

# Zoonotic Disease Risks for Immunocompromised and Other High-risk Clients and Staff Promoting Safe Pet Ownership and Contact



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## KEYWORDS

• Zoonoses • Pet • Immunocompromised • One health • Child • Pregnant • Elderly

## KEY POINTS

- Pets are important members of many households, including those with people at increased risk for pet-associated infectious disease (ie, <5 or ≥65 years of age, pregnant, or immunocompromised).
- Additional attention to pet selection, contact, and husbandry, and to personal hygiene can reduce the likelihood of pet-associated disease, and is especially important for households with high-risk individuals.
- Veterinary staff are well positioned to educate clients on methods to reduce pet-associated disease.
- To be most effective, veterinary staff must be aware of high-risk clients (or their household members) so they can provide targeted education and recommendations.
- Veterinarians and physicians must work together to effectively reduce pet-associated infections.

## INTRODUCTION: NATURE OF THE PROBLEM

Pet ownership is common. In North America, more than 50% of households own cats or dogs, with other species (eg, birds, reptiles/amphibians, exotic companion mammals such as hamsters) frequently reported.<sup>1,2</sup> Similar statistics have been reported for households in other countries.<sup>3–7</sup> These numbers likely severely underestimate the frequency of animal contact by individuals, as reported in one study in which 37% of non-pet-owning households had a member with frequent animal contact.<sup>1</sup>

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The authors have nothing to disclose.

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Vet Clin Small Anim 45 (2015) 377–392  
<http://dx.doi.org/10.1016/j.cvsma.2014.11.007>

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The mental and physical benefits of pet ownership and contact are documented in the literature.<sup>8–11</sup> Although findings vary between studies, numerous health benefits, including reduction in stress, anxiety, loneliness, and depression, have been associated with animal interaction.<sup>8</sup> These benefits extend to numerous populations, including children, the elderly, and the immunocompromised, and include individuals in institutions and the community. Children brought up with companion animals often have better social skills, self-esteem, and empathy than children without pets.<sup>9</sup> In adults and the elderly, studies have documented an association between pets and reduced risk of cardiovascular disease and improved psychological and physical well-being.<sup>10</sup> Health benefits are also well documented in individuals who are immunocompromised. Such individuals may spend considerable time alone, and thus are especially vulnerable to mental and physical illness. Among individuals infected with the human immunodeficiency virus (HIV), domestic animals have been shown to serve as sources of support and affection and protect against loneliness.<sup>11</sup> In all of these groups, the perceived importance of pets is clear, with patients and family members typically very attached to household pets, regardless of species.<sup>12</sup>

Despite these benefits, companion animals are a potential source of infectious agents to people (zoonoses). The exact number of pathogens that can be spread through direct or indirect pet contact is constantly changing as the available testing methodologies and appreciation for transmission dynamics evolve; however, there is evidence that at least 70 human pathogens are likely to be, at least in part, pet associated.<sup>13</sup> The severity of pet-associated illness is variable, ranging from unapparent colonization to permanent health sequelae or even death. Pet-associated zoonotic disease risks are present for anyone having contact with pets or their environments, including pet owners, nonowners, and those working in pet care and housing facilities (eg, veterinary clinics, pet shops, animal breeding facilities).<sup>1,14–16</sup> However, those at greatest risk for infection may be the same individuals with the most to gain from the benefits of pet contact.<sup>17</sup> This apparent conflict between pet-associated health benefits and risks has become an important health care issue and human health care providers may make overly cautious pet contact recommendations that the family veterinarian does not support or owners are unwilling to follow.<sup>18</sup> Veterinarians may be asked for advice from human health care providers in forming recommendations for a patient's pet or may be in a position to educate an owner or staff member on disease risk. For these reasons, veterinary staff have an obligation to inform themselves on this topic so that they can contribute their expertise. In addition, in some circumstances there are potential legal ramifications should clients or staff become ill from pet contact (see article by Marsh and Babcock in this issue).

## APPROACH/GOALS

The risk for disease of these pet-associated pathogens in people follows the typical epidemiologic pattern of infectious diseases:

1. Specific human hosts are at increased disease risk.
2. Specific sources (species and ages of pets) and ownership behaviors are responsible for the greatest risk of disease.
3. Transmission is typically by direct/indirect contact with the pet and their body fluids or ingestion of animal fecal material, but may also be by respiratory or vector exposure.

Precautions directed toward the groups at greatest risk of disease and that are designed to alter the species of pets owned and the behaviors of owners that are

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