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“ONE HEALTH” ... in Action! [#1]

A prime example of “One Health” in action has been described with verve in Richard Preston’s book, “The Hot Zone.” This was the story of how two of our “One Health” supporters, both eminent virologists, Frederick A. Murphy, DVM, PhD and Karl M. Johnson, MD worked closely together (along with others) to help unravel the mystery surrounding the initial outbreak of Ebola hemorrhagic fever and how they discovered its etiologic agent, Ebola virus.

Prior to working at CDC with Dr. Murphy (a veterinarian), Dr. Johnson (a physician) had directed the NIH Middle America Research Unit in the Panama Canal Zone, where he and his colleagues discovered one of the first viruses causing a hemorrhagic fever, i.e. Machupo virus, the etiologic agent of Bolivian hemorrhagic fever. In addition to discovery and description of new zoonotic viruses, over many years Dr. Johnson worked in infectious disease epidemiology and on experimental therapies for several of the hemorrhagic fever agents.

Dr. Murphy, a virologist / pathologist and Chief of the CDC Viral Pathology Laboratory and Dr. Johnson were close colleagues for several years at CDC, working hand-and-[surgical] glove together [the gloves were for protection against the dangerous pathogens they both dealt with in their laboratories]. According to Dr. Johnson, Dr. Murphy was “vitally interested in viral pathogenesis in addition to viral taxonomy, and was always ready to chime in when something novel appeared.” While the two were working on Machupo virus at CDC in Atlanta in October 1976, along with the late medical virologist Patricia Webb, MD, they discovered Ebola virus in specimens from hemorrhagic fever victims received from Sudan and Zaire (now the People’s Republic of Congo). One of the famous electron micrographs taken by Dr. Murphy at that time showed an Ebola virus virion as a “Sheppard’s crook.” This image is almost as famous as its photographer!

These very brief comments about these two public health pioneers represent only a fraction of what they have accomplished together and separately. But they reflect how veterinary medicine and human medicine can come together, in a kind of scientific meeting-of-the-minds, in this case resulting in the discovery of an important hemorrhagic fever virus---a virus that has continued in recent years to plague the people of central Africa. Hemorrhagic fever viruses are now designated by CDC as potential bioterrorism agents.