Another Human Case of Equine Morbillivirus Disease in Australia

Another human case of equine morbillivirus (EMV) disease has occurred in Australia. The patient was a 35-year-old farmer, who lived near Mackay, in northern Queensland. He died in the Royal Brisbane Hospital on October 21, 1995 (1). The patient was probably infected with the novel virus 12 months before his death—approximately the time of the first reported outbreak of EMV.

A hitherto unknown infectious disease, EMV was first observed in Brisbane, Queensland, in September 1994, when an outbreak of acute respiratory disease in horses at three stables in Hendra, a Brisbane suburb, was reported (2). In a 2-week period, 14 racehorses and two persons at the stable contracted the disease. One of the human cases and some of the equine cases were fatal. A total of 21 horses were infected with the virus. Fourteen horses died as a result of clinical illness (they either died from the infection or were euthanized). The remaining horses had either symptomatic or asymptomatic infection and were euthanized.

The cause of infection in the recent case has been confirmed as EMV at the Australian Animal Health Laboratory in Geelong through the testing of samples taken from the patient before he died (I. Douglas, Australian Communicable Disease Service; PROMED).

The Mackay patient was married to a veterinary surgeon. The couple bred horses and grew sugar cane. In August 1994 (a month before the outbreak of EMV in southern Queensland), two horses died on the couple's property. The veterinary surgeon, assisted by her husband, performed autopsies on the two animals. The diagnoses, based on these autopsies, were "avocado poisoning" and "brown snake bite," respectively (1).

In August-September 1994, soon after the death of the horses, the husband became ill with a mild meningoencephalitis, which improved with antibiotics. Cerebrospinal fluid examination showed a neutrophilic pleocytosis suggestive of a viral infection (1). Serum collected at the time of the examination and stored was found to contain a low but significant titer of antibody to EMV.

The patient appeared to have recovered; however, he was admitted to the hospital 5 weeks before his death with signs of encephalitis. Evidence of EMV infection included a high serum neutralizing antibody titer against the virus and a positive polymerase chain reaction (PCR) test of cerebrospinal fluid collected before his death. Tests of autopsy specimens confirmed the infection.

Direct fluorescence antibody and PCR tests of fixed tissue blocks from one of the horses at the Australian Animal Health Laboratory have confirmed that it was infected with EMV (I. Douglas, PROMED). However, it is likely that both horses were infected.

The Mackay patient's symptoms were predominantly neurologic. He displayed no respiratory symptoms until aspiration pneumonia developed. By contrast, the major clinical symptoms of EMV in Hendra were respiratory.

No recent outbreaks of clinical illness have been reported in the horses on the Mackay property—or elsewhere in Queensland—since the 1994 outbreak. Also, investigation has not shown a link between the horses on the Mackay property and those in the Hendra stables. A serologic survey of over 2,000 horses, undertaken in 1994 after the Hendra outbreak, yielded negative results. That survey included more than 200 horses in the Mackay/Rockhampton/Townsville areas. Similarly, the Queensland veterinary authorities have obtained samples from more than 3,000 animals from 294 populations (including farms, race meetings, and horse events) since October 23, 1995; 2,349 of the samples have been tested, all with negative results. Moreover, blood samples recently taken from all the domestic animals on the Mackay property, including approximately 90 horses, have been tested for virus by the Animal Health Bureau, Queensland Department of Primary Industry and Energy. All results were negative.

An extensive epidemiologic investigation is being conducted by the Queensland Department of Health and the Department of Primary Industry and Energy. All persons who may have had exposure to the virus in either episode have been tested for EMV infection and had negative results (1). No serologic evidence of further human infection has been found.

No human-to-human transmission of EMV has been reported. It is believed that the disease is spread through contact with the body fluids of infected sick or dying animals.

References

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2. Murray K, Rogers R, Selvey L, Selleck P, Hyatt A, Gould A, et al. A novel morbillivirus pneumonia of horses and its transmission to humans. Emerging Infectious Diseases 1995;1:31-3.

Social Science and the Study of Emerging Infectious Diseases

Topics related to emerging and reemerging infectious diseases attracted a considerable audience at the annual meeting of the American Anthropological Association, November 15–19, 1995, in Washington, D.C. The meeting had a separate session entitled "Emerging and Reemerging Infectious Diseases: Biocultural and Sociocultural Approaches."

The session brought together anthropologists interested in and working on emerging infectious diseases from various subdisciplinary perspectives. Presentations were made on the following subjects: outline of a research agenda, deforestation and the emergence of infectious diseases in the rain forests of Papua-New Guinea, the cholera epidemic in Latin America, evolutionary aspects of emergent infections, societal impacts of the test for acquired immunodeficiency syndrome, compliance and iatrogenesis in tuberculosis treatment in the United States, patchwork policies that affect long-term treatment of tuberculosis in Nepal and Uganda, the reemergence of schistosomiasis in Egypt, dengue control in Latin America, cultural and political ecologic models of emergent infections, and the politics of leprosy eradication. Abstracts are available from the conference organizers, listed below.

Anthropologists interested in international health and the social science aspects of infectious diseases are organized in a working group called the International Health and Infectious Disease Study Group of the Society of Medical Anthropology (American Anthropological Association). Requests to subscribe to this group's newsletter can be sent to

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WHO Establishes New Rapid-Response Unit for Emerging Infectious Diseases

The World Health Organization (WHO) has established a new rapid-response unit to control and prevent the growing incidence of new and reemerging diseases worldwide. The unit's focus will be improved containment of disease outbreaks, such as that caused by the deadly Ebola virus, which struck Zaire in 1995.

The WHO unit will be called the Division of Emerging Viral and Bacterial Diseases Surveillance and Control (EMC). It will be capable of mobilizing staff from WHO headquarters in Geneva and from the organization's regional offices.

In addition to mobilizing WHO's own technical staff and expertise, EMC will coordinate the activities of the agency's traditional partners, for example, its international network of collaborating centers, bilateral donors, expert advisers, and nongovernmental organizations.

Teams equipped to implement epidemic control measures will be placed on-site within 24 hours' notification of an outbreak. This strategy, when implemented in Zaire, not only rapidly contained the recent Ebola outbreak but also prevented its spread to Kinshasa, the capital city of 2 million.

Among EMC's goals are 1) to strengthen local surveillance and disease control so that countries can develop the early warning systems needed to detect emerging or reemerging diseases through innovative field epidemiology and public health laboratory training programs and 2) to continue WHO's activities in developing a network of public health laboratories to strengthen regional and international collaboration in outbreak detection and control.

EMC will continue to expand WHO's network—termed WHONET—that detects and monitors antibiotic resistance worldwide. WHO will use the information collected to continue to advocate research and development of new antibiotics to replace those that are no longer effective.

For further information on WHO's rapid-response unit, contact

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Rotavirus Vaccine Workshop Held

More than 125 participants from at least 15 countries attended the Fifth Rotavirus Vaccine Workshop at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia, October 16-17, 1995.

Rotavirus has emerged as the most important cause of severe diarrhea in children worldwide. It is a problem not only in developing countries, where it kills an estimated 870,000 children each year, but also in the United States, where it remains the most important single cause of hospitalization or clinic visits for childhood diarrhea.

Moreover, although studies from many countries indicate that only four serotypes are predominant worldwide, some strains at every site studied cannot be serotyped. In some countries such as India, the diversity of strains is extensive. Further studies are needed to define the extent of cross-protection against these strains that is induced by the vaccine to determine whether additional antigens need to be included in vaccines for such areas.

This workshop included sessions on epidemiology, virology, pathogenesis and immunity, and vaccines currently being tested. Each session had numerous presentations by leaders in the field of rotavirus research. Researchers reported that several live oral rotavirus vaccines, based on animal strains of rotavirus combined with reassortant strains, have been tested in field trials in children. These appear to protect American children against rotavirus and are more efficacious against severe disease. These vaccines like natural protection, are not 100% protective so many investigators are exploring alternative approaches to vaccines such as the use of virus-like particles, native DNA, and microencapsulation of antigens.

No published volume of proceedings from the workshop is planned, but a supplemental issue of the *Journal of Infectious Diseases* scheduled for early 1996 will contain papers from the meeting.

The workshop was held under the auspices of the National Institutes of Health, Emory University School of Medicine, and the World Health Organization.

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International Conference Addresses Preparedness for Emerging Strains of Pandemic Influenza

An international meeting on pertinent issues related to recognizing, identifying, and controlling newly emerging strains of pandemic influenza was held in Bethesda, Maryland, December 11–13, 1995. The conference, "Pandemic Influenza: Confronting a Reemergent Threat," was sponsored by the National Institutes of Health, the University of Michigan, the Centers for Disease Control and Prevention, the Food and Drug Administration, the U.S.-Japan Cooperative Medical Science Program, and the World Health Organization.

Epidemic strains of influenza cause infections almost every year throughout the world because of continuous minor genetic changes in the virus. However, periodically a major change occurs, such as reassortment between mammalian and avian strains of the virus. These pandemic strains are novel to the human immune system and, therefore, can cause substantial disease worldwide. The conference concentrated on issues that would be crucial to controlling an influenza pandemic.

Plenary and workshop sessions examined the following topics: Can pandemics be predicted? What are the specific approaches for pandemic control? What are the advantages and limitations of vaccines and antiviral agents? The workshops also focused on factors contributing to the emergence of pandemic strains and various aspects of surveillance, such as the adequacy of current global surveillance structure for early identification of a pandemic strain, the use of virologic and

epidemiologic surveillance once a strain is identified, and the rapid exchange of information globally. The following immunologic and molecular questions were addressed as well: What basic research advances would allow us to respond more rapidly after the next human pandemic strain is detected? Is the presence of novel influenza A virus in pigs a predictor of the next influenza pandemic? Is an H2 influenza virus the next human pandemic subtype or are H7 viruses equally possible? Also discussed were the practical issues of vaccine needs, production, and distribution.

Conference participants then reviewed international pandemic plans and the U.S. pandemic plan being prepared by the Federal Interagency Group on Pandemic Preparedness.

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Course Offered on Clinical and Pathologic Features of Emerging Infections

The Armed Forces Institute of Pathology (AFIP), Emory University, and the Centers for Disease Control and Prevention (CDC) are cosponsoring a course on emerging and reemerging pathogens. The course will be taught in Atlanta, Georgia from April 27 to May 1 and will discuss the epidemiology, clinical features, pathology, and pathogenesis of such diseases as plague, Lyme disease, Kaposi sarcoma, microsporidiosis, Buruli ulcer, ehrlichi osis, hantavirus pulmonary syndrome, and Ebola virus infection. Emerging drug resistance in pneumococci and other streptococcal infections will also be discussed.

The course is designed for pathologists, epidemiologists, infectious disease physicians, veterinarians, microbiologists, parasitologists, and others interested in the pathology as well as the emergence of infectious diseases. The course, to be held at the Emory Conference Center Hotel, will provide 38 hours of Category I CME credit and will consist of 32 hours of lectures with open discussion periods, 6 hours of glass and color slide review, and a visit to CDC laboratories. For more information, contact the course director, Center for Advanced Medical Education, AFIP, Washington, D.C. 20306-6000 (phone: 800 -577-3749 or 301-295-7921; fax: 301-427-5001).

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NASA Sponsors Symposium on Remote Sensing and Control of Insect-Transmitted Diseases

Health officials and disease control experts met November 28-30 in Baltimore, Maryland, for a symposium on the use of satellites to monitor and control insect-transmitted diseases.

Sponsored by the National Aeronautics and Space Administration (NASA) and the Third World Foundation of North America, the symposium was held to inform government officials from various countries of NASA's scientific and technologic capabilities for detecting, monitoring, and improving the control of diseases. Health ministers and medical directors from more than 20 countries, including Bangladesh, Belize, China, Ghana, Indonesia, Kenya, Malaysia, Nigeria, Peru, and Rwanda, attended.

The symposium featured discussions on the economics of disease surveillance, deforestation, and urbanization. The keynote address, "The resurgence of vector-borne infectious diseases as major public health problems in the 1990s," was given by Duane Gubler, director, Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, Centers for Disease Control and Prevention (CDC). Participants also discussed possible joint activities between NASA and interested countries. Further information can be obtained from NASA's Office of Life and Microgravity Sciences, Washington, D.C., which manages the agency's global monitoring and human health research program in conjunction with the National Institute of Allergy and Infectious Diseases, National Institutes of Health, and CDC.

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CDC Convenes Meeting to Discuss Strategies for Preventing Invasive Group A Streptococcal Infections

Since the mid-1980s, the epidemiology of invasive group A streptococcal (GAS) infections in the United States and worldwide has changed, and the incidence of invasive infections, streptococcal toxic shock syndrome (strep TSS), and necrotizing fasciitis has increased. These changes may be the result of a shift in GAS M-types and a corresponding increase in strains that produce certain pyrogenic exotoxins. Recognizing the importance of monitoring changes in the occurrence of severe group A streptococcal disease, the Council of State and Territorial Epidemiologists recommended in April 1995 that invasive GAS infections and strep TSS be added to the National Public Health Surveillance System.

Most invasive GAS infections occur sporadically and are acquired in the community. For these cases, preventing illness and death depends on improving recognition and treatment. Primary prevention of invasive GAS disease may be more feasible for infections that are acquired in institutions (such as hospitals and nursing homes) and for secondary cases that occur among contacts of persons with invasive disease. Most nosocomial infections (for example, wound infections, postpartum endometritis, and sepsis) occur in surgical or obstetric settings, or are associated with intravenous catheters. Secondary invasive disease in the community is uncommon, although studies of household contacts of those with GAS infectionshave found a substantially increased risk for infection in this group. GAS infections spread easily from person to person after contact with respiratory secretions of an infected person and have traditionally caused epidemics of pharyngitis, scarlet fever, and rheumatic fever. Recently, clusters of invasive infections have been reported in families, hospitals, and nursing homes; community-wide outbreaks have also been reported.

As state health departments initiate surveillance for invasive GAS disease and strep TSS, guidelines for prevention will help in interpreting these data and in formulating a public health response. CDC convened a meeting of experts from academia and public health (October 10-11, 1995), to discuss existing data and strategies for preventing invasive GAS disease in institutions and the community. Discussions centered on the magnitude of risk for secondary disease among close contacts of persons with invasive infection and the potential for preventing disease by chemoprophylaxis, and on approaches for investigating and preventing infections in institutions. Recommendations are being developed, and the conclusions of the participants will be presented at a later date.

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Regional Conference on Emerging Infectious Diseases Sparks Plan for Increased Collaboration

The World Health Organization (WHO), the Naval Medical Research Unit Three (NAMRU-3), and the Centers for Disease Control and Prevention (CDC) jointly sponsored the first conference in the region on issues of emerging and reemerging infectious diseases for members of WHO's Eastern Mediterranean Regional Office (EMRO). The meeting was held in Cairo, Egypt, November 26-29, 1995. Delegates from the WHO South-East Asia Regional Office and African Regional Office also participated.

The meeting brought together persons representing key resources that have begun working together to organize a regional program of laboratory assistance and enhanced surveillance communications for infectious diseases. Participants included WHO infectious disease program officers and key personnel from WHO collaborating centers, national reference laboratories, national infectious disease programs, ministries of health, and university public health programs.