

Zoonotic Diseases

The World Health Organization (WHO) defines zoonoses as diseases and infections that are transmitted between animals and humans (WHO, "Zoonoses and the Human-Animal-Ecosystems Interface," accessed 2014). A zoonotic agent may be a bacterium, a virus, a fungus, or other communicable disease agent. According to the Centers for Disease Control and Prevention (CDC), at least 61 percent of all human pathogens are zoonotic, and have represented 75 percent of all emerging pathogens during the past decade (CDC, "Emerging and Zoonotic Diseases — At a Glance," accessed 2014).

Newly emerging zoonotic diseases include Severe Acute Respiratory Syndrome (SARS), which sparked an epidemic in 2002 and came from animals sold in Chinese markets (WHO, "Severe Acute Respiratory Syndrome (SARS)," accessed 2014), and the avian influenza H5N1 virus, which came from Asia and can be contracted through handling infected poultry (U.S. Dept. of Health and Human Services, accessed 2014).

Although many anti-cat campaigns use the fear of zoonotic diseases to push for the eradication of feral cats, history has shown us the important role cats have played in preventing the spread of disease. For instance, during the 14th century, the bubonic plague, or the Black Death, took the lives of 25 million people living throughout Europe. For hundreds of years prior to the plague, cats were hunted and killed because they were thought to be associated with witches. While cat populations were virtually eliminated, rat and mice populations exploded, which allowed for the spread of the disease. It wasn't until the Age of Exploration that cats became popular again and were welcome passengers aboard ships as rodent control specialists (Seymour, accessed 2014).

While it is true that cats can transmit a few diseases to humans, the Cornell Feline Health Center reports you are much more likely to contract infectious diseases from other humans than you are from your cat (Cornell, "Zoonotic Disease: What Can I Catch from My Cat?," 2014). For this very slight risk, simple precautions, common sense, and good hygiene, including careful handling of litter boxes and treating cats aggressively for fleas and other parasites, can further reduce any possible risk of zoonotic disease transmission from cats (Cornell, "Zoonotic Disease: What Can I Catch from My Cat?," 2014). Individuals with immature or weakened immune systems, such as infants, individuals with acquired immunodeficiency syndrome (AIDS), the elderly, and people undergoing cancer therapy should take extra precautions.

Below are a few zoonotic diseases that can be transmitted from cats to humans and the precautions that can be taken to prevent transmission. [Click here for information on Rabies.](#) [Click here for information on Toxoplasmosis.](#)

Bacterial Diseases

Bites are the most common animal-human health concern. Bacteria in the mouths of cats can cause serious infection if a bite wound is left untreated, including swelling, inflammation, and pain. If you are bitten by a cat, immediately wash the wound with hot soapy water for several minutes and clean with peroxide. Apply an antibiotic cream and cover the wound with gauze and tape. Monitor for infection (redness, swelling, pus) and seek medical attention if the wound does not seem to be healing.

Always use caution (wearing thick gloves and using a trap if possible) when handling an unfamiliar cat. This will help prevent being scratched or bitten.

Cat Scratch Disease

Cat scratch disease, or cat scratch fever, most commonly occurs in children following a cat scratch or bite. Typical symptoms include enlarged lymph nodes, fever, fatigue, sore throat, and headaches. Although most patients do not become seriously ill and recover with or without treatment, all cat scratches and bites should be thoroughly cleaned and properly bandaged.

Again, always use caution (wearing thick gloves and using a trap when possible) when handling an unfamiliar cat. This will help prevent being scratched or bitten.

Campylobacter

Campylobacteriosis is usually transmitted through raw or undercooked meat, but humans can also catch the infection from other humans or animals. The main source of contamination in both humans and cats is ingesting undercooked poultry. Although campylobacter is not common in cats, it can sometimes be found in kittens, who usually get it from kennels (PetMD, accessed 2014). The bacteria causes cramping, diarrhea, fever, and abdominal pain (NIH, "Campylobacter Infection," accessed 2014). Symptoms usually last about one week and can be treated with increased hydration or antibiotics, if necessary.

Wearing gloves when handling cat feces can prevent possible contamination. Making sure the living space of cats is clean will also prevent them from becoming infected.

Fungal Infections

Fungal infections can be common occurrences in cats, with skin lesions typically appearing on the tips of the ears, nose, tail, and also on the feet and hocks; however, the rash can spread to all parts of the body. The skin around these lesions is often flaky and bald; not always red in color; and the rash is usually itchy. In humans, the infection is called Ringworm because the outside of the spots usually appears more red than the inside, resulting in the characteristic ring shape (NIH, "Ringworm," accessed 2014).

Fungal infections are highly contagious and can spread to other animals, as well as to people, through simply touching an infected animal or person. It can also be transmitted through unwashed clothing and showers. It is important to keep the infected cat quarantined and to wear gloves when applying ointment.

Treatment for humans (and cats) depends on severity, but may include antifungal ointments and oral medications. Topical treatment sterilizes the outside of the body, while oral medications kill the infection internally. For small outbreaks, over-the-counter antifungal creams (i.e. athlete's foot cream) can be used to treat cats, dogs, and humans.

Lyme Disease

Lyme disease is caused by bacteria and is transmitted by ticks. In 70-80% of cases, a rash will appear at the site of the bite, often in a bull's eye pattern. Early symptoms can include headache, fever, and fatigue. In most cases, the infection and its symptoms are eliminated by antibiotics, especially if the illness is treated early. Delayed or inadequate treatment can lead to more serious symptoms that affect joints, the heart, and the nervous system (WHO, "Lyme Borreliosis," accessed 2014).

Lyme disease can also affect cats (and dogs). It is highly recommended that domestic cats who spend some part of their day outdoors, and all community cats (when possible), should be treated with a monthly topical (flea and) tick medication. Shelters and bedding should also be treated, using flea and tick powders or sprays. Providing cats with tick preventative treatments, not only protects the cats but it also protects the caretaker and others from contracting Lyme disease.

If you do find a tick biting you or a cat, carefully remove it using a pair of tweezers. Make sure to completely remove the head and the mouth parts, which can be difficult to remove if the tick has become engorged. Clean the area, apply antibiotic ointment, and monitor for infection (redness, swelling, bull's eye rash). If you see signs of infection, seek medical attention immediately. Dispose of the tick by flushing it down the toilet.

Murine Typhus

Murine typhus (*Rickettsia typhi*) is caused by fleas that are often carried by rats, but can also be found on opossums, cats, dogs, and other wild animals. Typhus occurs around the world, but in the United States, murine typhus is limited to the southern states, particularly Texas and California (NIH, "Typhus," accessed 2014). *R. typhi* does not produce disease in cats and dogs, as it does in people. Epidemic typhus, spread by lice, is generally a more severe disease.

In order to placate neighborhoods that fear this disease, some health agencies may rush in and trap and kill feral cats in the area. This is not wise, as the fleas will still exist, and may then be more prone to jump on people. In any case, the rodent population will thrive without predators to keep them in check, and rats are the primary carriers of fleas in the first place.

TNR and flea control are a far more effective solution than killing cats. Spray or dust the cats' sleeping areas with a flea preventative, especially in warm, dry seasons. Capstar pills can be crushed into canned cat food, and a monthly topical flea treatment should be applied. Clean up neighborhoods and backyards, because junk left lying around attracts rodents.

Parasites

There are a few diseases common to cats and humans caused by parasites. They include cryptosporidiosis, giardiasis, and toxoplasmosis. Cryptosporidiosis and giardiasis can cause diarrhea in both cats and people, usually through drinking contaminated water. To prevent the spread of infection, everyone should have a veterinarian perform an annual fecal examination on their cats. If a cat should have one of these parasites, use extra caution while cleaning litter boxes by wearing gloves and washing your hands.

Cats and dogs can have these parasites, but a much larger concern is contaminated water. No one should drink water directly from lakes, rivers, streams, or springs (CDC, "Parasites - Cryptosporidium (also known as "Crypto")," accessed 2014). Those who want to take extra precautions may wish to boil water to eliminate parasites such as *Cryptosporidium* or *Giardia*. These precautions are especially important for travel outside the U.S. because water standards elsewhere may be different.

Plague

Plague is also usually carried by fleas, which in turn are transported on rodents and other mammals. Plague infects humans and animals (WHO, "Plague," accessed 2014). People usually contract plague when bitten by a rodent flea carrying the plague bacterium, or when handling an infected animal. Millions of people in Europe died from plague in the Middle Ages, when human homes and workplaces were infested by plague-ridden, flea-infested rats. Cats were almost wiped out during this time, as they were scapegoated for being "witches' familiars." With fewer cats, there were more rats and more carriers of the plague, increasing the spread of this deadly disease (Zeugner, 2008).

Precaution should be taken in situations where exposure to rodent fleas is possible, such as when you are working outdoors or camping (CDC, "Prevention - Plague," accessed 2014). Use a repellent to keep fleas off yourself and wear gloves when handling an animal with fleas. You should also treat cats and other companion animals for fleas. To prevent flea infestations, all cat blankets should be washed regularly and sleeping places

can be dusted with flea powder. Capstar pills can be crushed into canned cat food, and it is also highly recommended that cats be treated with a monthly topical flea treatment such as Advantage Multi.

Salmonella A foodborne pathogen with symptoms similar to campylobacter, salmonella causes diarrhea, fever, and stomach pains within hours or a few days of infection. Again, the main source of contamination is raw or undercooked food, largely poultry or eggs. Infected humans often recover without treatment, though hospitalization is sometimes necessary in severe cases.

Cats and other animals can pass salmonella in their stool. The bacteria is common in cats who are fed raw meat or cats who eat birds and rodents. If a cat has diarrhea, wear gloves when cleaning her litter box and wash your hands thoroughly afterward to avoid contamination (CDC, "Salmonella," accessed 2014).

Tuberculosis

Among humans, tuberculosis, or TB, is more common in regions of overcrowding and poverty. TB is a bacterial disease that is contagious and able to spread from animals to humans (CDC, "Tuberculosis (TB)," accessed 2014). Cats are resistant to the primary strain of TB that affects humans, *Mycobacterium tuberculosis*, but can catch a strain that is more common in cows, *Mycobacterium bovis*. Dogs and humans are susceptible to both strains, but bovine TB is very rare and makes up only one percent of TB cases in the United States (McNeil, 2014).

In 2014, the first cases of humans catching TB from cats were documented in England. Four people caught bovine TB from a rare group of infected cats (McNeil, 2014). Though the other strain of TB is serious, bovine TB can be treated with antibiotics (Gray, 2014). Officials also noted that there is very minimal risk of exposure from cats and this was an unusual circumstance (McNeil, 2014).

It is not entirely known how these individuals were exposed to the disease, but it usually requires close physical contact, and most likely came from direct contact with an open wound (Gray, 2014). Cats seem to catch this disease from cows or from other animals, such as rodents or badgers, who can become infected. When dealing with free-roaming cats, you should cover any and all of your injuries and wear gloves when handling an animal who appears sick or injured.

Worms

Roundworms, hookworms, whipworms, and tapeworms can also cause disease in humans and cause malnutrition in cats if left untreated. Visceral larva migrans, a disease that often goes away on its own but can be serious in rare cases, can result from accidental consumption of roundworm eggs. Children who play in soil can be at risk, or the eggs could travel on vegetables that were in contact with infected soil (NIH, "Visceral Larva Migrans," accessed 2014).

Cutaneous larva migrans, on the other hand, is caused by any kind of contact with hookworm-contaminated soil. It is most common among travelers returning from tropical regions (Caumes, 2000). To prevent possible worm infections, children and adults should wash their hands after playing/working outside and coming in contact with soil. Fruits and vegetables should be washed thoroughly before consumption. Travelers should wear sandals on unfamiliar beaches, and no one should go barefoot in areas that might be contaminated by dog or cat feces. Worms go away on their own or with anti-parasitic drugs (NIH, "Visceral larva migrans," accessed 2014).

Cats can be treated with a monthly topical dewormer, such as Profender, or deworming pills can be crushed into wet food to prevent infection. Fecal exams can be performed, if possible, to detect parasites. In colonies,

outdoor litter boxes should be built and regularly scooped. And remember to ALWAYS wash your hands after handling cat feces.

Resources

- Anderson, W. P., C. M. Reid, and G. L. Jennings. "Pet Ownership and Risk Factors for Cardiovascular Disease." *The Medical Journal of Australia* 157.5 (1992): 298–301. Print.
- Arhant-Sudhir, Kanish, Rish Arhant-Sudhir, and Krishnankutty Sudhir. "Pet Ownership and Cardiovascular Risk Reduction: Supporting Evidence, Conflicting Data and Underlying Mechanisms." *Clinical and Experimental Pharmacology and Physiology* 38.11 (2011): 734–38. *Wiley Online Library*. Web. 25 July 2014.
- Caumes, Eric. "Treatment of Cutaneous Larva Migrans." *Clinical Infectious Diseases* 30.5 (2000): 811–814. *Cid.oxfordjournals.org*. Web. 28 July 2014.
- Centers for Disease Control and Prevention. "Parasites - Cryptosporidium (also Known as 'Crypto')." *CDC.gov*. N.p., n.d. Web. 17 July 2014.
- Centers for Disease Control and Prevention. "Prevention - Plague." *CDC.gov*. N.p., n.d. Web. 29 July 2014.
- Centers for Disease Control and Prevention. "Salmonella." *CDC.gov*. N.p., n.d. Web. 28 July 2014.
- Centers for Disease Control and Prevention. "Tuberculosis (TB)." *CDC.gov*. N.p., n.d. Web. 28 July 2014.
- Centers for Disease Control and Prevention's National Center for Emerging and Zoonotic Infectious Diseases. "Emerging and Zoonotic Diseases — At a Glance." *CDC.gov*. N.p., 29 May 2014. Web. 11 June 2014.
- Columbia University's Mailman School of Public Health. "Early Life Exposure To Cats May Reduce Risk Of Childhood Allergies And Asthma Symptoms." *ScienceDaily.com*. N.p., 22 May 2008. Web. 11 Aug. 2014.
- Cornell Feline Health Center. "Zoonotic Disease: What Can I Catch from My Cat?" Ithaca, New York: Cornell University College of Veterinary Medicine, 2014. Web. 29 Sept. 2014.
- Friedmann, Erika, Heesok Son, and Chia-Chun Tsai. "The Animal/human Bond: Health and Wellness." *Handbook on Animal-Assisted Therapy: Theoretical Foundations and Guidelines for Practice*. Academic Press, 2010. 85–107. Print.
- Gray, Richard. "How Easy Is It to Catch Tuberculosis from a Cat?" 28 Mar. 2014. *Telegraph.co.uk*. Web. 29 July 2014.
- Headey, Bruce. "Health Benefits and Health Cost Savings Due to Pets: Preliminary Estimates from an Australian National Survey." *Social Indicators Research* 47.2 (1999): 233–43. *Link.springer.com*. Web. 25 July 2014.
- Jennings, Lea B. "Potential Benefits of Pet Ownership in Health Promotion." *Journal of Holistic Nursing* 15.4 (1997): 358–72. *jhn.sagepub.com*. Web. 25 July 2014.
- McNeil Jr, Donald G. "First Cases Documented of TB Caught From Cats." *The New York Times* 28 Mar. 2014. *NYTimes.com*. Web. 29 July 2014.
- National Institutes of Health. "Campylobacter Infection." *Medline Plus*. Web. 17 July 2014.
- National Institutes of Health. "Ringworm." *Medline Plus*. Web. 17 July 2014.
- National Institutes of Health. "Typhus." *Medline Plus*. Web. 17 July 2014.
- National Institutes of Health. "Visceral Larva Migrans." *Medline Plus*. Web. 17 July 2014.
- PetMD. "Bacterial Infection (Campylobacteriosis) in Cats." *PetMD*. N.p., n.d. Web. 17 July 2014.
- Qureshi, Adnan I et al. "Cat Ownership and the Risk of Fatal Cardiovascular Diseases. Results from the Second National Health and Nutrition Examination Study Mortality Follow-up Study." *Journal of Vascular and Interventional Neurology* 2.1 (2009): 132–35. Print.
- Serpell, J. "Beneficial Effects of Pet Ownership on Some Aspects of Human Health and Behaviour." *Journal of the Royal Society of Medicine* 84.12 (1991): 717–20. Print.
- Seymour, Frankie. "The Great Feral Cat Con Job: The Ungentle Art of Scapegoating and Scaremongering." N.p., n.d. Web. 29 Sept. 2014.
- U.S. Department of Health and Human Services. "H5N1 Avian Flu (H5N1 Bird Flu)." *Flu.gov*. N.p., n.d. Web. 25 Oct. 2014.
- World Health Organization. *Expert Consultation on Rabies: Second Report*. Geneva, Switzerland: N.p., 2013. Web. 16 Mar. 2015.
- World Health Organization. "Lyme Borreliosis (Lyme Disease)." *WHO*. N.p., n.d. Web. 28 July 2014.
- World Health Organization. "Plague." *WHO*. N.p., n.d. Web. 28 July 2014.
- World Health Organization. "Severe Acute Respiratory Syndrome (SARS)." *WHO*. N.p., n.d. Web. 25 Oct. 2014.
- World Health Organization. "Zoonoses and the Human-Animal-Ecosystems Interface." *WHO*. N.p., n.d. Web. 11 June 2014.

