

## REPORT OF THE COMMITTEE ON PUBLIC HEALTH AND RABIES

Chair: Dr. Malcomb G. Fearneyhough, Dripping Springs, TX  
Vice Chair: Dr. John P. Sanders, Jr., Kearneysville, WV

Dr. Helen M. Acland, PA; Dr. Dale D. Boyle, VA; Mr. William H. Clay, DC; Dr. Leroy M. Coffman, FL; Dr. Joseph L. Corn, GA; Dr. Donald S. Davis, TX; Dr. Thomas J. DeLiberto, CO; Dr. James M. Foppoli, HI; Dr. Wyatt Frampton, UT; Dr. Nancy A. Frank, MI; Dr. Eric C. Gonder, NC; Dr. Keith N. Haffer, SD; Dr. Cathleen Hanlon, GA; Dr. Richard E. Hill, IA; Dr. Donald E. Hoenig, ME; Dr. Kristin G. Holt, GA; Dr. John P. Honstead, CO; Dr. Patrice N. Klein, MD; Dr. Spangler Klopp, DE; Dr. Donald H. Lein, NY; Dr. Martha A. Littlefield, LA; Dr. Jorge W. Lopez, Brazil; Dr. Robert G. McLean, CO; Dr. David L. Meeker, VA; Dr. Robert B. Miller, VA; Dr. Lee M. Myers, GA; Dr. Sandra K. Norman, IN; Dr. Leon H. Russell, Jr., TX; Dr. Robert H. Singer, CA; Dr. Paul L. Sundberg, IA; Dr. H. Leon Thacker, IN; Dr. Lewis P. Thomas, NV; Dr. Lyle P. Vogel, IL; Dr. Susan E. Wade, NY.

The Committee met on October 26, 2004 from 8:00 am-12:00pm. There were 45 in attendance. Chair Malcomb Fearneyhough presided assisted by Vice Chair John Sanders. The Chair welcomed everyone to the meeting and all were given the opportunity to introduce themselves.

Dr. Rodney Rohde, Assistant Professor, Texas State University, made a presentation entitled, "Bat rabies, Texas, 1996-2000." He reported that bats submitted to the Texas Department of Health (1996-2000) were speciated and tested for rabies virus (RABV) antigen by direct immunofluorescence microscopy. Antigenic analysis of rabies virus (RABV)-positive specimens was performed with monoclonal antibodies (Mab's) against the nucleoprotein of the virus; atypical or unexpected results were confirmed by genetic analysis of nucleoprotein sequence. For those laboratories without genetic typing capability, antigenic analysis with Mab's offers a pared, simple, and inexpensive means of typing RABV for epidemiological surveys. Their study suggested that MAb typing can be useful for large-scale surveys in which hundreds to thousands of virus samples originate from only one or two bat species and the question is simply "Do we find in these species the RABV variants that we expect to find?" All but 5 of 407 samples from *T. brasiliensis*, *L. borealis*, *L. cinereus*, *L. intermedius*, and *E. fuscus* tested in this study displayed the MAb patterns expected for the species. However, MAb typing by fluorescence microscopy lacks precision. Surveys that rely solely on antigenic typing underestimate the true diversity of RABV in bat populations and may oversimplify rabies

## PUBLIC HEALTH AND RABIES

transmission cycles, as our genetic analysis illustrates. The suggested citation for this presentation was: Rohde RE, Mayes BC, Smith JS, and Neill SU. Bat rabies, Texas, 1996-2000. *Emerg Infect Dis* (Serial online), 2004 May, available at <http://www.cdc.gov/ncidod/EID/vol10no05/03-0719.html>.

Dr. Charles Trimarchi, New York State Rabies Laboratory, gave a presentation entitled, "National Standard Rabies Diagnostic Protocol: A Minimum Standard for Rabies Diagnosis in the United States." The results of the postmortem examination of animals for evidence of rabies infections are used by the physician as the basis for the decision to provide or withhold treatment for the bite of a rabies suspect animal. It is this function that dictates the uniquely high standards of sensitivity and specificity required in the performance of these tests. Among the findings of the National Working Group on Rabies Prevention and Control, convened more than ten years ago, was the need for a minimum national standard for the laboratory diagnosis of rabies. In response to this recommendation, a committee of reference diagnosticians was established with the goal of improvement of the overall quality of rabies testing through the formulation of guidelines and standards for equipment, reagents, training, laboratory protocols, quality assurance, and laboratory policy for rabies diagnosis. As a first step to attaining this outcome, the committee prepared a standardized protocol for the analytical phase of rabies testing using the direct fluorescent antibody (DFA) test and evaluated the protocol by comparison testing of 435 samples submitted to public health laboratories of rabies diagnosis. The standard protocol for DFA has been made available to each rabies testing laboratory by postal or electronic mail and has been the course of recent training at the National Laboratory Training Network sponsored courses "Laboratory Methods for Detecting Rabies virus." In addition, the protocol and other documents appear on the rabies web site ([www.cdcd.gov/ncidod/dvrd/rabies](http://www.cdcd.gov/ncidod/dvrd/rabies)) maintained by the Centers for Disease Control and Preventive (CDC). The protocol addresses all aspects of the rabies DFA, with particular attention to handling of the diagnostic reagents, microscopy and proper sampling of the central nervous system. Because the consequences of flawed examinations include human mortality and extraordinarily costly misdirection of rabies control resources, the implementation of the Standard Protocol is essential to the protection of animal and public health. This, it is critical that the resources be provided to upgrade each laboratory performing these examinations to ensure the capacity to implement the protocol in its entirety.

Dr. Tom Sidwa, Texas Department of Health gave a report on rabies transmission through organ transplantation. The Texas Department of Health (TDH) became involving in a challenging disease investigation as a result of the first reported cases of rabies transmission through

## REPORT OF THE COMMITTEE

solid organ transplantation. CDC confirmed the cases and served as lead agency due to the multi-state nature of the scenario.

Dr. John Dunn, CDC, reported on CDC's Foodborne Disease Active Surveillance Network (FoodNet) Attribution Studies. In the United States, an estimated 76 million people contract foodborne and other acute diarrheal illnesses each year. FoodNet collects data on disease caused by enteric pathogens transmitted commonly through food in ten United States sites. FoodNet's objectives are to determine burden of foodborne diseases, determine the change in the burden of foodborne diseases over time, and to determine the proportion of domestically-acquired human infections attributed to different food sources (attribution). FoodNet meets these objectives by conducting active surveillance for laboratory-diagnosed illness. To prevent foodborne and other acute diarrheal illnesses, the Foodborne and Diarrheal Diseases Branch and FoodNet perform surveillance and special studies that attribute enteric infections to food sources and non-food sources such as direct animal contact.

Food attribution studies in FoodNet are designed to determine the proportion of foodborne diseases attributable to specific food and setting in the United States. FoodNet activities are examining food attribution at different points along the farm to table continuum: (1) attribution at the "point of processing" and (2) attribution at the "point of consumption". FoodNet and the University of Minnesota are collaborating on a point of processing attribution project that will quantify the contribution of various food-animal commodities to cases of human Salmonellosis. This project uses human surveillance and United States Department of Agriculture (USDA), Hazard Analysis Critical Control Point (HACCP) *Salmonella* data, and builds on an approach developed by the Danish Veterinary Institute. A mathematical model will estimate the number of domestic-acquired, sporadic cases caused by different *Salmonella* serotypes and phage types based on the prevalence of these *Salmonella* types in food-animal commodities, while adjusting for the amount of the commodity consumed and unknown parameters. FoodNet's main contribution to point of consumption attribution has been case-control studies of sporadic foodborne disease. To date, 17 case-control studies have been completed, including investigations of infection with *Campylobacter* species, *E. coli* O157:H7, and several *Salmonella* serotypes. Case-control studies of *Salmonella enteritidis*, *Salmonella newport*, *Listeria monocytogenes*, and *Salmonella* and *Campylobacter* in infants have been conducted and analyses are on going.

In addition to food attribution, CDC's Foodborne and Diarrheal Diseases Branch has recently performed numerous outbreak investigations enteric infections to direct animal contact. Recently, in consultation with CDC, the National Association of State Public Health Veteri-

## PUBLIC HEALTH AND RABIES

narians published a compendium of recommendations for use by Public Health Officials, veterinarians, animal exhibitors, and other concerned with disease control and injury prevention, with the intent of minimizing risks associated with animals in public settings.

CDC's Foodborne and Diarrheal Disease Branch and FoodNet conduct surveillance and perform special studies for enteric infections transmitted through food and by other routes of transmission such as direct animal contact. FoodNet attribution studies are determining the proportion of foodborne disease attributable to specific foods. Special studies and outbreak investigations have been successful in attributing enteric infections to direct animal contact. Food Attribution studies and other studies describing non-food sources of enteric pathogen transmission are ongoing with the goal of preventing disease among persons in the United States.

Dr. Stephanie Kordick, United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), discussed the USDA-APHIS Bovine Spongiform Encephalopathy (BSE) Surveillance Program that is currently underway. The goal of the program is to test as many cattle with in the targeted population as possible over a 12 to 18 month period in order to determine if BSE is present in the U.S. cattle population. A description of the target population, sample collection procedures, data collection processes, testing methodology and interpretation, outreach activities, and cost recovery issues were discussed.

Dr. John Fisher, University of Georgia, discussed a proposed resolution concerning Homeland Security Presidential Directive – 9 and inclusion of state wildlife agencies in the planning process for the directive.

Dr. Tracey Lynn, USDA- APHIS-Veterinary Services (VS) presented a paper entitled, "Linking Human and Animal Health in the United States: Achievements and Challenges." She reported that recent events affecting public health, including Severe Acute Respiratory Syndrome (SARS), Monkeypox, and Avian Influenza, have highlighted the potential adverse health effects of human interaction with animals. Outbreaks of zoonotic diseases are occurring with increasing frequency, from all corners of the world. It is difficult to predict when and where the next event will occur. It is apparent, however, that the public health and agriculture sectors must seek new partnerships and new ways to detect these microbial threats.

Both national and internationally, there has been an increasing recognition of a general need to develop these partnerships. The 2002 Public Health Security and Bioterrorism Act and Homeland Security Presidential Directives 5-10 call for an integration of agriculture, public health, and food safety surveillance to increase the Nation's biopreparedness. In addition, the publication of the World Health Or-

## REPORT OF THE COMMITTEE

ganization Technical Report “Future Trends in Veterinary Public Health” and the article “Converging Issues in Veterinary and Public Health” underscore the mutual needs and benefits of developing and strengthening the partnership between veterinary and human health.

To improve surveillance for emerging infections, the Institute of Medicine has recommended enhanced reporting by Human and Animal health partners. In 2000, the rapid spread of West Nile Virus (WNV) throughout the United States resulted in the national WNV reporting systems called ArboNet. During 2002, an interagency working group was tasked with addressing coordination of human and animal disease surveillance. Currently, USDA’s National Surveillance Unit is working to develop a National Animal Health Surveillance System. There are many challenges, both in public health and agriculture, including multiple, poorly coordinated surveillance systems, confidentiality issues, and funding disparities. In addition to data there has not been an overall evaluation of the effectiveness and efficiencies of the various systems, leading to duplication of efforts and inefficient use of limited resources. There is little linking of veterinary and human data, and not all zoonotic organisms are well addressed by existing surveillance systems. Surveillance for emerging infections in wildlife is especially problematic. Few diseases are notifiable, and measures for the detection of human and livestock infections are inadequate for the identification of similar diseases in wildlife. In addition, there is no action plan for what will trigger a response, and no definition of roles and responsibilities of the different agencies and stakeholders. The mission of the Working Group will be to fully identify obstacles and possible solutions, and implement the most effective methods to incorporate non-traditional partners into a coordinated system of surveillance for detection of zoonotic diseases. Strategic plan can be found at [www.aphis.usda.gov/vs.ceah/ncahs/nsu](http://www.aphis.usda.gov/vs.ceah/ncahs/nsu).

Dr. Dennis Slate, USDA-APHIS-Wildlife Services provided updates on the National Oral Rabies Vaccination (ORV) Program including accomplishments and future directions. The ORV Program is collaborative program between the federal, state, and local governments. ORV strategic components include enhanced rabies surveillance, natural barriers, contingency action planning and more effective baits. Three events were discussed: one in Massachusetts, one Ohio and one in New York. An Environmental Impact Study being conducted will bring a North American Rabies Control Plan between Canada, United States and Mexico.

The Committee mission statement was discussed. A subcommittee to address the mission statement was reactivated and a revised statement will be discussed next year.

The Chair discussed last year’s resolution.

The Committee discussed three proposed resolutions, approved

## PUBLIC HEALTH AND RABIES

two of them and forwarded them to the Committee on Nominations and Resolutions for approval by the general membership. The resolutions addressed:

1. Additional funding for terrestrial wildlife rabies control programs and development, maintenance and expansion of coordinated regional wildlife rabies control and vaccination programs.
2. Involvement of state fish and wildlife management agencies, via the International Association of Fish and Wildlife Agencies, in the planning activities described in Homeland Security Presidential Directive – 9 and the inclusion of them on the Food and Agriculture Sector Government Coordinating Council.

A third proposed resolution that would request stopping or controlling the translocation of wildlife was tabled until next year's meeting.