

Preventing and Controlling Zoonotic Diseases Requires a Comprehensive Approach

Zoonotic diseases—those that can be naturally transmitted between animals and humans—have dramatically increased during the last 100 years, and zoonoses such as hantavirus, anthrax and cat-scratch disease continue to emerge, says veterinary microbiologist Bruno Chomel.

Zoonotic diseases—those that can be naturally transmitted between animals and humans—have dramatically increased during the last 100 years.

Dr. Chomel, who is an authority on the epidemiology of zoonotic diseases, attributes some of that rise to an increase in the global human population from 1 billion to 6 billion, increased global travel and trade, and globalization of the food supply.

Dr. Chomel, who published an overview of emerging zoonotic diseases last summer in the *Journal of Veterinary Medical Education*, says, “To effectively prevent and control zoonotic diseases, the scientific and health communities need to develop a discovery-to-control continuum, ranging from recognition and identification of these diseases to diagnosis training and communication.”

During the past 20 years, Dr. Chomel notes, major progress has been made in identifying disease-causing agents that are transmitted by insects and ticks, especially bacteria that are carried by ticks and cause diseases like cat-scratch disease and Lyme

disease. The rate of discovery of viral zoonotic diseases has been even greater, with several rodent-borne viruses like the hantaviruses and arenaviruses identified in North and South America during the past decade.

Part of this success is due to the availability of new tools and procedures in the field of microbiology that help scientists accurately identify pathogens and the diseases they cause. But Dr. Chomel points out that, with the rise in the number of outbreaks of zoonotic diseases as well as the new and looming threat of zoonotic agents being used as biological weapons, there is an acute need for developing a comprehensive approach to preventing and controlling zoonotic diseases.

...there is an acute need for developing a comprehensive approach to preventing and controlling zoonotic diseases.

He suggests that such an approach should include improved capabilities in recognizing emerging zoonotic diseases; collaborative, multidisciplinary research; international partnerships for disease diagnosis and surveillance; improved education and training for professionals who may be the first to see cases of human and animal disease; and new strategies for disseminating information about emerging diseases.

Dr. Chomel has studied *Bartonella* infections, cat-scratch disease, hantavirus, rabies and plague and conducted many infectious-disease surveys of wildlife.



Bruno Chomel

BARTONELLA CHOMELII

NEW SPECIES NAMED FOR PROFESSOR

A new *Bartonella* species, isolated from a French cow, has been named *Bartonella chomelii* in honor of Bruno B. Chomel, professor of zoonoses at the School of Veterinary Medicine.

The new species of bacteria is cited in the August 2003 issue of the *International Journal of Systematic and Evolutionary Microbiology*.

Dr. Chomel is the first scientist to isolate *Bartonella bovis* from domestic cattle. He also is the first to experimentally demonstrate the transmission of *Bartonella henselae* by fleas in cats. He has contributed to an improved understanding of epidemiology and vectors of *Bartonella*-associated disease in animals.

Bartonella is the bacterial agent of cat scratch fever, a usually mild disease in people that can become a serious health problem in immunocompromised individuals.

Dr. Chomel has assisted in isolating species from wild and domestic animals, including cattle and cats, throughout the world in countries such as the Philippines, Italy, the United States, France and Denmark.

Dr. Chomel's research team has learned that distribution of *Bartonella* among ticks appears widespread in California, and that California coyotes show signs of *Bartonella* exposure.

zoonotic diseases