

Editorial

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Observations on Emerging Zoonotic Enteric Bacterial Pathogens

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Concern of human disease due to gastrointestinal pathogens, *Salmonella* spp., *Campylobacter* spp., *Vibrio* spp., *Escherichia coli*, and *Yersinia enterocolitica* continues worldwide. For prevention and control of outbreaks, it is important to have knowledge of the sources of infection or the animal reservoirs. In Grenada, we isolated several potentially human pathogenic serovars of *Salmonella* from animals in the last few years. These included *Salmonella enterica* serovars Javiana, Rubislaw, and Montevideo from free-living cane toads.¹ A somewhat similar picture was evident with regard to mongoose, another wild animal in Grenada. The most common serovars were Javiana and Montevideo.² Of these, serovar Javiana had emerged as a human pathogen in the United States a few years ago. Our isolates showed absence of resistance to the currently used antibiotics for cases of human salmonellosis, including ciprofloxacin and cefotaxime. In another recent study done in Grenada, we isolated *S. Saintpaul* and *S. Montevideo* from blue land crabs. In the Caribbean, *S. Saintpaul* has been frequently isolated from humans.³ On the other hand, Rubislaw was the most common serovar from green iguanas (*Iguana iguana*), and some isolates showed reduced susceptibility to cefotaxime.⁴ Blue land crabs and green iguanas are used as human food in Grenada, which is a matter of concern when these animals may carry pathogenic *Salmonella* strains with drug resistance.

Campylobacter spp. can cause not only gastroenteritis, but also extragastrointestinal manifestations including Guillain-Barré syndrome (GBS). *C. jejuni*-related GBS is perhaps on the increase in some countries.⁵ GBS-like conditions can occur in animals, and further studies are required.⁶ *Campylobacter jejuni* and *C. coli*, including strains similar to those causing human disease have been isolated from animals in Grenada. However, we have not looked for the emerging species *C. ureolyticus*, which was called *Bacteroides ureolyticus* until recently. Hariharan et al⁷ isolated *B. ureolyticus* from many equine endometrial swabs 2 decades ago in Canada. It has become necessary to include *C. ureolyticus* in further epidemiological studies on *Campylobacter* spp. This species of *Campylobacter* appears to surpass *C. coli* as the second most common causative agent of *Campylobacter*-related human gastroenteritis in Ireland.⁸

Potentially zoonotic vibrios have been isolated from shellfish, including conchs from Grenada.⁹ Little is known regarding the bacteria associated with the queen conch (*Strombus gigas*), and further research is needed on this shellfish used for human consumption in the Caribbean.

Animals such as goats may harbor human pathogenic strains of *E. coli*, such as serotype O157:H7.¹⁰ Hariharan et al¹¹ reported a case of diarrhea and systemic infection in a goat due to *Escherichia fergusonii*. This organism can cause disease resembling salmonellosis in ruminants, and diarrhea in humans as well.

Another re-emerging organism is *Yersinia enterocolitica*, causing unusual increase in human cases.¹² Pigs are the main reservoirs of virulent serotypes of this organism.¹³

In summary, research on animal reservoirs of human bacterial pathogens need to continue for understanding the epidemiology, and for effective prevention and control.

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