

Veterinarians at high risk for viral, bacterial infections from animals

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The recent H1N1 influenza epidemic has raised many questions about how animal viruses move to human populations. One potential route is through veterinarians, who, according to a new report by University of Iowa College of Public Health researchers, are at markedly increased risk of infection with zoonotic pathogens -- the viruses and bacteria that can infect both animals and humans.

While there is no evidence that veterinarians played a direct role in the current H1N1 epidemic, the review found that veterinarians can serve as a "bridging population," spreading pathogens to their families, their communities and the various groups of animals for which they provide care. The paper appears in the May 15 issue of the *Journal of the American Veterinary Medical Association* (<http://avmajournals.avma.org/loi/javma>).

While conducting previous occupational research studies, the study's authors, Whitney Baker, a doctoral student in epidemiology at the University of Iowa College of Public Health, and Gregory Gray, M.D., University of Iowa professor of epidemiology and director of the University of Iowa Center for Emerging Infectious Diseases, observed that veterinarians often have evidence of zoonotic influenza virus infection. To better understand this finding, Baker and Gray conducted a review of medical literature published between 1966 and 2007 and identified 66 journal articles that specifically addressed veterinarians and zoonotic infections.

"Our review of the literature found that veterinarians' risk of zoonotic infections is often higher than that of other occupational groups with extensive exposure to animals, such as farm workers," Baker said. "This is remarkable since veterinarians have professional training in how to protect themselves from zoonotic infections."

The review found veterinarians had an increased risk for various pathogens, including swine influenza, avian influenza and swine hepatitis E viruses; Brucella; *Coxiella burnetii*; avian and feline *Chlamydia psittaci*; methicillin-resistant *Staphylococcus aureus*; and Bartonella bacteria. Additionally, the review provided evidence that veterinarians could be infected with animal pathogens that are not widely recognized as zoonotic.

"It has been estimated that the majority of more than 1,400 recognized human diseases are zoonotic and that more than 70 percent of 177 emerging or reemerging diseases have originated in animals," Gray said. "We can expect the majority of newly emergent human pathogens to similarly originate from animals. Clearly, there is a critical need to better understand pathogen transmission from animals to man and from man to animals."

Baker and Gray also analyzed seven published surveys that focused on veterinarians' self-reported use of protective equipment. These reports indicate that veterinarians often fail to routinely use recommended personal protective equipment, such as gloves, gowns and respiratory protection devices.

In conversations with veterinarians, the authors learned that veterinarians may neglect to wear protective gear because of discomfort, lack of availability, cost and the belief that there is a low risk of zoonotic infection.

The authors suggest that professional and policy measures should be implemented to reduce hazards for veterinarians, which could help prevent transmission of zoonotic infections to other human and animal groups. Current national policies in place to prevent an influenza pandemic often overlook veterinarians. Based on their review, Baker and Gray believe these standards need to change.

"Veterinarians play a vital role in biopreparedness, yet they do not seem to get much respect," Gray said. "We need to appreciate their many contributions, offer them special training, and support them with public health policy measures. For instance, veterinarians who work with swine and poultry should be included as a high-priority group for receipt of annual influenza and pandemic influenza vaccines. Doing so will help to protect them, their families and our nation."

Baker and Gray's review focused on literature and surveys published in the United States and internationally; however, their review may not represent all veterinarians as the scientific reports were predominantly from English-speaking and developed countries. Internationally, the authors noted, there are major differences between zoonotic disease prevalence, the quality of veterinary education and the availability of protective resources.

"To really make a difference in controlling emerging infectious diseases, we need to think globally and develop measures that protect veterinarians here and abroad," Baker said.

Source: University of Iowa ([news](#) : [web](#))

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