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Get veterinarians involved in research

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Most of the biological agents expected to be used against Americans by homegrown or international terrorists are zoonoses. These are caused by pathogenic disease organisms that are transmitted from animals to humans. The highest profile disease, anthrax, was employed soon after the horrible 9/11 terrorist attacks. Veterinarians should be intimately involved with physicians and other health professionals in studying these disease agents but, inexplicably they are not. Only a small number enter comparative medicine research, a field where an interdisciplinary approach shares resources of both areas of knowledge.

Because of this omission, incalculable deficiencies exist in our basic scientific understanding of zoonoses. Many of the bioterrorist diseases like anthrax, plague and tularemia, among others, await answers to questions that comparative medical research is poised to unlock. For instance, why are humans easily infected by breathing in anthrax organisms while carnivores (like dogs) are not?

In comparative medicine, physician-veterinarian teams work together to solve problems of disease processes across species. Such teams should be promoted and encouraged to study interactions of agent-host zoonoses. Close liaisons between human medicine and veterinary medicine would benefit other areas also. For instance, pet owners who are immunocompromised are at higher risk to infections from common organisms living on pets that normally cause no harm.

A prominent example of where a physician-veterinarian team recently contributed to health care for humans and animals was when Drs. Rolf Zinkernagel and Peter C. Doherty, a physician and veterinarian working together, discovered how the body's immune system distinguishes normal cells from virus-infected cells. For this they shared the Nobel Prize in 1996. In 1893, Dr. Theobald Smith, a physician, and Dr. F.L. Kilborne, a veterinarian, published a paper establishing that an infectious agent, *Babesia bigemina*, the cause of cattle fever, was transmitted by ticks. Their seminal work helped set the stage for Walter Reed's discovery of yellow fever transmission via mosquitoes.

Veterinarians are being utilized extensively today with the potential threat of an avian influenza (H5N1) pandemic in people and to our poultry industry. The Health and Human Services department of our government has essentially turned over responsibility for prevention and control in domestic poultry (chickens, turkeys and ducks) and avian wildlife to the U.S. Department of Agriculture's Animal and Plant Health Inspection Service.

This agency is primarily staffed with veterinarians trained in public health (epidemiology) related to foreign and domestic animal disease control. Nevertheless, there is a dire shortage of veterinarian-scientists. The National Academy of Sciences, in 2004, reported that among American Veterinary Medical Association members, less than 1 percent were board certified in laboratory animal medicine and less than 2 percent in pathology. A very small number of veterinarians receive National Institutes of Health grants to pursue these critical careers and others in biomedical research.

There are other reasons why veterinarians lack interest in research. Students in schools of veterinary medicine and human medicine as well emphasize clinical care which encourages a preponderance of graduates to companion animal pet medicine to meet societal demands. Large education debts represent another powerful incentive for new graduates to enter more lucrative private practices.

Such remedies that could solve this serious problem: Currently the National Institute of General Medical Sciences offers research training programs only to holders of M.D. or Ph.D. degrees. This should begin to include D.V.Ms/V.M.Ds as well. The NIH has a road map to improve biomedical research, but does not mention any plan for comparative medicine or the important inclusion of veterinary medical involvement. This must be changed to encourage collaboration.

By emphasizing zoonoses and cross-species, comparative medicine advancements and achievements would expand dramatically. Our nation deserves inclusion of the best scientific disciplines and minds to help explore zoonotic diseases and many others. Future human and animal lives are at stake.

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