

## Zoonotic diseases on farms

### Introduction

A zoonotic disease (zoonosis) is any infectious disease that can be naturally transmitted from non-human animals (including domestic animals, live stock, wild animals, etc.) to a human. In some cases, diseases can be passed from humans to non-human animals. This is known as reverse zoonosis or “anthroponosis”.

Of the 1415 pathogens known to affect humans, 61% are zoonotic.

### How are Zoonotic diseases spread?

Zoonotic diseases can be transmitted by a variety of routes. Some documented means of transmission include direct and indirect contact with infected animals, airborne exposure to infective agents shed by animals, consumption of animal products, consumption of water that has been contaminated by animal fecal material, or exposure to insects such as fleas or ticks.

### Diseases from Farm Animals

Zoonotic diseases can originate from many species of animals, including domestic pets, like cats and dogs. They are also associated with wild animals, like bats. However, this document will focus on zoonoses as they relate to common farm animals, like cows, horses, and pigs and only in Minnesota, but remember some diseases can be more or less prevalent in other geographic regions.

### Common zoonoses on Minnesota farms

**Rabies.** Rabies is a fatal neurologic disease caused by a virus. In order to spread the virus, a rabid animal must bite another animal or human and transmit their saliva to the other. A number of animal species can carry rabies. Skunks, raccoons, and bats are major concerns but among domestic farm animals (cattle, horses, goats, and sheep), cattle are the most common carriers.

Signs of the disease include local pain at the site of inoculation, headache, malaise (general fatigue), fever, anxiety, agitation, paralysis, and coma. Though there is no cure after symptoms of the disease appear, a series of shots after exposure to the saliva of a rabid animal will prevent rabies.

Prevention from acquiring rabies virus also involves wearing gloves when in contact with saliva, avoiding wildlife around facility, reporting abnormal wildlife behavior, reporting potential exposure to likely carriers, and seeking medical attention immediately following probable exposure.

**E. Coli.** There are several hundred strains of the bacterium *Escherichia coli*. Most strains are harmless and live in the intestines of healthy humans and animals. However, the O157 strain produces a powerful toxin that can cause severe illness in humans.

The most common cause of E. Coli exposure on farms is exposure to feces from an infected animal.

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Symptoms include severe diarrhea (often bloody) and abdominal cramps. Symptoms usually begin 2 to 5 days after exposure. Sometimes infected people have no symptoms, but can still pass the bacteria to others.

In some people, especially in children under 5 years old and the elderly, infections can cause a complication called Hemolytic Uremic Syndrome (HUS). HUS occurs when the *E. coli* toxin destroys red blood cells. HUS can lead to kidney failure, neurologic damage, and in some cases, death.

**Salmonella.** It is one of the most frequent reported enteric illnesses in humans. This bacterium typically lives in the intestines and is shed through feces. Humans become infected through contaminated water or food sources.

Most commonly associated with poultry, eggs and pork. The clinical disease is caused most often by *S. Choleraesuis*, *S. Typhisuis*, and *S. Typhimurium*. Signs of the disease include diarrhea, nausea, vomiting and abdominal pain within eight to 72 hours. Many healthy people recover without treatment in a few days.

Dehydration is a common complication. Drinking enough fluids to replace the fluids lost through persistent diarrhea is essential.

**Bovine Tuberculosis (TB).** It is shed in respiratory secretions, feces, and milk of infected animals. Cattle are infected by inhaling or ingesting the bacterium. Symptoms include weight loss, weakness, fever, and coughing (often coughing up blood). Humans may acquire tuberculosis from unpasteurized dairy products and can develop

symptoms involving the lungs, kidneys, spine, or brain. Currently there is little tuberculosis in cattle as a result of a federal eradication program.

**Cryptosporidium.** The parasite produces cysts (eggs), which are passed in the stool of infected people or animals. The cysts can survive for 2 – 6 months in moist environments and are commonly found in lakes and streams.

People and animals can get infected when drinking contaminated water or eating contaminated food, or by direct contact with infected persons or animals. About 50% of dairy calves are infected and shed cysts. Infection can cause diarrhea and abdominal cramps. The disease is self-limiting in healthy people, but can be prolonged and more serious in persons with weakened immune systems.

## Who's at risk?

Some people are more likely than others to get diseases from farm animals. A person's age and health status may affect his or her immune system, increasing the chances of getting sick. People who are more likely to get diseases from farm animals include infants, children younger than 5 years old, organ transplant patients, people with HIV/AIDS (weakened immune system), and people who are being treated for cancer. Special advice is available for people who are at greater risk than others of getting diseases from animals.

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## Prevention

Farm animals are not like house pets and do not have places to rest or eat that are away from where they pass manure. Therefore, you should thoroughly wash your hands with running water and soap after contact with them or after touching things such as fences, buckets, and straw bedding that have been in contact with farm animals. Adults should carefully watch children who are visiting farms and help them wash their hands well.

Do not eat, drink, or smoke around animals. Wear the appropriate protective clothing when possible and remove after handling. Wear gloves when handling bedding and waste material. Avoid direct contact with ill animals. Report exposures or suspected exposures including animal bites. Unpasteurized milk and milk products should be avoided (especially for children, elderly, and pregnant women).

## Questions

If you have questions on this topic, please contact the Office of Occupational Health and Safety at (612) 626-5008 or [uohs@umn.edu](mailto:uohs@umn.edu), or see the website at <http://www.ohs.umn.edu>.

# Toolbox Talks

## Attendance

*Training records must include copy of toolbox talk information*

Date of toolbox talk: \_\_\_\_\_

Conducted by: \_\_\_\_\_

Names of attendees:

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