

Bacterial food infections

- Bacterial food infection is the name given to illness which results when food containing living bacterial cells is ingested. These bacteria produce endotoxins which are toxins present within the cell walls and released only on the disruption of the cell.
- Endotoxins are much more heat stable than exotoxins and unlike the exotoxins, are non-specific in their action.

Active type of food infection

- Some bacteria can only cause toxicity if the sufficient time is allowed to multiply their numbers to attain certain minimum level. Thus they need to grow in the food prior to consumption. The infection caused by these bacteria is referred to active type of food infection. The examples of these bacteria are *campylobacter jejuni*, *clostridium perfringens*, *escherichia coli*, etc

Passive type of food infection

- The second type of bacterial food infection in which food or water is served only as a medium to transport bacteria into human body is called passive type of food infection or food borne infection. The food or water helps to transport them in to host where they multiply and cause the illness. Examples are infections by *mycobacterium tuberculosis*, *salmonella typhi*, *shigella*, and *vibrio cholera*

Campylobacter jejuni

- It has been recognized as an important enteric pathogen of man.
- The natural habitat of *campylobacter jejuni* is intestinal tracts of man and many avian and mammalian species.
- The foods can get contaminated before secretion in cows suffering from campylobacter mastitis or by cattle faeces.
- Meat may pick up the organism from intestinal flora during slaughtering process
- Eggs get contaminated from faeces.

- Campylobacteriosis, as a disease is called has most often resulted from the consumption of untreated drinking water and raw or under cooked foods (milk and meat).
- Symptoms of *campylobacter jejuni* infection vary considerably from asymptomatic excretion to severe bloody diarrhea, high fever, and prostration.
- An outbreak of this illness may be prevented by avoiding cross contamination from food animals to products especially those which will not receive further heat processing.

Clostridium perfringens

- It is very wide spread in nature. It is found in soil and is a common inhabitant of intestinal tract of man and animals.
- *Clostridium perfringens* (formally called *clostridium welchii*) is known for its complicity in gas gangrene. This is a common bacterial agent for gas gangrene, characterized by necrosis and putrefication of tissues.
- Outbreaks of *clostridium perfringens* infections have mostly been caused by foods such as beef, chicken, turkey, stews, meat pies and gravy which have been contaminated with vegetative cells or spores and held in a warm environment for quite some time.
- The symptoms of this infection usually develop from 6 to 24 hours after the consumption of contaminated food. The illness is characterized by severe abdominal cramps, pronounced diarrhea and a great deal of gas.
- *Clostridium perfringens* infection can be prevented by adopting strict sanitation in food handling and preparation premises.

Escherichia coli

- *Escherichia coli* belong to the family Enterobacteriaceae which occur primarily as intestinal commensals and pathogens. The natural habitat of *Escherichia coli* is the intestines of man and animals. It is used as indicator organisms of faecal pollution of water.

Urinary tract infection

- Urinary tract infection is caused by some strains of *Escherichia coli*. This infection is more common in women than men. The major symptoms of this infection are bloody urine or cloudy urine. Pain in back or side below the ribs, nausea or vomiting in adults.
- In infants or children, symptoms may cause the loss of appetite, unexplained fever, loose bowels.
- To prevent this infection, especially in women, it is suggested that they should drink plenty of water every day.

Neonatal meningitis

- Neonatal meningitis, inflammation of the meninges, occurs due to bacterial invasion by a serotype of *E. coli* that contains a capsular antigen called K1.
- Symptoms are similar to those of sepsis CNS irritation, and cranial nerve abnormalities.

Gastroenteritis

- Symptoms of infection in the GI tract usually appear 12 to 72 hours after consumption of contaminated food or water. These give rise to stomach pain and diarrhea and sometimes pyrexia and vomiting.
- It is more common in children who are bottle fed than the breast-fed as unclean bottle habits are the chief source of contamination in this case.
- An outbreak of *Escherichia coli* infection may be prevented by strictly following hygiene practices.