance the platform for animal disease surveillance is collapsing. Without adequate field surveillance and inadequate staffing and reagents in laboratories, the state of HPAI and other trans-boundary disease detection, in Africa, remains an enigma. Building this capacity as one of the pillars of food security is urgently needed as part of the President's initiative on Feed the Future.

Presentation: Overview of NAHLN FMD Exercises

Rosemary Speers, CNA

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS) recently conducted a series of tabletop exercises to support ongoing preparedness efforts undertaken by the National Animal Health Laboratory Network (NAHLN). The exercise program helped prepare staff from NAHLN member laboratories, along with regulatory officials and field responders, to prevent, respond to, and recover from an outbreak of foot and mouth disease (FMD). The same tabletop exercise design was used for exercises throughout the country, in order to help the NAHLN Program Office better understand the variations among States and regions, and the subsets or patterns that exist in response capabilities.

This presentation describes the overall project, which included a policy workshop, a two-day pilot exercise, and 15 tabletop exercises involving more than 35 NAHLN member laboratories. The exercise series identified new diagnostic and validation tools that need to be developed for NAHLN laboratories, disease outbreak response guidelines that are needed from the NAHLN Program Office, as well as additional information and guidelines that are needed from the National Center for Animal Health

Emergency Management (NCAHEM). Overall, the capability for surveillance testing during an FMD outbreak is more limited by the availability of field personnel than by laboratory capacity. Also, decisions that were made by State officials varied broadly across the United States, and these differences greatly affected the NAHLN laboratory workload.

The Netherlands Strain of BTV Serotype 8 in White-Tailed Deer

Barbara S. Drolet¹, Lindsey M. Reister¹, James O. Mecham¹, William C. Wilson¹, Pauline Nol², Kurt C. VerCauteren², Tara C. Ruby², Piet A. vanRijn³, Richard A. Bowen⁴

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To determine the susceptibility of U.S. white-tailed deer to the European strain of BTV-8 (EU-BTV-8) isolated in The Netherlands, eight seronegative deer were injected subcutaneously in the neck and intradermally in the inner left leg. Two deer were sham inoculated to serve as uninfected controls and housed with infected animals to verify the inability of this virus to spread by direct contact transmission. Body temperatures and clinical signs were recorded daily. Periodic blood samples were analyzed for BTV RNA with qRT-PCR, for BTV serum antibodies by cELISA, and for infectious virus by plaque assay. At necropsy, tissue samples were taken for histopathological examination and tested by qRT-PCR for viral RNA. Deer developed moderate to severe clinical disease from 8 to 15 days post inoculation (dpi). Peak viremia by qRT-PCR was from 7-10 dpi with detectable titers seen as far out as 28 dpi in some deer. Antibody titers were detected by cELISA starting at day 6, peaked by day 10, and continued through day 28. These results suggest that if EU-BTV-8 is accidentally or intentionally introduced into the U.S., considerable disease would be expected in our white-tailed deer and they would serve as significant virus reservoirs.

Addressing the Threats on Re-introduction of Canine Rabies Virus Variants

Cathleen A Hanlon, Anna Pees, and Susan Moore, Kansas State University Rabies Laboratory

A review of the global status of rabies virus was presented. A distribution of rabies reservoirs in North America was reviewed along with the likelihood of increased spread and possible introduction of rabies virus species. Rabies virus prevention was reviewed.

Joint USDA-FBI Response to Foreign Animal Disease Event

Stephen W. Goldsmith, Federal Bureau of Investigation (FBI)

The threat of the intentional use of FAD's as a weapon by terrorist groups or individuals is a reality. The roles and responsibilities of USDA and FBI in the event of an FAD outbreak was described as well as the law enforcement considerations for investigating such an event. The roles of the FBI and the USDA Office of the Inspector General in the investigation of an intentional act against an US agricultural target was discussed. The different procedures for both the epidemiological investigation and response performed by the USDA field and staff personnel as well as the protocols used by the FBI and Law Enforcement agencies for investigating intentional WMD attacks was discussed. Joint agency efforts and recommended future relationships and operations was discussed.

Foreign Animal Disease Training: A Showcase of the Transboundary Disease Atlas

Paula Cowen, USDA-APHIS-VS

An overview was provided of training on Transboundary diseases in USDA, APHIS, Veterinary Services for the past year and a look forward to what is in store for the coming year. The overview included the audiences for each type of training. The Atlas of Transboundary Diseases which will be released later this month was previewed. The Atlas is a collaborative project between the OIE and the USDA, APHIS.

VEP Project: Veterinary Epidemiology / Para-epidemiology Program: A capacity-building and educational model

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CaribVET, Caribbean Animal Health Network, is a collaborative regional network involving different actors participating in animal health. The objective of this network is to improve the regional sanitary situation and to contribute to the harmonization and reinforcement of animal diseases surveillance implemented at national level and control activities in the Caribbean.

Veterinary Epidemiology / Para-epidemiology Program (VEP project) is one of the project developed within CaribVET. It involves veterinary services from ten Caribbean countries and regional / international organizations (CIRAD, IICA and USDA). The main purpose is to train specialists in epidemiology and develop and reinforce national surveillance systems.

For this, VEP participants attended series of training seminars, workshops and hands-on activities led by well-recognized international experts. The first step was to acquire skills over time beginning with basic veterinary epidemiologic concepts with a focus on study design, management of data and link with laboratory. The second step was to move to more advanced concepts and application by table-top or outbreak simulation exercises prepared by international organizations or by the VEP participant itself. The third step is to apply this knowledge to an epidemiologic project conducted through one-on-one mentorship. These projects are currently on going into each VEP countries and the results will be presented in April, 2011 to a group of external evaluators. Ultimately, VEP participants will also develop individual and in-country simulation exercises to assess emergency response plans and preparedness. They will continue to develop disease-specific surveillance plans within each country.

Update on the Disease BioPortal System at UC Davis

A. Perez , B. Brito, FMD lab, Center for Animal Disease Modeling and Surveillance, UC Davis

Disease data and information available in near-real time is essential for control, prevention, and surveillance of infectious animal diseases. The Disease BioPortal is a public web-based system that provides real-time or near-real time access to local, regional, and global disease information and data. The system is operated and maintained by the FMD laboratory at the University of California, Davis (UCD), and it is supported through a consortium of national and international institutions, agencies, and organizations.

Version 3.0 of the BioPortal (<http://fmdbiportal.ucdavis.edu>), was released in early 2010, allowing access to data of >40 animal diseases and syndromes reported by a number of agencies and organizations. The system provides access to publicly available databases such as those of GenBank, PANAFTOSA, the OIE WAHID, and the IAH Pirbright, as well as to private data through secure routing and sharing mechanisms. Tools for data display and data analysis are available, such as spatio-temporal display, phylogenetic-spatio-temporal display, cluster analysis, maps and charts created for the specific data inquired by the user, databases can be also downloaded from the website. More than 820 users from 55 countries have signed on to the Disease BioPortal since its initiation in January 2007.

An update of the BioPortal system was presented using as an example FMD data collected from Pakistan during the last years as part of a disease control project that will be conducted by UCD in collaboration with the USDA and the FAO.

Committee Business

There were no resolutions or other actions taken by the Committee.