

## Transmissible Disease of Pets in Humans

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### Abstract

Most of the human are in contact with animals. This contact may be direct or indirect. A zoonotic disease is that disease that is transmitted from animals to humans. Zoonotic disease are alarming and gaining importance worldwide because every year many people die neglecting these disease. It poses a serious threat and is challenging for human health. These may be bacterial, viral, parasitic or fungal. Main concern is educating people and asking them to follow hygiene measures.

**Keywords:** One Health; Zoonosis and Human Health; Zoonotic Disease; Environmental Health; Transmission

### Introduction

As you know we all are well aware that animal provides many benefit to the human. Like cattle buffalo are source of milk meat butter and hides; similarly domestic animals and pets are the source of companionship for humans. Naturally pet owners develop a strong bond with pets.

This animal human bond is essential for the physical emotional and psychological health of both. Beside this strong relationship owners should be cognizant of the germs and diseases that are being transmitted by their pets and are noxious for human beings. The disease that spread from animals to humans is called as Zoonotic diseases.

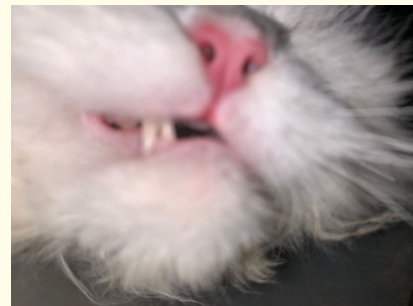
We know that there is emotional attachment of man and animal. There are various ways by which people get infected with germs that cause zoonotic disease.

### Direct contact

Contact with the saliva, blood, urine, mucus, feces, or other body fluids of an infected animal. For example, ringworm transmission in babies by touching or petting infected animal or due to biting and scratching.

### Vector borne

Ticks fleas, mites can transmit disease on the other hand most potential vector is insect bite.



**Figure 1**



**Figure 2**

### Indirect Contact

Contact with areas allocated for free roaming of animals, things or pots that animal use. For example: Feed, milk pot of dog and cat.

### Food borne

Drinking unpasteurized (raw) milk, undercooked meat or eggs, or raw fruits and vegetables that are contaminated with feces from an infected animal.

### Waterborne

Drinking water that has been contaminated with feces from an infected animal.

Following are most common zoonotic diseases that spread from pets to human.

Leishmaniasis is a complex mammalian diseases caused by protozoans of the genus *Leishmania* (*kinetoplasta*, *trypanosomatidae*). Natural transmission from animals to animal and from animals to humans occurs by the bite of a fly commonly known as sand fly.

Rabies is a fatal but preventable viral disease. It is transmitted if rabid animal bites man or other animal. Central nervous system of living being is a predilection site. Symptoms then lead to brain dysfunction, anxiety and confusion. Unnatural behavior, delusions, hydrophobia (fear of water), and restlessness commonly occur in infected species. The progression of disease typically ends after 2 to 10 days. The virus ultimately results in death. Vaccination and staying away from wildlife can prevent rabies transmission.

Brucellosis is a bacterial disease. Infected animals like sheep, cattle, goats, pigs, and dogs and their products are the common ways to get infection. Pyrexia, sweats, fatigue headache, muscle ache are experienced by infected person. Samples of blood are taken to perform antibody detection test and bone marrow, or other body fluids are screened to detect bacteria. Don't consume undercooked meat unpasteurized dairy products like milk cheese. For personal protection use rubber gloves, safety goggles, gowns or aprons. These safety measures will ensure that bacteria from infected animals do not get into eyes or in abrasion on the skin.

### Avian chlamydiosis

Examination of infected live bird or mishandling infected dead bird can transmit this disease in humans. Veterinarians and birds caretaker are at high risk to develop this infection. It has most commonly flu like symptoms is healthy person while in immune-compromised it can cause myocarditis, endocarditis, hepatitis and encephalitis.

Lyme disease is the most common vector-borne disease in the U.S caused by the *Borrelia burgdorferi* and *Borrelia mayonii*. Trans-

mission to humans is due to bite of infected blacklegged ticks. Symptoms include high temperature, fatigue, and a characteristic skin rash called erythema migrans. If disease progression is ignored it can spread to joints, the heart, and the nervous system. Diagnosis of lyme disease relies on symptoms, exposure to ticks and rash on body. Mostly it is treated successfully with a few weeks of antibiotics course. Using insect repellent, removing ticks instantly, use of pesticides and closing the cervices and places where ticks mostly hide can reduce the disease incidence. The ticks that transmit Lyme disease can also transmit other tick-borne diseases as well.

Toxoplasmosis is disease of gut. *Toxoplasma gondii* is a tissue cyst-forming coccidium. (The parasite can attack the gut, from there it moves to blood circulation and resides in vital organs and damage muscles and nervous system. Infection don't show signs and symptoms. It remains latent but control measures should be taken for the prevention of oocyst shedding in order to reduce infection. The risk for exposure to *T. gondii* is greatest in cats that prey on wildlife and live outdoors. Kittens are much prone to infection and shed huge amount of oocysts. Undercooked infected meat or by ingesting oocysts from the contaminated environment cause disease in humans.

Giardiasis is a very common enteric protozoal disease of domestic animals, including livestock, dogs, cats and wildlife. *G. duodenalis* causes giardiasis in man and in other mammals. It has direct lifecycle and the cyst is immediately infectious when released into the feces that remain infectious for months in cool, damp areas. Cysts move through the intestine in feces and are spread by direct contact with contaminated water, food and fomites. Provision of clean fresh water (boiled or filtered) and adequate sewage systems can prevent giardiasis in man. Removal of infected feces from infected animals or people followed by proper disinfection along with personal hygiene habits like washing hands and washing fresh food is essential for preventing infection.

### Fungal infection

Zoonotic fungi cause significant public health problems and is naturally transmitted to humans. Insufficient attention to fungal zoonotic infections has compromised human health.

Penicilliosis is caused by the pathogenic fungus *Penicillium marneffe* that usually causes disease in immune-compromised individuals. Natural habitat of fungus is soil. Dogs and rodents are reservoir of this fungus. In patients having healthy immune status most cases of penicilliosis are presented with generalized signs and symptoms like lymphadenopathy, pyrexia, loss of weight and blood and non-productive cough, that may strongly resemble histoplasmosis, and tuberculosis. In immune compromised (HIV-Infected) patients, the disease affects skin, reticuloendothelial system, lung and gut. Most commonly affected organs are liver, spleen and skin.



Figure 3

Lobomycosis is a rare chronic, granulomatous, fungal infection of the skin and subcutaneous tissues. Natural habitats of fungus are soil and vegetation. Disease in aquatic mammals has diverted attention towards water and aquatic environment. This disease doesn't affect the general health of the patient. Insect or snake bite or sting from an arthropod, or trauma from a sharp instrument can transmit disease. The clinical signs of lobomycosis include pleomorphic lesions and dermal nodules, which can be either hyperpigmented or hypopigmented.

### Ringworm

It is fungal infection also known as tinea or dermatophytosis. People can acquire infection by touching animals or coming in contact with things that are mostly in animal use. Infected cats and dogs rolling on the blankets can transmit this disease. Signs include patched area with round border on body. Children have weak immunity so they should be kept away from infected animal. In adults it can affect foot, hand, nails, scalp and beard.



Figure 4

Below mentioned points should be kept in mind before contacting any animal or pet:

- Always keep your hands clean. Wash your hands right after being in contact with animals, even if you didn't touch any animals. Wash hands properly with soap and clean, running water to clear the germs away. In case of non availability of soap and water you can use a 60% alcohol-based hand sanitizer.
- Prevent bites from mosquitoes, ticks, and fleas.
- Remain alert and avoid animal bite or scratch.
- Use of litter trays for disposing off feces in rubbish destined for landfills and ensure preventing seepage into land water.