



FOOD & CONSUMER PRODUCTS TESTING
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FOODBORNE ILLNESSES



Salmonellosis

Identification - This disease is caused by many strains of *Salmonella*. It is usually acquired from contaminated food. Symptoms include abdominal pain, diarrhea, fever, and vomiting. Dehydration in adults and the elderly can be severe. Incubation period is 6-16 hours usually between 12-48 hours.

Reservoir - Eggs in domestic and wild animals including poultry, pigs, cattle, reptiles, dogs and cats.

Transmission - Ingestion of the organism in food obtained from infected animals is contaminated by feces from infected animals or people. *Salmonella* are found in contaminated vegetables and fruit, eggs, processed meat, undercooked poultry products, raw milk and dairy products and foods prepared by infected food personnel.



Campylobacter Infections

Identification - All strains are Gram negative, comma-shaped or V-shaped, motile, aerobic, oxidase positive, and fermentative. Symptoms include diarrhea, bloody stools, abdominal pain, fever, nausea, and vomiting. Symptoms may occur 2-5 days after exposure and persist for 4 weeks.

Reservoir - Poultry, cattle and other animals such as sheep, swine, horses, other birds, reptiles, fish, insects and ticks. Most are

pathogenic to contaminated with *Campylobacter*.

Transmission - Ingestion of the organism in undercooked meat, contaminated water and food, raw milk, farm animals, poultry, infection dose is low. Person to person transmission is possible but not common.

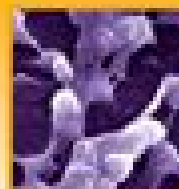


Listeriosis

Identification - A disease which is caused by *Listeria monocytogenes*. It is a Gram positive, rod-shaped bacterium which is motile at 37°C. Symptoms include fever, muscle aches, and vomiting. Symptoms may occur 2-4 weeks after exposure and persist for 4 weeks.

Reservoir - Soil, sewage, sewage, and water. Animal reservoirs include infected wild and domestic animals. Some 10% of the healthy carriers have *L. monocytogenes* in their feces but not their organisms.

Transmission - Ingestion of contaminated foods such as soft cheese, raw milk, vegetables, ready to eat meats and poultry. In neonatal infections, the bacteria is transmitted by the mother in utero or from passage through the birth canal.



Staphylococcal Food Intoxication

Identification - It is not an infection but is caused by the enterotoxins produced by *Staphylococcus aureus*. The disease is characterized by abrupt onset of vomiting, severe nausea, cramps, and prostration. Onset is within 1-6 hours. These enterotoxins are released by heating or thermal processing.

Reservoir - Humans. About 10% of the population carries the bacteria. Unusually close with infected siblings, dogs and cats.

Transmission - Ingestion of a food containing the enterotoxin. The food becomes contaminated with the bacteria via the food handlers' hands. At room temperature, the bacteria multiply and produce the enterotoxin. Can be found in staphylococcal or staphylococcal poisoning. Includes shell eggs, meat products, meat sandwiches, unprocessed cheese.



E. coli O157:H7

Identification - Causes acute diarrhea with or from. Incubation period is 2-10 days, most commonly 3-6 days. *E. coli* may be fatal to severe with no blood or stool without blood. About 80% of people having diarrhea caused by this organism progress to hemolytic uremic syndrome (HUS). Infectious dose is very low. Children under 5 are at greatest risk for developing HUS.

Reservoir - Cattle are the primary reservoir, although it is also found in dogs. Humans can serve as the reservoir for person to person transmission.

Transmission - Acquisition and the ingestion of food contaminated with resistant feces. Several outbreaks have been associated with petting farms, fairs, hamburgers, melons, sprouts, lettuce, soft-shell crabs, eggs, poultry, and processed milk. Person to person transmission occurs in families, institutional care facilities, and day care centers. Waterborne transmission occurs from drinking and recreational water.



Giardiasis

Identification - A protozoan infection that may be either asymptomatic, cause mild, self-limiting diarrhea, or chronic, frequent diarrhea with cramps, bloating and malabsorption of fats and vitamins resulting in weight loss. In severe giardiasis there may be severe diarrhea and damage to the intestinal wall. Person to person transmission occurs from transfer of cysts from infected people particularly in day care centers and institutions.

Reservoir - Humans and possibly beavers and other wild and domesticated animals.

Transmission - Contaminated surface water from the ingestion of food and water contaminated with protozoan cysts. Typical chlorine treatment of drinking water is not enough to destroy the cysts. Chlorinated, contaminated recreational water can be a source. Person to person transmission occurs from transfer of cysts from infected people particularly in day care centers and institutions.



Norovirus

Identification - A viral infection that causes mild to moderate gastrointestinal illness with nausea, vomiting, diarrhea, abdominal pain, headache, malaise, and low grade fever usually lasts for 1-3 days.

Reservoir - Humans are the only animal reservoir.

Transmission - Spread through ingestion of contaminated food, contact with infected feces, contact with infected surfaces.



Aspergillus Infection

Identification - Can cause lung infection caused by fungi contaminated with various species of *Aspergillus* fungi. As the fungi grow, they produce aflatoxins and other mycotoxins that compromise the host's immune system. Fungal growth may last 1 day to 2 months.

Reservoir - *Aspergillus* fungi are ubiquitous and most abundant particularly in decaying plant material, compost piles, mold, and soil. Aflatoxin and mycotoxin production is variable and depends upon the type of *Aspergillus* species and environmental conditions.

Transmission - Airborne transmission of spores, ingestion and possibly inhalation of mycotoxins.



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Foodborne Bacterial Pathogens

WJ Hussar



Foodborne Bacterial Pathogens:

Foodborne Bacterial Pathogens Book Review: Unveiling the Power of Words

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