

## 23. Infectious Diseases and how to Prevent them

### Can you tell ?



- (1) When your friends fall while playing and get hurt, does anyone tell you, 'Don't go near them, you will also get hurt'?
- (2) Suppose your mother has a headache. Do you also get a headache if you go near her?



- (3) When is it that you are told not to go near a sick person, not to use their utensils for eating or drinking; not to use their hankies, towels or clothes?

### Infectious diseases

Mother's burns or Grandpa's backache are not passed on from them to others.

However, one has to take care to stay away from people who are ill with the flu (influenza), cold, ringworm, scabies, chickenpox. These diseases spread from one person to the other. Such diseases are called infectious diseases.

What causes these diseases ?

They are caused by micro-organisms. Every infectious disease is caused by a specific micro-organism or germ. When the germs of a particular disease enter the body and begin to grow, the person gets the disease.

How is one person's disease passed on to another person?

When a person has a cold, the germs from his body spread in the air when he coughs or sneezes. When these germs enter other people's body, they can also get the disease. That is, the disease spreads.

Typhoid spreads when its germs are passed on by a person ill with typhoid to another person.

### Spread of infectious diseases

What are the different ways in which infectious diseases spread ?

#### Spread of disease through air

The germs of a disease like influenza are present in the spit or saliva of the person who has the disease. When he coughs, spits or sneezes, they enter the air with the tiny droplets of saliva or spit. When other people breathe in that same air, the germs enter their bodies.

Diseases of the throat and the chest spread through the air, for example,



**Do not cough or spit in the open**

tuberculosis, swine flu, etc. That is why we are told to cover our nose and mouth when we cough or sneeze.

**It is our responsibility to prevent the pollution of public sources of water.**



### **Spread of disease through water**

**Can you tell ?**



What different activities are going on in the above picture ?

The germs of diseases of the intestines like typhoid, cholera, diarrhoea as also of jaundice, are present in the faeces of the affected person. If the faeces get mixed with water the germs in it also enter the water. If another person drinks water which has been contaminated by these germs, they enter his intestines too, and that person can get the disease. To prevent the spread of disease in this manner, it is best to avoid washing clothes and bathing in the water sources or defecating on the banks of the water, etc.

### **Spread of disease through food**

**Can you tell ?**



What do you see in the picture below ?

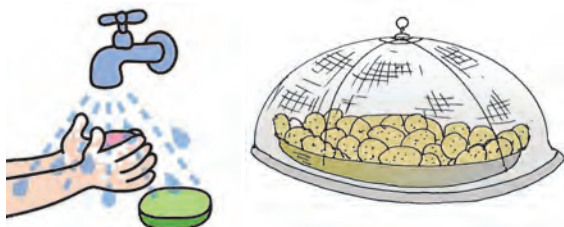


You may have heard of a number of people getting ‘gastro’ or diarrhoea after eating contaminated food at a function. Diseases spread through food also. This is also called food poisoning.



**A feast on an open ground**

You have seen flies sitting on dirt. When they sit on the faeces of a person who has an intestinal disease, the germs of the disease stick to their legs. When the same flies sit on our food, the germs enter the food. If we eat that food, the germs enter our body and we can get the disease. That is why it is important to always keep our food covered.



**Wash your hands clean. Keep food covered.**

Food is handled while preparing or serving it. If someone who has an intestinal disease handles or serves food without washing his hands properly, the germs sticking to his hands can enter the food. Food contaminated in this way can also cause disease. One must avoid eating it. Maintaining cleanliness everywhere is beneficial for our health.

**Can you tell ?**



What steps will you take to ensure that dust and flies do not settle on the food in your house?

Keeping food covered ensures that flies cannot sit on it, dust and other rubbish in the surroundings also cannot enter it. This prevents the micro-organisms from entering the food and the spread of disease is also prevented.

### **The spread of disease by insects**

You may be aware that one can get malaria from the bite of a certain kind of mosquito. When this type of mosquito bites someone who has malaria, the malaria germs in that person's blood enter the mosquito's body with the blood it sucks. If this mosquito bites another person, the malaria germs enter that person's body too and he too can get malaria. Insects like mosquitoes and fleas spread disease. That is why, we must stop such insects from breeding.

### **Spread of disease by direct contact**

Ringworm, scabies are diseases that affect the skin. Their germs are found on the skin. If someone else comes in contact with the skin of a person having this disease or wears his clothes then that person can get that skin disease too. That is why, it is better to avoid sharing clothes.

### **An epidemic of a disease**

Germs of diseases like the flu or conjunctivitis spread quickly through the air. So, many people can get such diseases all at one time. If the water of a common source is contaminated by germs of a disease like cholera, then there is the danger of all those who drink that water getting the disease. If, at some place, mosquitoes breed in large numbers then many people there can get malaria.

When many people in one area get the same infectious disease all at the same time, we say that there is an epidemic of the disease.



Air, water, food and insects are the mediums through which diseases spread. Hence, if everyone takes care to ensure that the germs do not enter our food, water or air and to prevent the breeding of insects that spread disease, it is possible to prevent a disease from becoming an epidemic. For this, it is important for all of us to make cleanliness a habit.

## Prevention of infectious diseases

Can you tell ?



Why should you not go to school if you have conjunctivitis?

To prevent diseases from spreading through water, it is purified at the water-works. In smaller towns and villages, bleaching powder is added to community sources of water to kill the germs and make the water safe for drinking. When there is an epidemic of gastro or jaundice, people are advised to boil water before drinking it.

To prevent mosquitoes from breeding, we must ensure there is no stagnant water in the surroundings. But, if that is not possible, insecticides have to be used. Thus diseases like malaria can be prevented.



A breeding-ground for mosquitoes

People who have a serious infectious disease like tuberculosis or swine flu are quarantined. There are separate wards in hospitals for people with infectious

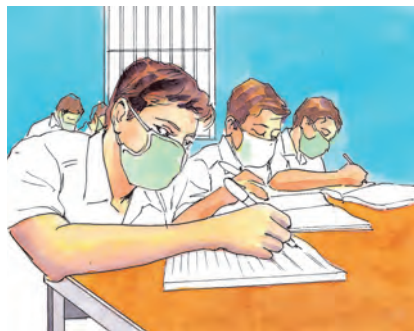
diseases. Clothes and utensils used by the patients are washed with germicides. The spittle of a person who has tuberculosis is collected in a vessel and covered with a germicide like phenyle. Such precautions help to prevent the disease from spreading to others.

To prevent the spread of diseases through air, people should cover the mouth when sneezing or coughing and avoid spitting in the open. If it is necessary to be with such a patient, a mask should be worn to cover the nose and mouth.

If someone in the family gets an infectious disease, the government health department should be informed so that necessary steps for preventing the spread of the disease can be taken.



Measures for preventing the spread of disease



## Vaccination

When there is an epidemic of a disease, does every person in the area get the disease?

When disease producing micro-organisms enter our body, the body resists the disease or fights the germs. That is why,

many times we do not get a disease even if germs enter our body.

Another way to prevent disease is vaccination. Our body develops resistance to a particular disease if we are vaccinated against it.

Soon after a baby is born, she is given the tuberculosis vaccine. When the baby is one and a half months old, she is given vaccinations against diphtheria, whooping cough, tetanus and polio. Two more doses of these vaccinations are given at intervals of one month.



**Vaccination**

The vaccines for diphtheria, whooping cough and tetanus are combined into a triple vaccine and given as an injection. The polio vaccine is given orally.

### **Public health service facilities**

To prevent the spread of infectious diseases and epidemics, health and community welfare programmes are undertaken at the national level.

Community programmes for vaccination are also undertaken as part of national health schemes. Children are given the vaccines by trained people. Special camps are arranged for this purpose.

Primary Health Centres have been established at the village level. There are also facilities like mobile dispensaries, ambulances and a Welfare Fund for the disabled. Services like the examination of

urine and blood, X-ray, ultra-sound and other scans are also available through the health programmes. Thus, patients can get the service they need without delay.

People are also educated about the right methods of handling drinking water and food. They are urged to maintain cleanliness in their surroundings. It is now forbidden by law to spit in a public place. The purpose of this ban is to prevent the spread of diseases. Mass media are also used for raising public awareness about health and hygiene issues.



**Public awareness programme on TV**

### **Do you know ?**



At one time it was believed that diseases are caused due to the anger of gods, evil spirits or due to black magic. The remedies prescribed for these were also inhuman. However, science has shown that diseases are caused by micro-organisms and these beliefs are false.

Micro-organisms are a kind of living things. All micro-organisms do not cause disease. Some micro-organisms are useful to us. They bring about the conversion of milk into yoghurt and the fermentation of the batter for idlis, dosas, etc.

### Always remember –



Cleanliness, a balanced diet and vaccination are essential for the prevention of infectious diseases.

### What we have learnt –



- Diseases caused by micro-organisms are called infectious diseases.
- Micro-organisms that cause disease are also called germs.

- Every infectious disease is caused by a specific micro-organism or germ.
- Infectious diseases spread through water, food or air, by direct contact or through insect bites.
- If care is taken to prevent germs from entering the body, the spread of disease can be prevented.
- If many people in a place get a disease at the same time, it is called an epidemic.
- Vaccination is an excellent method of preventing disease.

## Exercises

### 1. What's the solution ?

You are very hungry, but the food has been left uncovered.

### 2. Use your brain power !

Which method of preventing the breeding of mosquitoes will you recommend for your surroundings – not allowing water to stagnate or spraying insecticides on the water ? Why ?

### 3. Answer the following questions.

- (a) What is an infectious disease ?
- (b) What are the mediums of the spread of diseases ?
- (c) What happens when there is an epidemic of a disease ?
- (d) What is vaccination ?
- (e) Make a list of the vaccinations that are given to a newborn baby.

### 4. True or false ?

- (a) Intestinal diseases spread through air.
- (b) Some diseases are caused by the anger of the gods.

### 5. Classify the diseases given below as diseases that spread through food, through water and through air.

Malaria, typhoid, cholera, tuberculosis, jaundice, gastro, diarrhoea, diphtheria.

### 6. Give reasons.

- (a) When there is an epidemic of cholera, we should drink boiled water.
- (b) We should not allow puddles of water to stand in our surroundings.

### Activity

**Use the points given below to write down the information about an epidemic that has occurred in your area.**

Name of the disease, the micro-organism causing it, the medium through which it spreads, steps taken to prevent its spread.

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