

# The global prevalence of *Cryptosporidium* infection in dogs: A systematic review and meta-analysis

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## Abstract

Cryptosporidiosis, caused by the protozoan parasite *Cryptosporidium* spp., is an important zoonotic disease and is considered a global public health concern. Dogs are suggested as one of potential reservoirs for transmitting the *Cryptosporidium* infection to humans. However, there is a paucity of information about global patterns of occurrence of *Cryptosporidium* in dogs. A systematic review and meta-analysis were carried out to evaluate the global prevalence of *Cryptosporidium* infection among dogs. In this study, PubMed, Scopus, Web of Science and Google Scholar databases were systematically searched for relevant studies up until October 30, 2019. Finally, 127 articles (including 160 datasets) were eligible for inclusion in the systematic review and meta-analysis. The overall prevalence of *Cryptosporidium* infection was estimated at 8% (95 % CI: 5-11 %) using microscopic methods, 7% (95 % CI: 4 -10%) using coproantigenic methods and 6% (95 % CI: 4-9%) using molecular diagnostic methods. Molecular methods revealed that dogs were most frequently infected by *C. canis* (3.64 %) and *C. parvum* (1.28 %). The pooled prevalence different of subgroups (WHO regions, geographic and climate parameters, diagnostic methods, type of dog) were analyzed separately. The pooled odds ratio (OR) of *Cryptosporidium* was significantly higher than one for diarrhea status, with dogs suffering from diarrhea having a higher likelihood of *Cryptosporidium* infection, compared to dogs without diarrhea (OR; 3.61 95 % CI: 1.89 - 6.90%). The present study is the first systematic review and meta-analysis providing a comprehensive view of the global prevalence of *Cryptosporidium* in dogs and its related risk factors. Awareness of *Cryptosporidium* prevalence, risk factors, and disease complications for the health authorities, physicians, veterinarians and dog's owners is important for developing effective strategies to prevent infection.

## Keywords

**Author Keywords:** *Cryptosporidium*; Dogs; Prevalence; Meta-analysis