

## **Zoonoses and Emerging Infectious Diseases**

**Donald Armstrong MD,MACP**

**Member Emeritus**

**Memorial Sloan- Kettering Cancer Center**

**New York, New York, U.S.A.**

A Zoonosis is defined as a disease communicable from animals to man under natural conditions.

The spread of infection from animals to humans depends on 1) geographical distribution of the host animal and their microflora, 2) home: under normal living conditions e.g. the ubiquitous house mouse with its LCM virus 3) work with animals; e.g. raising pigs in Malaysia with Nipah virus or working as a veterinarian in the U.S. Southwest exposed to cats with plague 4) Habits and hobbies: e.g. pet dogs and cats and so forth on to the evermore exotic e.g. Gambian rats with monkey pox virus or prairie dogs carrying tularemia and family trips to petting zoos where exposure and disease due to rabies and E. coli 0157:H7 have occurred 5) bioterrorism. As an unnatural condition e.g. anthrax. In addition the use of non human tissues, especially pig's and baboon's in transplantation to humans termed xenotransplantation causing xenozoonoses is a potential threat now under investigation.

The connection between zoonoses and emerging infections is quite clear since so many emerging infections are due to zoonotic agents. Likewise the connection between zoonoses and bioterrorism agents is also clear since the majority of such agents cause zoonoses.

The control of zoonoses is a far reaching problem involving the practicing and academic physician, public health officials, veterinarians, agriculturists, and those involved in or responsible for the control of commerce. The shipment of animals or there products for food or for pets from one area to another, near and around the world, provides ample opportunity for spreading infectious agents as seen with avian flu from chickens or mad cow disease from beef. In addition, exotic birds when smuggled across borders may well carry ornithosis . Recently an exotic (?) rat shipped from Africa to the U.S. carried monkey pox which was transmitted to humans and to pet prairie dogs from which it spread to other humans.

As internists, on the front line, we should be constantly aware of the possibility of zoonotic disease as we evaluate our patients and take steps to document such infections. Local and public health laboratories should help us do this by making the procurement and testing of specimens readily and rapidly available to us. Education of all concerned (virtually everyone) about zoonoses should be available and pursued vigorously.