

## Canine Distemper Prevalence in Pakistan

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### ABSTRACT

Canine distemper virus (CDV) is responsible for high morbidity and mortality in dogs. It has been infecting domestic dogs for decades. It is caused by ‘‘Canine Distemper Virus’’, extremely transmissible infection of dogs and is very dominant in Pakistan. The causative agent (CDV) is a member of the genus *Morbillivirus* in the family *Paramyxoviridae*. Puppies having insufficiently acquired maternal antibodies often fall a prey to this infection due to weak immune response. The virus generation inclusions of varying size and morphology in cells which can be the basis of its detection. Spread of CD is not declined despite applying extensive vaccination efforts in the country. It has the second highest fatality rate of any infectious disease.

### Introduction

Canine Distemper (CD) is a significant viral infection which is caused by Morbillivirus and develops as a routine disease of canines throughout the world. The persistent behaviour of disease, variation in weather prevalence and consequent peaking morbidity and mortality in many dogs in addition to stray population are hard barriers to cope with following regular immunization in Pakistan [1].

Canine Distemper Virus (CDV) is believed to be present in 11 different subfamilies in the world. However, its prevalence in Pakistan for employment of proper diagnostics and elimination practices is still to be known. Through the collection of basic and primary information, results accompany our understanding about Canine Distemper circulating in Pakistan. Extensive researches are much required to explore genetic attributes of CDV's in a vast premises of the country in combination with discovering the possible causes of vaccination insufficiency [2]. A prevalence of 11% is believed to be present in Pakistan according to diagnostic procedures [3].

### Host Range

CDV has a wide host spectrum and proof of disease has been seen in various species of families like Canidae, Mustelidae, Procyonidae, Ursidae, and Viverridae [4]. Dogs kept in homes are the most exposed groups and pose a serious harm to species who are at verge of extinction [5,6]. Disease associated with canine distemper virus is considered to infect a vast range of animal population from different backgrounds and focuses that emerging threat of disease for wildlife species and giving rise to questions regarding possible zoonotic affects considering stoppage of measles immunization in humans [7]. CDV has also been seen in hosts other than canine population and a drastic spread has been observed in mating populations of rhesus macaques (*Macaca mulatta*) [8].

### Transmission

In pet dogs, the main channel of spread is via aerosols from respiratory secretions carrying the virus, however, some body secretions like sweat can also be the source of transmission. Virus shed by reservoir host is also a possible route of spread [9]. Although, the query that the part of pet dogs and carnivores in holding and transmitting CDV is yet not completely answered [10,11]. The extensive and exponential host spectrum of CD and its prevalence in wild species largely hinders the disease control strategy [12]. The spread of CD has also been reported via lymphatic secretions in pet dogs and wild animals [13].

### Eradication and Vaccination

Investigations concerning larger database are required to comprehend a vast spread of Canine Distemper Viruses in Pakistan. Moreover, finding the possible reasons of vaccination failure either because of deviation from vaccination strains or due maternally acquired antibodies or inability to examine the efficacy of immune status should be dealt necessarily [14]. Proper eradication of CDV can be gained with use of vaccine. Modified live vaccines has been in practice for 30 years are very efficient. However, there is space for increasing vaccine potential [15]. Occurrence of disease outbreak in vaccinated animals

is often observed which questions the efficacy of present vaccination strain demanding elaborated studies [16]. Sulfanilamide and prontosil are believed to be effective against canine distemper in dogs. Efficacy of both these drugs is almost same [17].

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