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Canine Distemper Spillover in Domestic Dogs from Urban Wildlife  
Sanjay Kapil and Teresa J. Yeary  
Canine distemper virus (CDV) causes a major disease of domestic dogs that develops as a serious systemic infection in unvaccinated or improperly vaccinated dogs. Domesticated dogs are the main reservoir of CDV, a multihost pathogen. This virus of the genus Morbillivirus in the family Paramyxoviridae occurs in other carnivorous species including all members of the Canidae and Mustelidae families and in some members of the Procyonidae, Hyaenidae, Ursidae, and Viverridae families. Canine distemper also has been reported in the Felidae family and marine mammals. The spread and incidences of CDV epidemics in dogs and wildlife here and worldwide are increasing.

Astroviruses in Dogs  
Vito Martella, Paschalina Moschidou, and Canio Buonavoglia  
Canine astroviruses appear to be widespread geographically. The prevalence may be significantly higher in pups with gastroenteric disease than in asymptomatic animals and virus shedding has been shown to correlate with gastroenteric signs in naturally infected dogs. Animal experiments are required to understand better the pathogenic role of astroviruses in dogs.

Canine Reproductive, Respiratory, and Ocular Diseases due to Canine Herpesvirus  
James F. Evermann, Eric C. Ledbetter, and Roger K. Maes  
This review documents how clinical inquiry expands as our knowledge base about canine herpesvirus (CHV) increases. We must understand the various forms of CHV infection that may occur in the dog population. This has prompted the veterinary community to develop more sensitive diagnostic assays. CHV is more common than we considered a decade ago. Up to 70% of some high-risk dog populations have been infected with and are latent carriers of CHV. Recognition of the various forms of CHV-induced disease, availability of diagnostic assays with increased sensitivity, and the formation of reliable biosecurity measures will allow for better control steps.
Canine Coronavirus: Not Only an Enteric Pathogen
Nicola Decaro and Canio Buonavoglia

This article reviews the currently available literature on pantropic canine coronavirus (CCoV), providing a meaningful update on the virologic, epidemiologic, clinical, diagnostic, and prophylactic aspects of the infections caused by this emerging pathogen of dogs. It also describes pantropic CCoV-induced disease reproduced under experimental conditions.

Feline Coronavirus in Multicat Environments
Yvonne Drechsler, Ana Alcaraz, Frank J. Bossong, Ellen W. Collisson, and Pedro Paulo V.P. Diniz

Feline infectious peritonitis (FIP), a fatal disease in cats worldwide, is caused by FCoV infection, which commonly occurs in multicat environments. The enteric FCoV, referred to as feline enteric virus (FECV), is considered a mostly benign biotype infecting the gut, whereas the FIP virus biotype is considered the highly pathogenic etiologic agent for FIP. Current laboratory tests are unable to distinguish between virus biotypes of FCoV. FECV is highly contagious and easily spreads in multicat environments; therefore, the challenges to animal shelters are tremendous. This review summarizes interdisciplinary current knowledge in regard to virology, immunology, pathology, diagnostics, and treatment options in the context of multicat environments.

Canine Noroviruses
Vito Martella, Pierfrancesco Pinto, and Canio Buonavoglia

Noroviruses are recognized as emerging enteric pathogens of humans and have been identified in recent years in a number of mammalian species. The role of noroviruses as pathogens in immune-competent animals and under natural conditions remains uncertain, although both homologous and heterologous animal models are now available to investigate the pathogenesis, the immune response, and the molecular mechanism regulating norovirus infection. Recently, evidence has been gathered that noroviruses may also circulate in domestic carnivores. The zoonotic implications of these novel viruses deserve more attention, due to the strict social interactions between humans and pets.

Canine Papillomaviruses
Christian E. Lange and Claude Favrot

Papillomaviruses can infect epithelia and induce proliferative disorders. Different types of canine papillomaviruses have been found to be associated with distinct pathologies including exophytic warts as in canine oral papillomatosis, endophytic warts, and pigmented plaques and, in some cases, squamous cell carcinomas. Virus infection is followed by a phase of subclinical infection before the onset of
symptoms. A diagnosis can in some cases be made clinically but should be verified if there are any doubts. Most papillomas do regress spontaneously within a few months. Preventative vaccination is possible but not on the market.

**Feline Immunodeficiency Virus: Disease Association Versus Causation in Domestic and Nondomestic Felids**  
Joanna White, Alison Stickney, and Jacqueline M. Norris

Feline immunodeficiency virus (FIV) is an important infection in both domestic and nondomestic cats. Although many studies have provided insight into FIV pathophysiology and immunologic responses to infection in cats, questions remain regarding the association of FIV with specific disease syndromes. For many diseases, both association and causation of disease with FIV remain to be confirmed and clarified. The use of experimental infection models is unlikely to yield answers about naturally infected domestic cats and is not feasible in nondomestic felids, many of which are endangered species. Researchers might consider further study of naturally occurring disease with an emphasis on confirming which diseases have a likely association with FIV.

**Canine Brucellosis Management**  
Chelsea L. Makloski

Infertility in dogs is a growing concern in breeding kennels. There are a number of bacteria, viruses, and husbandry practices that must be considered to determine the cause of decreased litter sizes, abortions, weak puppies, and lack of pregnancy, but brucellosis should be at the top of the differential list.

**Hepatozoon spp Infections in the United States**  
Kelly E. Allen, Eileen M. Johnson, and Susan E. Little

Two *Hepatozoon* spp are recognized as parasites of domestic dogs in the United States, *H canis* and *H americanum*. *H canis* was first described in India in 1905 and has been documented in many areas of the world, although not definitively identified in North America until recently. *H americanum*, causing American canine hepatozoonosis, was first documented in a coyote in 1978 and is now considered an emerging etiologic agent of disease in domestic dogs throughout the United States. The authors review current knowledge of canine hepatozoonosis caused by *H canis* and *H americanum* and elaborate on more recent research findings.
North American Snake Envenomation in the Dog and Cat 1239
Lyndi L. Gilliam and Jill Brunker

Snake envenomation can be a cause of significant morbidity in dogs and cats in North America. Being familiar with the venomous snakes in your area and understanding the mechanisms of action of their venom will allow for successful treatment of envenomation cases. Treatment of snake envenomation revolves around supportive care in mild to moderate cases and venom neutralization with antivenom in severe cases. Dogs and cats envenomated by North American snakes have a good prognosis if treated appropriately.

Disease Transmission from Companion Parrots to Dogs and Cats: What is the Real Risk? 1261
Jamie M. Bush, Brian Speer, and Noel Opitz

A number of common misconceptions exist regarding the degree of transmission from companion parrots to dogs and cats. Concern regarding bacterial, viral, fungal, and parasitic transmission is generally unfounded, because disease transmission between companion parrots and dogs and cats is not well-documented. Infections with Mycobacterium spp, Aspergillus spp, Giardia spp, Chlamyphila psittaci, Salmonella spp, Yersinia pseudotuberculosis, Cryptococcus neoformans, Heloplasma capsulatum, Cryptosporidium spp, and avian influenza are often considered possible transmissible diseases, causing pet caregivers unwarranted concerns.

Feline Respiratory Disease Complex 1273
Leah A. Cohn

Feline respiratory disease complex (FRDC) refers to the characteristic acute presentation of a contagious respiratory or ocular disease caused by one or multiple pathogens. Environmental and host factors impact the transmission, clinical presentation, preventive strategy, and treatment of affected cats. The FRDC is especially problematic in settings where large numbers of cats cohabit, including animal shelters, catteries, and semi-feral colonies. Although elimination of FRDC is an unrealistic goal, improved understanding can lead to strategies to minimize disease impact.

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