

## ZOONOTICS DISEASE-A DISEASES TRANSMITTED FROM ANIMALS TO HUMANS

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### ABSTRACT

The purpose of this article is to explain the dreadful effects of **Zoonotic Diseases or Zoonosis**. Zoonosis are the diseases transmitted from animals to humans. Since, animals and humans coexist in the environment and are the major parts of food chain, the proximity between the two carries a potential risk for the rise of epidemic due to various dangerous and sometimes fatal infections. Zoonotics can be transmitted from any infectious source of animal, ranging from pets to wild animals.

**The cognition of Zoonotic diseases revolves around.**

1. The intimacy and **exposure** between the infected animal and Human
2. The current state of the Human's immune system
3. **Hygiene** conditions

This paper aims to highlight various carriers and vectors, some major zoonotic diseases. It also gives an idea of the measures that need to be taken for the prevention of the disease that can be enforced in our daily lives in order to protect the two major aspects of our food chain.

This paper is a step towards forsaking the epidemics which have already been observed in history. Thereby, establishing a healthy relationship between animals and mankind.

**KEYWORDS:** zoonotic diseases, animals, humans, exposure, infection, hygiene, transmission, prevention.

### INTRODUCTION

Zoonotic Diseases or Zoonosis according to WHO are diseases that are naturally transmitted between Vertebrate animals and humans. These can either travel directly or indirectly; ranging from consuming contaminated food or through direct animal contact. The severity of these **diseases** in humans varies from mild symptoms to life-threatening conditions.

Reportedly, over the 1415 types of pathogenic infections caused in Humans, 61% are zoonotic in nature. Most of the zoonotic diseases are not prioritized as critical except diseases like SARS, Avian Influenza H5N1 etc; hence, WHO categorizes them under NZDs (Neglected Zoonotic Diseases).

Animals provide many benefits to humans. Many people interact with animals in their daily lives, both at home and away from home. Pets offer companionship and entertainment, with millions of households having one or more pets; one might come into close contact with animals at a county fair or petting zoo, or encounter wildlife while enjoying outdoor activities. Also, animals are an important food source and provide meat, dairy products, and eggs. However, some animals can carry harmful germs that can be shared with people and cause illness – these are known as zoonotic diseases or zoonosis. Zoonotic diseases are caused by harmful germs like viruses, bacterial, parasites, and fungi. Some animals can appear healthy even when they are carrying germs that can make people sick.

**There are certain modes of indirect and direct transmission, listed as follows.**

1. Through the air
2. Consuming contaminated meat or produce
3. Coming in direct contact with infected animal
4. Through insect bites, mosquitoes and ticks
5. Hiking and other outdoor activities
6. Petting infected zoo animals
7. Unhygienic surroundings.

#### **Common Types of Zoonotic Diseases**

The transfer of disease from Animals to humans depends upon the different types of pathogens involved. The major types of zoonosis include.

1. Virus
2. Fungi
3. Bacteria
4. Parasites
5. Mosquitoes and Ticks

**Some common examples of types of Zoonosis are listed as follows-**

**1. Rabies:** Rabies is a disease that affects the nervous system of mammals. It is caused by a **virus** and is typically spread by an infected animal biting another animal or person. Rabies is a fatal disease; it cannot be treated once symptoms appear. However, rabies can be effectively prevented by vaccination.

**2. Blastomycosis (*Blastomyces dermatitidis*)**

Blastomycosis is a rare fungal infection usually acquired by inhaling the spores of a **fungus**, *Blastomyces dermatitidis* that can be found in wood and soil.

**3. Psittacosis (*Chlamydophila psittaci*, *Chlamydia psittaci*)**

Infection with *Chlamydophila psittaci* (formerly known as *Chlamydia psittaci*) is cause of systemic illness in companion **birds** (birds kept by humans as pets) and poultry. This illness is often referred to as **avian chlamydiosis** (also known as psittacosis, ornithosis, and parrot fever) in birds.

**4. Salmonella Infections**

Salmonella infections are often caused by handling Salmonella carrying **reptiles and amphibians** or through handling **chicks and ducks**. The illness is short lived and causes symptoms like diarrhoea, abdominal cramps and fever. Preventive measure should be taken to avoid illness.

**5. Dengue, Malaria and Chickengunya**

These are **mosquito** borne diseases. Mostly affecting people in Caribbean and Tropical regions. The symptoms mainly focus on fever, muscle cramps and joint pain, vomiting etc. It is vital to treat these diseases as they can be fatal.

**6. Lyme Disease and Rocky Mountain Fever**

Lyme disease is transmitted through **tick** bites and are caused by *borellia* **bacteria**. Symptoms can be minor to severe erythema migrans (area of redness). Possible and effective treatment is through antibiotics.

**7. *E.coli* Infection**

These can be caused by touching infected animals and consuming contaminated food. **Cows** are a source. *E.coli* infections are closely associated with causing food poisoning.

## 8. Other Types

Other types of zoonosis include-

- Anthrax
- Bovine tuberculosis
- Brucellosis
- Ebola
- Bird flu
- Zika fever
- Swine flu
- Cat scratch fever
- Histoplasmosis, etc.

### Modes of Transmission

Zoonotic diseases invade human bodies through various mechanisms. These mechanisms play an important role in directing the amount of infectious exposure.

#### The modes of Zoonosis transmission include.

- 1. Direct contact:** Coming in contact with the saliva, blood, urine, mucus, faeces, or other body fluids of an infected animal; through petting, getting scratched or bitten.
- 2. Indirect contact:** Coming into contact with areas where animals live, roam or objects and surfaces that have been contaminated with germs. Examples include aquarium tank water, pet habitats, chicken coops, plants, soil as well as pet food and water dishes.
- 3. Vector-borne:** Being bitten by a tick, or an insect like a mosquito or a flea.
- 4. Food-borne:** Eating or drinking something contaminated, such as unpasteurized milk, undercooked meat or eggs, raw fruits and vegetables that are contaminated with faeces from an infected animal.

**Potential Risks of Developing Zoonosis:** Zoonotic diseases can easily be developed by anybody under infectious circumstances. Although there are some people at potential risks of it. The major two factors affecting the build-up of Zoonosis are.

- 1. Condition of the immune system-** The basic medical theory that runs behind catching a disease is a weak immune system. People with weaker immune systems tend to attract more infections. Henceforth, children from the ages 3-5, old age people, diseased people, and pregnant women can develop Zoonotic diseases at a faster rate.

**2. Exposure-** People who either have pets, or work at a zoo, wildlife sanctuaries and other such environments involving daily animal contact can acquire a zoonotic disease faster than others. Their direct exposure makes them highly vulnerable.



### **Preventive Measures**

Zoonotic diseases are very common and avoiding animals is next to impossible. These persist to be life threatening all across the world. However, to avoid being attacked by zoonosis, some preventive measures should be taken. Variety of Associations in developed countries work upon preventing zoonosis by creating food safety regulations.

### **The basic preventive steps, required to be followed are**

1. Wash your hands diligently.
2. Use insect repellent or other methods to keep mosquitos, fleas, and ticks away.
3. Practice safe food handling. This includes washing off all produce before eating.
4. Avoid being bitten or scratched by an animal.
5. Have your pets vaccinated and take them for regular annual visits to the veterinarian.
6. Talk to your veterinarian about appropriate flea and tick preventatives for your pets.
7. Check for ticks when you've been outside.
8. Don't eat, drink, or touch your eyes or mouth while you're handling or in close contact with animals.
9. Use gloves if you need to handle an animal that is or appears to be sick.
10. Keep any areas where animals are kept clean and sanitary.
11. Be aware of areas where animals or insects might be when you're out in nature, especially when you participate in activities like hunting and camping.

12. Don't handle or approach any animal in the wild that appears sick. Be sure to contact animal control or the local government to have the sick animal removed.

13. In case a person gets scratched, bitten or has acquired a zoonotic infection, the first line of response includes immediate medical attention.

## CONCLUSION

Animals and humans have been partners since the existence of the Earth. We owe a lot to our partner race. Zoonotic diseases on the other hand are a threat to mankind, and cannot be completely blamed over animals. It is our duty to keep our pets and our working environments clean, to report responsible authorities on noticing a sick animal. Zoonotic diseases are mostly curable with advances in modern medicine and can only be fatal if neglected. The only way to long, healthy lives is a smart and cooperative mankind.

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