

FOOD AND WATER BORNE ILLNESSES

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LEARNING OBJECTIVES

- Enlist food and water borne diseases especially those of great concern in developing country.
- Describe public health significance of water and food borne diseases
- Describe mode of transmission of water /food borne diseases
- Enumerate control measures for water/food borne illnesses

INTRODUCTION/ EPIDEMIOLOGY

- The term waterborne disease is reserved largely for infections that predominantly are transmitted through contact with or consumption of infected water.
- Microorganisms causing diseases that characteristically are waterborne prominently include protozoa and bacteria, many of which are intestinal parasites,
- 1 in 3 people globally do not have access to clean drinking water. UNICEF WHO
- Children living in protracted conflicts are three times more likely to die from water-related diseases than from violence – UNICEF

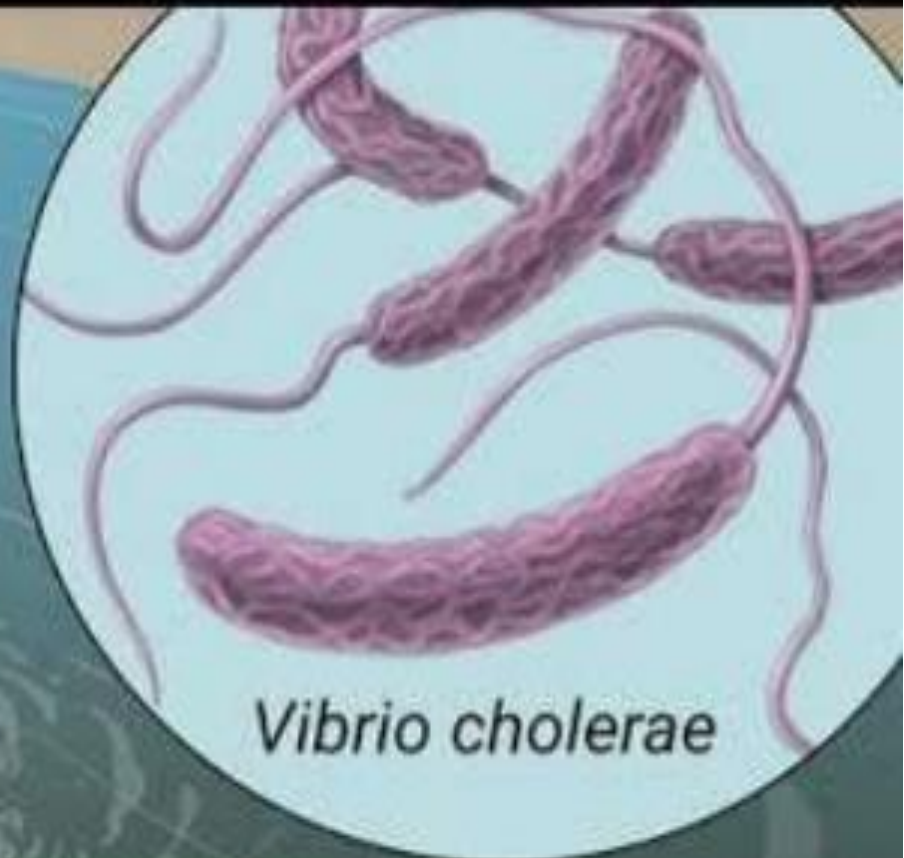
SITUATION IN PAKISTAN

- About 20% of the whole population of Pakistan has access to safe drinking water. The remaining 80% of population is forced to use unsafe drinking water due to the scarcity of safe and healthy drinking water sources
- The primary source of contamination is sewerage (fecal) which is extensively discharged into drinking water system supplies.
- Secondary source of pollution is the disposal of toxic chemicals from industrial effluents, pesticides, and fertilizers from agriculture sources into the water bodies.

reference [Bio Med research international]

LIST OF DISEASES CAUSED BY POLLUTED WATER

1. DYSENTRY
2. HEPATITIS A
3. ARSENICOSIS
4. POLIOMYELITIS
5. TRACHOMA [direct contact]
6. TYPHOID FEVER
7. SCISTOSOMIASIS
8. CHOLERA
9. DIARRHEA
10. MALARIA [favourable breeding places for mosquitoes]
11. LEAD POISONING



Vibrio cholerae

Drinking contaminated water
can be a cause.

TYPHOID

FEVER

is a disease caused by the *Salmonella typhi* bacteria



SYMPTOMS



Weakness



High fever



Diarrhea



Vomiting



Abdominal pain



Constipation



Headache

HOW IT IS SPREAD

Through contaminated food or water



DANGER!

Typhoid carriers may not display any symptoms



DIRTY WATER.

It kills more people every year than all forms
of violence, including war.

But it doesn't have to.



1. A child dies from a water-related cause every 21 seconds!

That's 6,000 children every day!

2. **Infants and young children**, especially girls, are disproportionately affected.

3. **Water-borne illnesses**: second leading cause of death for children under five.



E. Coli



Salmonella typhi



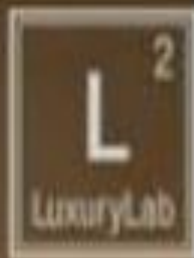
Schistosoma



Cholera vibrios



Hepatitis A



**MAKE SURE YOUR
DRINKING WATER IS
NOT CONTAMINATED!!**



INTERVENTIONS

1. Key measures to reduce the number of cases of diarrhoea include:
2. Access to safe drinking water.
3. Improved sanitation.
4. Good personal and food hygiene.
5. Health education about how infections spread.

reference [WHO(2000) Global Water Supply and Sanitation Assessment. World Health Organization. Geneva]



What is food for you?

FOOD

IS



SOCIAL

GOOD
FOOD

is

GOOD
MOOD

FOOD

is my

BESTFRIEND

Food is my best friend, and my worst enemy.

FOOD IS



MEDICINE

FOOD

IS AT THE



EVERYTHING
WE DO

FOOD

- IS -

LIFE





This is what happens when a fly lands on your food.



Flies can not eat solid food, so to soften it up they vomit on it. Then they stamp the vomit until it's a liquid. When its good and runny, they suck it all back again, probably dropping some excrement at the same time.

FLIES CARRY FILTH



HAIRY FOOT
OF A FLY

BECAUSE
BRED IN
FILTH



BACTERIA COLONY
IN FLY'S FOOTPRINT

A FLY OFTEN CARRIES 6,600,000 BACTERIA
ON ITS HAIRY BODY

FROM

MANURE PILE
GARBAGE CAN
PRIVY VAULT
SPITTOON
SICK ROOM



TO

MILK
BABY'S LIPS
BABY'S BOTTLE
FOOD
YOU

A FLY IS THE MOST DANGEROUS
ANIMAL KNOWN

FIG. 10.

Courtesy of International Harvester Company.

sallyedelsteincollage.com

SYMPTOMS

Symptoms vary with the causative agent

1. Slight abdominal pain and nausea
2. Retching, vomiting
3. Abdominal cramps,
4. Diarrhoea.
5. Fever, chills, headache, malaise and muscular pains may accompany gastrointestinal symptoms.
 - Vomiting, with or without diarrhoea, abdominal cramps and fever are common symptoms of viral disease or staphylococcal intoxication.
6. Certain food-borne illnesses can present with meningitis or septicaemia (listeriosis), or with neurological symptoms (paralytic shellfish poisoning, botulism).

PUBLIC HEALTH SIGNIFICANCE /OCCURRENCE OF FOOD OR WATER-BORNE ILLNESS

1. Food and water-borne diseases are thought to be the most common of all acute illnesses.
2. A large proportion of disease is not detected, as many people will not seek healthcare with mild illness
3. Occurrence is worldwide
4. the incidence varies from country to country.
5. In recent years, detection of outbreaks of viral origin, especially noroviruses, has been increasing.

RESERVOIR OF FOOD OR WATER-BORNE ILLNESS

- Soil, dust, cereals are reservoirs for food and water-borne illness.
- For bacteria and parasites, fish, birds, reptiles, and wild and domestic mammals are reservoirs.
- For viruses, humans are the reservoir.

MODE OF TRANSMISSION OF FOOD OR WATER-BORNE ILLNESS

- Transmission is predominantly via the faecal–oral route
- Ingestion of contaminated food and water and fomites.
- Airborne transmission – via fomites – has been implicated in outbreaks involving viral pathogens.

SUSCEPTIBILITY AND RESISTANCE TO FOOD OR WATER-BORNE ILLNESS

- For most infections, everyone is susceptible.
- Sporadic disease is more often detected in young children, the elderly or immuno compromised people.

I feel wealthy

when I am healthy

HOW SAFE IS YOUR FOOD?



Food processing



Packaging



Point of sale



Preparation:
consumers

CONTROL MEASURES FOR FOOD OR WATER-BORNE ILLNESS

PREVENTIVE MEASURES

- Preventing contamination of potable water
- Contaminated water should be treated by adequate filtration and disinfection or by boiling.
- Avoiding contamination of food by
 1. providing raw materials of better microbiological quality
 2. educating food handlers about proper food processing, preparation and storage, and personal hygiene

10 GOLDEN RULES FOR SAFE FOOD PREPARATION DEVELOPED BY THE WORLD HEALTH ORGANIZATION

1. Choose food processed for safety.
2. Cook food thoroughly.
3. Eat cooked food immediately.
4. Store cooked food carefully.
5. Reheat cooked food thoroughly.
6. Avoid contact between raw foods and cooked foods.
7. Wash hands repeatedly.
8. Keep all kitchen surfaces meticulously clean.
9. Protect food from insects, rodents and other animals.
10. Use pure water and raw materials.

VACCINATION

- Vaccines are currently available for cholera, rotavirus, typhoid fever and hepatitis A.

Wash Your Hands

Prevent the Spread



 **CCOHS**.ca
Canadian Centre for Occupational Health and Safety

Remember to wash your hands...




BEWARE! Wash your hands with care





 Most frequently missed


 Frequently missed

 Less frequently missed



 Areas most frequently missed during hand washing

 Less frequently missed

 Not missed



PREVENTIVE MEASURES

- Use good environmental management.
- Practice good personal hygiene.
- Take food safety precautions.
- Drink properly treated water.



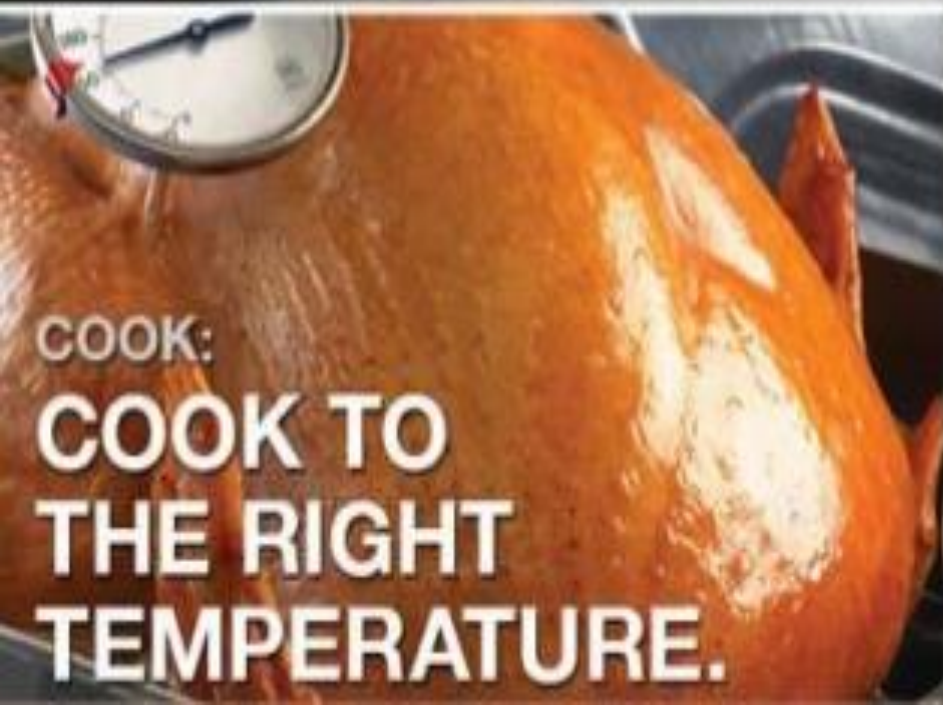
**CHILL:
REFRIGERATE
FOOD PROMPTLY**

[CHECK YOUR STEPS >](#)



**CLEAN:
WASH HANDS,
UTENSILS,
AND SURFACES
OFTEN.**

[CHECK YOUR STEPS >](#)



**COOK:
COOK TO
THE RIGHT
TEMPERATURE.**



**SEPARATE:
DON'T CROSS-
CONTAMINATE.**



Food Safety

- is a **public** concern



INTERNATIONAL MEASURES

- International outbreaks are increasingly being recognised, primarily due to the increased trade in food and agricultural products worldwide.
- Food- and water-borne pathogens and contaminants have been identified as potential biological terrorism agents.
- Cases of rare diseases such as botulism should be investigated immediately.
- Some diseases, such as cholera, require notification to the World Health Organization.
- Quarantine of suspected sources or halting of international trade

THANK U FOR LISTENING