Zoonotic Transmission of *Cryptosporidium* spp. in Veterinary Educational Settings: A Preventable Public Health Problem

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**Abstract**

Over the years zoonotic *Cryptosporidium* infections have colloquially been considered a common occurrence among veterinary students, and is frequently referred to as a “rite of passage”. The burden of disease, however, warrants a more scientific and thorough attitude towards public health prevention strategies. The close association between veterinary students and animals presents a unique risk of human cryptosporidiosis infection. Although the zoonotic potential of *Cryptosporidium* spp. is well documented, there is no single source that synthesizes historical outbreaks of cryptosporidiosis in veterinary educational settings. This report is a response to concerns from several U.S. State Public Health Veterinarians to the Centers for Disease Control and Prevention concerning the recurrence of cryptosporidiosis in veterinary educational settings; as well as the need for evidence based recommendations targeted toward this population. The objective was to synthesize and review reports of zoonotic cryptosporidiosis outbreaks, and summarize recommendations to minimize public health risk associated with human clinical disease.

A review of all published outbreaks and sporadic cases, both in the United States and internationally, of zoonotic cryptosporidiosis in veterinary educational settings was conducted utilizing a multi-modal approach.

This search yielded 23 outbreaks of zoonotic *Cryptosporidium* in veterinary educational settings from 1982 to 2012. Almost two-thirds (65.22%) of the reports involved schools or colleges of veterinary medicine, 21.73% involved undergraduate animal science or pre-veterinary programs, and 13.04% involved veterinary technical schools. Among all outbreaks, 86.95% reported contact with bovine calves as the main source of human infection. Diarrhea was the most frequently reported clinical symptom in both humans and animals. The mean number of total exposed persons per outbreak, from 13 of 23 reports where data was available, was 56.46 (SD 40.87) and an attack rate of 0.3111 (SD 0.298). The mean number of persons ill per outbreak was 8.60 (SD 7.06) and laboratory confirmed cases per outbreak was 4.52 (SD 2.92). Average duration of illness was 7.98 (SD 2.58) days, from 10 of 23 outbreaks reporting. Several statistically significant risk and protective factors were identified and are presented.

Over the past 30 years there have been less than 25 published reports of zoonotic cryptosporidiosis in veterinary educational settings. Anecdotal reports from veterinary students and the veterinary community at-large, however, suggest that the number of publications greatly underestimates the true incidence. We hypothesize that a significant number of sporadic cases of zoonotic cryptosporidiosis within veterinary educational settings occur each year, many of which do not get reported to local and state public health authorities, and warrants future prevalence studies. This paper outlines a framework to guide veterinary students, faculty and staff in best practices to prevent transmission of zoonotic cryptosporidiosis, and concludes that these settings need to adopt policies to decrease the burden of both human and animal clinical disease.