

REPORT OF THE COMMITTEE ON PUBLIC HEALTH AND RABIES

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The Committee met on October 14, 2009 at the Town and Country Hotel, San Diego, Calif., from 8:00 am to 12 noon. There were 12 members and 12 guests present. Chairperson Dr Nancy Frank opened the meeting at 8:05 am in the California Room of the Town and County Hotel. She gave a summary of the mission of the committee and welcomed the presenters and committee members. Dr Frank asked members and guests to sign the attendance rosters and pick up an agenda. There is a resolution to consider and the committee needs a quorum to consider those, so she urged members to stay or return for those deliberations

There were no time specific papers presented at 2009-San Diego meeting of the Public Health and Rabies committee of the United States Animal Health Association.

CDC Rabies Updates

Kis Robertson

Epidemiologic Intelligence Officer

Center for Disease Control and Prevention (CDC)

Dr. Robertson filled in for Brett Peterson in giving a rabies summary from CDC. Two cases of human cases were reported in 2008. One from California was a recent immigrant and had a history of a fox bite prior to arrival. In Missouri, there was a case of a person who played with wildlife had an ill bat that he observed, He thought the bat was OK and released it. That person came down with rabies six weeks later.

In 2008 there were 6841 cases of rabies in animals, 97% in wildlife and 3% in domestic animals. Raccoons, bats, skunks are the top wildlife species diagnosed with rabies. Skunks have the highest positivity rate of 26% and this is not dropping. About 2300 raccoons were reported positive in 2008 with 14% positivity clustered in Eastern seaboard states. Percent positivity is decreasing in raccoons. Bats were present in 47 states with the highest number in Texas, California, Illinois and New York with none in Alaska, Hawaii and New Mexico with about 6% positivity. There were an increased number of bats with the percent positivity dropping slightly. Skunks are a spill over species that are involved in many strains with highest positivity holding at 26%. Foxes decreased in percent positivity also.

Cats increased in percent positivity and case count. They are still the most commonly diagnosed domestic species. Dogs have had decreased number of cases, but maintain 0.3 percent positivity. Variants for dogs are those that are enzootic for the area where they live. Canine strain rabies continues to be absent in the US. Texas saw an increase in fox strain rabies in coyotes in northern Texas which lead to increased baiting outside the barrier to cover this area. There was a decline in the number of cases in Canada. Mexico had an increase in vampire bats and human cases associated with exposure to those bats

Dr Robertson went over some future changes in rabies management that have occurred in the last year. Changes in rabies reporting to CDC includes the need for more urgent reporting partially due to the Iraqi dog imported with rabies. CDC is using electronic reporting through PHLIS in some states and using PHINNIS as back up to this system. They hope to utilize an electronic system in all states. The Rab ID

system will accumulate data but is down right now. It will be web based and is planning on being launched next year. This will hopefully help with reporting and statistical surveillance. In 2009 there were some changes to the Advisory Committee on Immunization Practices guidelines for rabies vaccination. In June the committee voted to reduce the number of vaccines for post exposure treatment from five doses to four doses. This was in light of vaccine shortage and the research that showed four doses regiment gave adequate immunity. This will not be official until the MMWR is published, but many states have all ready started using this protocol.

The United States administers about 200,000 doses of Rabies vaccine annually between pre and post exposure vaccine, mostly as post exposure. Most (80 %) are paid by private insurance, about 30% require reporting. CDC is looking at national reporting of post exposure prophylaxis (PEP) by using national surveillance existing tools. Some states are reluctant to report and the CDC would like to collect this data if possible. They are working on how they can obtain this data in states where it is non mandatory to report.

Large scale exposure to a rabid bat at a school in Wyoming produced much public attention. Bat was taken to school as show and tell item and was found to be rabid. Only one person was evaluated to need PEP, but 100 people pursued PEP because of risk advice from physicians. There is a need for communication with private health care providers to understand the use and overuse of PEP so they can advise patients appropriately in post exposure situations. Also noted dogs being returned to shelter because of economy may result in possibly less vaccination and more rabies diagnosed in canines. An incident with rabies was identified in Bali. Post exposure vaccine treatment that only requires one injection is being studied and could change treatment dynamics. Arizona surge in skunk rabies has been highlighted in national publications. Media has made the outbreak seem much more sensational than in reality.

CDC honored the loss of Dr George Baer by having a symposium on progress in rabies control on World Rabies Day in Atlanta. Dr Baer was on the forefront of rabies research and worked on the oral rabies vaccine. He was the head of the CDC Rabies division and vital in the advances in rabies control.

United States Department of Agriculture (USDA), Animal Plant Health Inspection Service (APHIS), Wildlife Services (WS) Rabies Update

Dennis Slate

Director

APHIS-WS Rabies Management Plan

Dr Slate, head of the Rabies Management program for Wildlife Services, updated the committee on the program and surveillance and control. He also said the WS would be honoring Dr George Baer with a program in the near future regarding oral rabies vaccine.

Paradigm shift in rabies program includes enhance surveillance so they can make better decisions about rabies baiting distribution. Baiting plan for 2009 includes spreading 6 million baits from Texas in January to New York later in the year. There is a downward trend in putting baits on the ground. Revenues in government are down and caused them to be more efficient in spreading baits. Ohio decreased its investment and WS attempted to cover that shortfall. We are still canine rabies free, but still have translocation and movement of infected dogs from Mexico. There is spillover of the gray fox rabies into the coyote and may expand baiting into New Mexico. Surveillance is difficult in open country and predator trapping is important in this process. Raccoon baiting along the east coast is important to holding the westward movement of this strain. Wildlife Services has been handbaiting at increased density outside the Ohio zone where the breaks in rabies cases has occurred and this can be difficult because of area being highly urbanized. Skunks have been found positive with raccoon strain rabies outside the zone. They are attempting to get the number to zero. The number of juveniles coming in to the population makes vaccination and control difficult. The program is looking at GenCon to control population through immunocontraception.

Contingency actions include increased baiting along the Canadian border, baiting in Vermont and other areas in upstate New York to deal with control of raccoon and skunk rabies. Spillover of big brown bat rabies into skunk and foxes in Arizona is an additional challenge. Developed an ORV zones and dropped baits to prevent spread outside the area and establishment of a new variant. The North American Rabies Management plan is a good example of the One Health concept and can be used a prototype for other programs. Dennis outlined the Plan and future projects with Mexico and Canada which includes population control on many levels. He also identified accomplishments along with

challenges for the program. Raccoon populations make control and surveillance a challenge. Fox and coyotes have much higher seroconversion rate and makes raccoon immunity not quite as good. Other species such as mongoose do not respond to ORV. Spillover into skunk continues to be a problem in many areas and spillover in all species continues to identify new outbreaks of rabies in other areas of the country. One goal is to eliminate terrestrial rabies in the future over the long term including eliminating variants in various regions. Review of the rabies program will occur in the near future with the new administration. This is one of the first program reviews for this administration. State surveys along with looking at new tools will help in evaluating the future form of the rabies program. Questions followed talking about various issues involving wildlife rabies and control challenges

One Health Initiative Overview and the Wildlife Perspective

Margaret Wild

Chief Veterinary Medical Officer

Biological Resource Management Division, National Park Service

One Health is the collaborative effort of multiple disciplines—working locally, nationally, and globally—to address critical challenges and attain optimal health for people, domestic animals, wildlife, and our environment. One Health is not a new idea, but an idea whose time has come, particularly given the emergence and resurgence of zoonotic diseases in recent decades. The American Veterinary Medical Association has taken a leadership role in bringing together partners in a current One Health Initiative. As recommended through the One Health Initiative Task Force and subsequently the One Health Joint Steering Committee, a One Health Commission was incorporated in June 2009. The Commission has established a mission, purposes, and is taking steps to move toward implementation of the One Health concept (see www.onehealthcommision.com). Wildlife health is an important component of One Health. Wildlife populations can be negatively impacted by disease directly by mortality or decreased fitness, or indirectly through collateral impacts of management actions (e.g., culling); however, the most critical impact may be if wildlife are increasingly viewed as pests or disease reservoirs, then tolerance of wildlife and the value society places on wildlife conservation may be at risk. Application of a One Health approach provides the opportunity to avoid such a scenario, if the health of all species remains the goal. Some applications of One Health in wildlife management are occurring. Rabies management is an excellent example of a program focusing on protection of all species. The Wildlife Conservation Society's One World-One Health program is a model for collaborative efforts. The National Park Service (NPS) has implemented a One Health approach to management through collaboration of their Office of Public Health and Wildlife Health Program. The NPS initiative has five focus areas including: unified disease surveillance, interdisciplinary response through a Disease Outbreak Investigation Team (DOIT), combined research agenda, consensus guidance, and support of national One Health efforts. Efforts such as these can demonstrate the value of application of the concept of One Health.

A fifteen minute break followed the last presentation and then presentations followed.

Margaret Wild acknowledged all the speakers and borrowed material for her presentation.

NVS Preparedness for a Zoonotic Disease

Lee M. Myers

State-Federal Liaison for the National Veterinary Stockpile

USDA-APHIS-VS

Dr. Lee Myers, State Federal Liaison for the National Veterinary Stockpile (NVS) within the US Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS), reported on NVS preparedness for a zoonotic disease. Dr. Myers also discussed the one health initiatives of VS as part of the agency's vision for 2015.

Of the 17 disease threats considered by APHIS to be the most damaging, the following nine are zoonotic: 1. highly pathogenic avian influenza, 2. Rift Valley fever (RVF), 3. Nipah, 4. Hendra, 5. bovine spongiform encephalopathy, 6. Japanese encephalitis (JE), 7. Venezuelan equine encephalomyelitis (VEE), 8. Eastern equine encephalomyelitis (EEE), and 9. *Coxiella burnetti*.

Four of the zoonotic diseases are transmitted by mosquito vectors that can acquire infection transovarially or by consuming blood from infected birds, pigs, or other animals. Rift Valley fever in the *Phlebovirus* genus is transmitted primarily by *Aedes spp.* or aerosol/direct contact with infective tissues or blood. Japanese encephalitis in the *Alphavirus* group is transmitted by birds or other infected animals to

humans primarily by *Culex spp.* Venezuelan equine encephalomyelitis, also in the *Alphavirus* group, is transmitted by *Aedes*, *Anopheles*, *Culex*, *Deinocerites*, *Mansonia*, and *Psorophora spp.* Transmission by exposure to aerosolized infectious material has been demonstrated in laboratory accidents. Eastern equine encephalomyelitis in the *Flavivirus* group is transmitted primarily by *Aedes spp.*

General preventive measures for mosquito-borne arboviruses include vector control and animal vaccination. Vector control measures include destroying mosquito larvae and eliminating breeding areas; Wearing of long sleeved shirts and trousers; Using approved mosquito repellents; Avoiding mosquito exposure during hours of biting, especially at dusk and dawn; And, killing adult mosquitoes by applying insecticides in known habitats. Animals in endemic areas should be immunized with approved vaccines.

When facing arboviral epidemics, general control measures include educating the general public on the mode of spread and mosquito control measures. High risk individuals should use appropriate personal protective equipment when handling infectious materials. Mosquito surveillance to determine vector density, location of breeding habitats, and the most useful control measures is a critical component of a vector control program. Large-scale vaccination of animals should be considered in epidemics.

Nipah and Hendra viruses are both in the *Paramyxoviridae* family. Nipah virus is a BSL 4 agent because of high mortality rates (40-75%) in human infections. Transmission is by aerosol or direct contact with excretions or secretions. It is important to ensure all workers in a Nipah virus eradication program are fully trained in personal protection and that only experienced field personnel should handle pteropid bats. Hendra virus is not highly contagious, according to field observations and experimental studies. Horses is the only domestic animal species that is naturally infected. The route of infection to humans is unknown with only four human cases recorded. Flying foxes in Australia is the known reservoir. Horses infected with Hendra virus should be handled carefully.

Coxiella burnetii, known as Q Fever, is a rickettsial organism transmitted commonly by airborne dissemination of dust from premises contaminated with placental tissues, birth fluids and excreta of infected animals. Contaminated airborne particles have been known to be carried downwind for over one half mile. Transmission by direct contact with infected animals and contaminated materials, or raw milk of infected animals.

The NVS is the national repository of critical veterinary equipment, supplies, vaccines, and services to combat the disease in animals, but to protect the health of responders. Some of the deployable personal protection countermeasures in the NVS are protective suits (standard, moderate, and high protection), aprons, gloves, boot covers, goggles, powered air-purifying respirators, filtering respirators (N95), biohazard bags, chemical tape, shears, etc. The connotation of standard personal protective equipment (PPE) includes routine disposable coveralls (e.g. Tyvek®), apron, gloves, boot covers, goggles, respiratory protection (N95), and the like. The NVS holds water-resistant disposable coveralls for moderate protection and waterproof disposable coveralls and powered air-purifying respirators for high protection.

Considerations for potential personal protections against zoonoses were reviewed remaining cognizant of the routes of transmission and zoonotic potential of each disease causing agent. High protection PPE gear and vector protection should be considered to prevent exposure to Rift Valley fever and Venezuelan equine encephalomyelitis when performing high risk activities. High risk activities requiring the highest level of protection in this context means direct contact with infected animals, or their tissues, excretions, or secretions, or exposure to infected and competent vectors. High protection PPE gear should be considered for highly pathogenic avian influenza (H5, H7), Nipah virus, and *Coxiella burnetii* high risk activities. Standard PPE gear and vector protection should be considered for Japanese equine encephalomyelitis and Eastern equine encephalomyelitis, and standard PPE gear should be considered for Hendra virus and bovine spongiform encephalopathy.

The NVS holds poultry foam equipment for massive depopulation which reduces human exposure to zoonotic pathogens when compared with historical depopulation equipment and methods. Commercial services through NVS contracts can provide vector control measures and responders skilled in all levels of PPE. The NVS also holds antivirals, both Tamiflu® and Relenza® for agriculture responders checked into incident command and identified as needing medication. The USDA will prescribe and dispense antivirals if needed to Federal government employees and States/Tribes/US Territories are responsible for prescribing and dispensing to their personnel.

The NVS program encourages logistics preparedness for zoonoses and has recently initiated exercises for arboviral diseases. The NVS program co-sponsored a tabletop exercise with the State of Arizona and the Navajo Nation in August of 2009 based on a Rift Valley fever scenario. In FY 2010, the

NVS program will partner with the Southern Agriculture and Animal Disaster Response Alliance member states to develop State NVS plans, and will conduct an operations based Rift Valley fever logistics exercise concurrently with the States of Alabama, Louisiana, and Mississippi in the spring of 2010. Reference materials for this presentation included *Foreign Animal Diseases* 2008; the Rift Valley Fever Factsheet from the Center for Food Security & Public Health, Iowa State University, May 2007; the Rift Valley Fever Factsheet, World Health Organization, September 2007; and the *Control of Communicable Diseases Manual*, 1995.

Dr. Myers also briefed the Committee on the VS2015 vision of one health. The one health working group (OHWG) was the first of the five VS2015 working groups formed in June 2009. Veterinary Services employees on the OHWG are Lynn Creekmore, Western Region; Tom Gomez, National Center for Animal Health Emergency Management (NCAHEM); Beth Harris, National Veterinary Services Laboratory; Steve Just, Minnesota Area Office; Patriece Klein, National Animal Health Programs; Katherine Marshall, Center for Animal Health; Mike McDole, New Mexico Area Office; Lee Myers, NCAHEM; Sheryl Shaw, Minnesota Area Office; Jay Srinivas, Center for Veterinary Biologics; Jill Wallace, National Center of Import and Export; Randy Wilson, Oregon Area Office.

The OHWG brainstormed on the following issues:

- Facilitate more assertive role of VS in OH
- Determine when VS should engage in OH issues; and when to lead vs. assist
- Encourage enhanced interactions with other agencies, departments, and organizations in OH arena
- Develop central coordinating entity within VS for zoonotic disease-related issues (ex. 2009 novel H1N1 influenza)
- Coordinate with USDA OH initiatives

The OHWG developed two pilot projects to move forward, the One Health Investigation Team (One-HIT) project and the personnel exchange/detail project. The intent of a One-HIT is to:

- Develop VS team of subject matter experts who could mobilize to rapidly assess an undiagnosed or uncharacterized OH event at the request of local or state officials
- Deploy, investigate, take necessary actions (e.g., rapid assessment), interface with OH partners, make recommendations regarding the scope and implications of the One Health incident
- Use case studies and role play to better define VS' interactions and policies, October 2009
- Identify potential team positions, roles, triggers for mobilization, and responsibilities for various scenarios
- Conduct tabletop exercise with OH partners to clarify how team will integrate with OH events
- Respond to an actual event by summer 2010
- One-HIT project recently approved and supported by VS Management Team as part of the VS 2015 initiative

The intent of the personnel exchange/detail project is to:

- Provide short-term experiential learning opportunities for all VS employees (GS 7-14) through details and externships with OH partners throughout FY 10
- Focus on activities that promote interdisciplinary approaches involving the health of animals or humans or well-being of ecosystems
- Foster collaboration and linkages across disciplines; gain leadership experiences; and enhance professional skills
- Short-term personnel exchanges and detail assignments recently approved and supported by the VS Management Team as part of the VS 2015 initiative and VS employee individual development plan

Foundational issues VS should address in order to create a culture of One Health

- Clarify VS authorities and roles
- Catalog employee skills
- Identify training needs
- Facilitate paradigm shift from historical roles
- Develop short term workarounds and long term solutions
- Invite representative of National Assembly of State Animal Health Officials and National Association of State Public Health Veterinarians to join OHWG
- Consider input from USAHA meeting

- Continue to solicit ideas and suggestions from stakeholders

NVS Tabletop Exercise – Rift Valley Fever

Scott Bender

Tribal Veterinarian, Navajo Nation Veterinary Program

Scott covered the recent tabletop drill of the NVS in Arizona with a RVF incident. There are 564 sovereign nations, tribes and villages. USDA is not allowed in these sovereign areas along with military and other federal agencies. Program started with Dr Bender and another veterinarian to be liaison with USDA, but still employed by tribe. Tribe had a disease outbreak likely Western equine encephalitis and realized they needed resources. They have worked with Arizona and USDA to obtain additional training for veterinarians along with an MOU with the state to obtain public health resources. Navajo nation has developed plans for emergency response to foreign animal disease and other emergencies. Incident command training was also included in preparation activities. It was discovered that the nation had very little PPE and needed a stockpile plan. Dr Bender observed stockpile exercise in Kentucky and realized what needed to be done in his area. Dr Upshaw developed the tabletop exercise for Rift Valley fever to exercise the NVS plan. The exercise took place August 5, 2009 involved Arizona, USDA and Navajo nation and took place in the Navajo Nation capital. This fit with the New Mexico exercise for foreign animal disease involving Rift Valley Fever. Navajo nation developed incident command system for the exercise and all learned about each others' roles in a disease emergency outbreak. Public health learned the importance of veterinary input to the process. Conclusions include that counties have no idea what the Navajo nations are doing so additional planning needs to proceed with these entities. Tribal agencies learned that they need to be involved in more planning for animal disease emergencies. Public health realized that activities realized that they would need to work with the nation on vector trapping and control. Recommendations include improving communications, identifying resources and feasibility of reciprocal sharing. There was great value in bringing all parties to the table and opening the eyes of non animal responders to the needs in the area of disease response along with interagency conversations.

H1N1 from the Swine Industry Perspective

Jen Greiner

National Pork Producers Council

Dr Greiner covered that the swine industry and the loss of 4.5 billion dollars in the last 24 months. Dr Greiner will talk about communications and the response of the swine groups to the H1N1 outbreak. Meeting with USDA and state veterinarians along with public health and elected officials was initiated to try and minimize the impact on an all ready impacted industry. China shut the door to swine imports and a North American Management Plan was developed and signed off on by Dr Clifford. Messaging that "Pork is Safe" was delivered to the public to show that eating pork was safe. Industry plan has been developed along with a core crisis team continues to meet to address any disease situations.

Four objectives were:

1. Pork is safe to eat and media is carrying messages to the public
2. Protect the US swine herds by keeping sick humans out of the barns and minimizing exposure
3. Monitor and react to media-use proper name, not swine influenza
4. Address allegations by activists and defend modern swine production practices to animal welfare groups.

Pork consumption did not drop in the US and it did in other countries. Finding H1N1 in a swine herd does not mean you cannot eat that meat. Messaging was very important in the Hispanic community. Ads were displayed in several media outlets and many interviews were given in the first weeks after the outbreak. Social media was included in the communication plan. You tube videos were posted along with messaging on Twitter. Farmers have worked to educate people on Twitter that H1N1 has stolen the farm and educated the public about the swine farm.

Round two, we are struggling with H1N1 being called the other name. Large media outlets have tested and the public appears to like swine flu better than H1N1. Continue to do webinar for all audiences to dispel the myths and send out messages. FactAboutPork.com is website for information.

Surveillance has gone on for years for influenza and the current environment makes it difficult for farmers for submit to testing since the market for these pigs is uncertain. Continuing to work with USDA and other agencies will be important in the future of the swine industry in this climate.

Committee Business

A quorum is being sought to consider a resolution and recommendation. There were not 10 committee members available for consideration at the time of the deliberations. More Committee members arrived and a quorum was obtained. A resolution presented by Don Lein was presented that addressed continued funding for wildlife rabies management programs in North America. After discussion and language amendments the resolution was passed and forwarded to the Board of Directors.

A recommendation was presented by Scott Bender to push forward a previous resolution regarding the GenCom program that the Committee considered last year. The committee made no effort to remove it from the table and will look for action at next year's meeting

A resolution presented in 2007 to the Committee on Transmissible Diseases of Poultry and Other Avian Species regarding vaccination, treatment and PPE for livestock workers as a priority was brought to the attention of the Committee by a guest. The Committee voted to recommend that this resolution be given to officials that can address priority vaccination for this population.

Chair Frank brought up that a subcommittee that could focus on One Health initiatives through this Committee and bring USAHA to the table in this program. The subcommittee could help with bringing public health to the meeting. Subcommittee includes Don Lein, Lee Myers, Margaret Wild and other members were appointed.