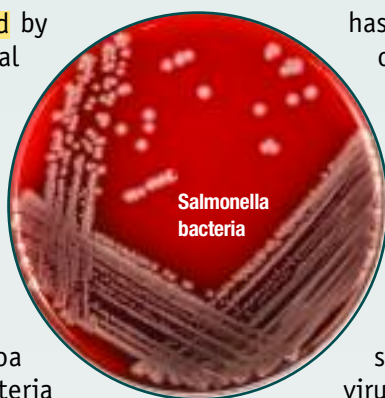


Food-borne infections

There are many diseases spread by food which differ from microbial food poisoning in that the food, or water, acts merely as a means of transport for the organisms and not as a medium for growth. Small numbers of the organisms may be sufficient to cause infection, and examples can be found among the protozoa (toxoplasmosis), the bacteria (typhoid fever, paratyphoid fever, dysentery, tuberculosis, brucellosis), the viruses (Q fever, poliomyelitis, infectious hepatitis), and the parasitic worms (trichinosis).



Bacteria

Certain organisms of the genus *Salmonella* in addition to causing food poisoning also cause enteric fevers such as typhoid and paratyphoid fevers. These are true infections in the sense that the organisms invade the body tissues and become systemic. The incubation periods are longer than for food poisoning – up to three weeks in the case of typhoid fever – so the source of infection is often difficult to trace. These infections usually arise from the pollution of water, milk or other foods by sewage containing enteric organisms from human excretors.

There are a number of foods which are capable of acting as vehicles of bacterial food borne diseases. Shellfish may act as a source of typhoid bacilli as they often grow in sewage-polluted river estuaries. Drinking water may become contaminated with sewage as a result of earthquakes, flooding and other similar disasters, or as a result of inadequate filtration and chlorination. Milk has long been known to act as a vehicle of food borne diseases.

Viruses

It has long been suspected that food can act as a vehicle of virus infection for diseases such as poliomyelitis and infectious hepatitis through observing the accumulation and survival of the virus particles in shellfish. This

has led to the realization that other virus particles might accumulate in the same way and be responsible for some incidents of food poisoning. Firm evidence for this theory is still lacking, although proof is increasing. But in the transmission of virus disease the food or water acts solely as a vector, and the viruses do not multiply.

Parasitic diseases

Trichinosis is a food borne illness which can be fatal, and is caused by a parasitic worm *Trichinella spiralis*. It is transmitted to humans through eating infected, undercooked meat (such as pork or horse meat) in which the cysts survive.

Toxoplasmosis is another food borne illness which is caused by ingestion of a protozoan parasitic organism *Toxoplasma gondii* in undercooked infected meat. It can also be transmitted through eating contaminated soil on, for example, unwashed vegetables.

There are other parasitic worms and protozoal infections which may also be transmitted by foods.

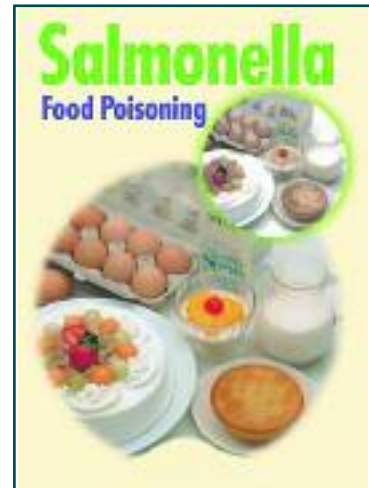
The best method of preventing any food borne disease – bacterial, viral, parasitic worm or protozoan – is by controlling the source of infection, and preventing the contamination of soil, food and water. The following precautions, however, help to prevent food borne disease:

- 1 Pasteurization of milk, egg, cream.
- 2 Sedimentation, filtration and chlorination of water.
- 3 Efficient sewage removal, and its effective treatment.
- 4 Education of the operatives in food hygiene.
- 5 Protection of raw foods – such as vegetables – from faecal contamination.

Parry-Pawsey, *Principles of Microbiology for students of food technology, ST(P)*

1 Take turns in asking and answering the following questions.

- How does food poisoning differ from food borne infections?
- What are some examples of food borne infections?
- What diseases besides salmonellosis may *Salmonella* cause?
- What are typhoid and paratyphoid fevers due to?
- What diseases may be caused by food borne virus infection?
- What is trichinosis?
- How can it be transmitted?
- What is toxoplasmosis?
- How can it be transmitted?
- How can food borne diseases be prevented?
- How should milk, dairy products and eggs be treated to prevent food borne diseases?
- How should drinkable water be treated?



2 Write down the answers you have given and join them into a summary of the reading passage.

3 Report orally the main ideas expressed in the reading passage.

4 Which of these nouns are synonyms for the words below?

carrier • disease • episode • excretor • incubation • period • processing
• sedimentation • understanding • vehicle • worm

- illness
- incident
- means of transport
- realization
- treatment
- vector

GLOSSARY

to arise (arose-arisen): to derive.
evidence: proof, demonstration.
food borne: carried by food.

lacking: scarce.
merely: simply.
source: origin.

spread: diffused.
through: as a result of.

5 Use the words in the box to complete the sentences.

chlorination • flooding • earthquake • filtration • hygiene
• pasteurisation • pollution • sewage

- At the beginning of last century San Francisco was destroyed by a violent
- Many art masterpieces were seriously damaged during the of Florence.
- The greenhouse effect is a consequence of world air
- Our town needs a more effective disposal system.
- kills pathogens in milk.
- A scrupulous food is essential to prevent food borne diseases.
- is used to remove particles from water, is used to disinfect it.



6 The guidelines in the Ten-point code for food trade workers prepared by the Department of Health and Society Security don't make much sense because they have been mismatched. Who will be the quickest to make them meaningful by matching the "heads" and "tails" (in italics) correctly?

Ten-point code for food trade workers

HEADS

- Wash your hand always
- Tell your supervisor at once
- Cover cuts and sores
- Wear clean clothing and
- Remember, smoking in a food room is illegal and dangerous. Never cough or sneeze
- Clean as you go
- Keep food clean, covered and
- Keep your hands
- Keep the lid
- Remember, the law requires

TAILS

- with waterproof dressing.*
- in food rooms.*
- before touching food and always after using the WC.*
- either cool or piping hot.*
- on the dustbin.*
- over food.*
- be clean.*
- clean, fully equipped, well lit and airy conditions for food preparation.*
- off food as far as possible. Keep food utensils clean.*
- of any skin, nose, throat or bowel trouble.*



Louis Pasteur
(R. Thon, 1915-1980)