

College of Applied Medical Sciences

Department of Environmental Health

Food poisoning

Lecture 5



To distinguish between:

- **Food poisoning**: is caused by consuming foods that contain toxins. These toxins can be produced by micro organisms, can occur naturally in the food (for example, in certain mushrooms) or can be a contaminant.

Toxins directly affect the biological reactions taking place in the body. At sufficiently high concentrations, the effects are acute and take place a few hours after consumption.

AND

- **A food borne infection** :is caused by an infectious pathogens (micro organisms that cause infections) in the food. These micro organisms multiply in the intestine. Furthermore these micro organisms release toxins that invade and damage the epithelium cells. The consequences are stomach ache and diarrhoea within some hours or several days after eating the contaminated food

Food spoilage

Changes in food, either through enzyme deterioration of food or micro-organism growth, will eventually lead to the food becoming inedible or unsafe if eaten.

Micro-organisms occur naturally in the environment, on cereals, vegetables, fruit, animals, people, water, soil and in the air.

Most bacteria are harmless but a small number can cause illness.

Environmental Sources

1-Water -Food-borne diseases are also carried by contaminated water.

2-Soil - Dust and dirt is made up from soil. It is easily blown on to food after being carried into the kitchen on clothes and shoes, soil contains the food poisoning bacterium clostridium perfringens as well as many others.

3-Insects - Insects carry bacteria on their bodies. Crawling insects such as cockroaches, beetles and flies.

4-Air- also can air transfer the micro-organisms

5-Kitchen surfaces & Utensils

6-Cross contamination

- **occurs when bacteria and viruses are transferred from a contaminated surface to one that is not contaminated. The bacteria and viruses can come from people, work surfaces or equipment, and other foods. For example, it can happen when bacteria from the surface of raw meat, poultry and raw vegetables with visible dirt (such as unwashed potatoes), are transferred onto ready to eat food, such as green salads, rice or pasta salads, cooked meats or poultry or even fruit. The bacteria on the raw food are killed when the food is cooked, but the ready to eat food gets eaten without further cooking .**

People at high risk

- **Pregnant women**
- **children**
- **Very old**
- **Sick or malnourished**
- **People with weakened immune systems**

The risk of foods

High-Risk Foods

- **meat and meat products;**
 - **milk and dairy products;**
 - **fruit.**

Low-Risk Foods

- **Dried or pickled Foods**
- **Chemically-preserved foods**
- **Foods with high sugar content**
- **Food with high salt content**

Factors affecting food poisoning

Some common factors leading to food poisoning include:

- 1-preparation of food too far in advance;**
- 2- storage at ambient temperature;**
- 3- inadequate cooling;**
- 4- inadequate reheating;**
- 5-inadequate thawing.**
- 6-Under cooking**

More common factors leading to food poisoning include:

- **consuming raw food;**
- **improper warm holding (i.e. holding 'hot' food below 63°C);**
- **infected food handlers;**
- **contaminated processed food;**
- **poor hygiene.**

Types of food poisoning

1. **Food poisoning by non microorganisms.**
2. **Food poisoning by microorganisms.**

Food poisoning by non microorganisms

- **By chemicals:-E.g:- Arsenic , Cu sulphate , Mercury ,Cadmium , Pesticides , Certain plants , fertilizers**

Food poisoning by microorganisms

- **A -*BACTERIA*: Streptococcus , Vibrio cholerae, Shigella spp.**
- **Escherichia coli, Salmonella**
- **Others:- Campylobacter jejuni (periodontitis)**

Clostridium perfringens

- **B- *Viruses* : Hepatitis A, Norovirus, Rotavirus**

C- *Parasites* : Protozoa , Giardia lamblia , Entamoeba histolytica

Symptoms of food poisoning

The symptoms will be different depending on what type of bacteria is responsible.

Common symptoms include:

- **severe vomiting;**
- **diarrhoea;**

- **exhaustion;**
- **headache;**
- **fever;**
- **abdominal pain;**
- **tiredness.**

Preventing food poisoning

- 1. Buy food from stores that look and smell clean.**
- 2. Don't buy food past "sell by," "use by," or other expiration dates.**
- 3. Wash your hands often with warm water and soap – especially before and after touching food.**
- 4. Make sure food is cooked to a safe temperature.**
- 5. Keep raw meat and seafood away from cooked and ready-to-eat food.**
- 6. Keep cold foods cold and hot foods hot. This helps prevent bacteria from growing .**