

2. Health and Diseases



Can you recall?

1. Have you ever taken the leave from school due to sickness?
2. What happens exactly when we become sick?
3. Sometimes, we feel good even without taking any medicines and sometimes we need to consult doctor and take regular medicines in sickness. Why is it so?

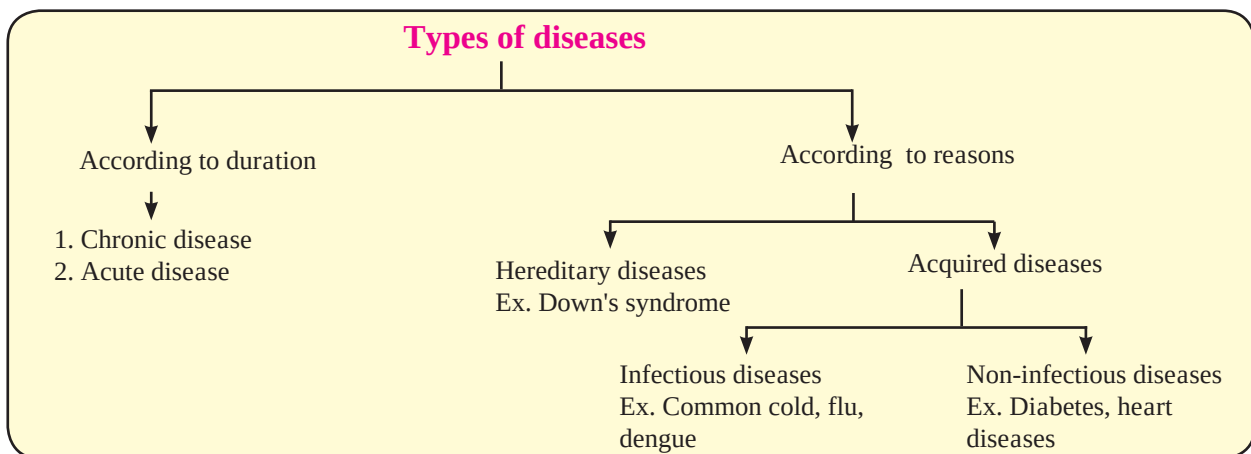
Health

Health is a state of complete physical, mental and social well-beingness and not merely the absence of any disease.

What is disease?

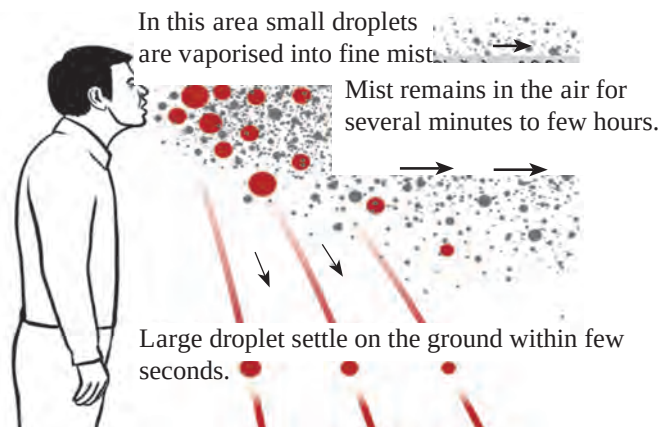
Condition of disturbances in physiological or psychological processes of body is called as disease. Each disease has its own specific symptoms.

Types of diseases : You must have heard the names of various diseases like diabetes, common cold, asthma, Down's syndrome, heart disease, etc. Reasons and symptoms of all these diseases are different. To bring coordination in scientific study of diseases, diseases are classified as follows.



Can you tell?

1. How do the following diseases spread? (Hepatitis, malaria, scabies, T.B., dengue, dysentery, ringworm, swine flu)
2. What do we mean by pathogen?
3. What do we mean by infectious diseases?



2.2 Infection through sputum

A. Infectious Diseases: Diseases spread through contaminated air, water, food or vectors (insects and other animals) are called as infectious diseases.

Name of disease	Pathogen	Mode of infection	Symptoms	Prevention and treatment
Tuberculosis	<i>Mycobacterium tuberculosis</i>	Spitting by patient, through air, prolonged contact with and sharing of materials of patient	Chronic cough, bloody spitting, emaciation, difficult breathing	BCG vaccine, isolation of patient, regular medication like DOT
Hepatitis (Jaundice)	Hepatitis virus- A, B, C, D, E	Contaminated water, sharing of needles, blood transfusion	Anorexia, yellow urine, general weakness, nausea, vomiting, grey stool	Drinking boiled water, proper cleaning of hands
Dysentery	<i>Bacteria, virus, Shigella, bacilli, Entamoeba histolytica</i>	Contaminated food and water	Watery stool, pains in abdomen	Drinking of boiled water, proper storage of food, ORS consumption
Cholera	<i>Vibrio cholerae</i> (bacterium)	Contaminated food and water	Vomiting, severe diarrhea, cramps in legs	Following hygienic practices, avoiding open place food, drinking boiled water, vaccination against cholera
Typhoid	<i>Salmonella typhi</i> (bacterium)	Contaminated food and water	Anorexia, headache, rash on abdomen, dysentery, fever up to 104 °F.	Drinking clean water, vaccination, proper disposal of sewage



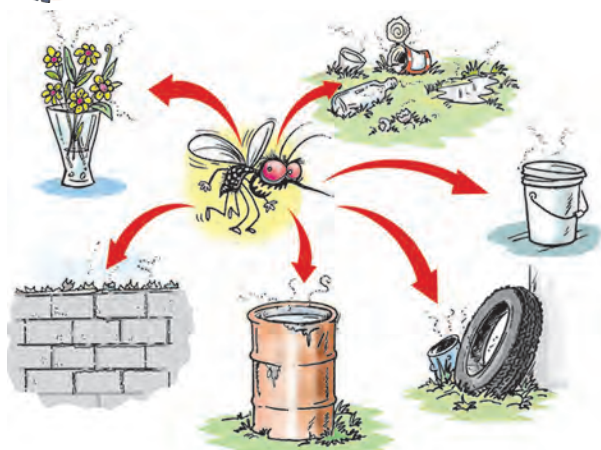
Complete the table

2.3 Some infectious diseases

Prepare similar table of information about various diseases like enteritis, malaria, plague, AIDS.



Observe and discuss.



2.4 Dirtiness in the surrounding

Internet My Friend

1. Search the reasons, symptoms and other information of chicken pox.
2. Collect additional information
 - a. Pulse polio drive, b. WHO

1. Where do you see the water-logged materials shown in picture?
2. Which hazards do you anticipate with the help of picture?

Some important diseases of present days



Can you tell?

1. How can we observe personal hygiene?
2. Why should we drink boiled water in rainy season?
3. Why the 'clean hands drive' is run in schools?

Dengue: Mosquitoes lay the eggs in water-logged places and thereby their population increases. Different species of mosquitoes spread different diseases. Dengue is spread by *Aedes aegypti*. This disease is caused by DEN-1 - 4 virus belonging to the type- flavivirus.

Symptoms

1. Acute fever and headache, vomiting.
2. Pains in eye socket is very prominent symptom.
3. Decrease in platelet count that may lead to internal hemorrhage.

Understand and explain to others



Observe and discuss.

Observe the pictures shown in following and write description in the boxes.



Collect information

Which measures are taken for mosquito control by grampanchayat, municipal council, municipality of your area?



Do you know?

Malaria is spread by female *Anopheles* while elephantiasis by female *Culex*. *Anopheles* and *Aedes* grow in clean water while *Culex* in dirty, sewage water.

2.5 Dengue : reasons and preventive measures

Swine Flu: Reasons of infection

- Infection for swine flu occurs through pigs and humans.
- Viruses of swine flu are spread through secretions of nose, throat and saliva.

Symptoms of Swine Flu

- Difficulty in breathing.
- Sore throat, body pains.

Diagnosis of Swine Flu: For diagnosis of swine flu, liquid from throat of patient is sent in laboratory. Diagnostic facilities are available in National Institute of Virology (NIV), Pune and National Institute of Communicable Diseases (NICD), Delhi.



Do you know?

First case of swine flu was reported in Mexico in 2009. Swine flu is caused by the virus influenza A (H₁N₁). Persons who come in contact with pigs can contract this disease.



AIDS (Acquired Immuno Deficiency Syndrome): This disease is caused by HIV (Human Immunodeficiency Virus). In this disease, victim suffer from various diseases due to progressive weakening of natural immunity. Diagnosis of AIDS cannot be confirmed without tests in medical laboratories. ELISA test is used for its proper diagnosis. Symptoms of AIDS are person specific.



Always remember

- AIDS does not occur due to touching to and sharing the food with HIV infected person, or by nursing the HIV patient.
- Our behaviour with HIV infected person must be normal.



Do you know?

HIV was first reported in an African species of Monkeys. According to the National AIDS Control Program and UNAIDS, 80 – 85% HIV infections in India occur through unsafe sexual contacts.

Infections through Animals



Can you tell?

1. Which measures are taken at your home to control the rats?
2. Why is it necessary to care about health of domestic dogs, cats and birds?
3. Is there any relation between pigeons, stray animals and human health?
4. What are effects of rats, cockroaches on human health?

Rabies: This is a viral disease. It occurs due to the bite of the infected dog, rabbit, monkey, cat etc. Virus enters the brain via neurons. Hydrophobia is one of the important symptom of this disease. In this case, the victim shows extreme fear for water. Rabies is fatal disease. However, fatality can be prevented by timely vaccination before onset of symptoms. Symptoms start to appear within 90 – 175 days of dog bite.

Symptoms of Rabies:

1. Fever for 2 – 12 weeks
2. Exaggerations in behaviour.
3. Hydrophobia.

Internet My Friend

1. Watch the videos about Rabies on internet.
2. Collect information about various preventive measures on Rabies, make a list and discuss with friends.



Can you tell?

1. Why the animal cages and their living places should not be near the kitchen?
2. Depending upon which symptoms, rabies can be identified?

B. Non-infectious diseases : Diseases which do not occur through infections and body contacts are called as non-infectious diseases. Such diseases arise in human body itself due to certain reasons.

1. Cancer : Uncontrolled and abnormal cell growth is called as cancer. Group or lump of cancerous cells is called as malignant tumor. Cancer can occur in various organs like lungs, mouth, tongue, stomach, breast, uterus, skin and tissues like blood.

Reasons : Consumption of tobacco, gutkha, smoking, alcoholism, lack of fiber content (fruits and leafy vegetables) in food, excessive consumption of junk food (pizza, burger etc) are some of the many possible reasons. Heredity may also be a reason.

Symptoms :

1. Chronic cough, hoarse voice, difficulty in swallowing.
2. Incurable scar and inflammation.
3. Lumps in breast.
4. Unexplained weight-loss.



Discuss

Discuss the control of cancer and prepare poster for the displaying in classroom.



Can you tell?

Do you remember any person drinking the sugar-free tea or avoiding consumption of sweets? What may be the possible reason for this?

2. Diabetes: The hormone- insulin produced in pancreas controls the level of sugar-glucose in blood. If insulin is secreted in low quantity, glucose level cannot be controlled; this disorder is called as diabetes.



Do you know?

Modern diagnostics and treatment of cancer : Various techniques like CT scan, MRI scan, mammography, biopsy are used in diagnosis of cancer. In case of treatment, along with conventional methods like chemotherapy, radiation therapy and surgery, modern techniques like robotic and laparoscopic surgery are also followed.



Always remember

Controlled diet helps to prevent some types of cancers. Physical exercise along with modern treatment is more beneficial to cure the cancer.

Avoid addictions like tobacco chewing, smoking etc.



Symptoms which cannot be ignored-

- Frequent urination at night, increased obesity or weight loss

Reasons for diabetes : • Heredity • Obesity
• Lack of physical exercise • Mental stress

Preventive measures: Following the proper diet, medicines and exercise under the supervision of doctor helps to keep the diabetes under control.



Do you know?

India has largest number of diabetes patients in the world. At present, approximately 7 crore diabetes patients are present in the country.

Internet My Friend

Watch the various videos giving information about diabetes on internet. Note important information and present it in the class using MS-power point presentation.

3. Heart Diseases : Efficiency of the heart decreases due to decreased blood supply and thereby oxygen and nutrient supply to the heart muscles. Due to this, heart has to perform more work that leads to stress on it. This may cause heart attack. If someone has heart attack, immediate consultation of doctor and treatment is necessary.

One should not ignore these symptoms

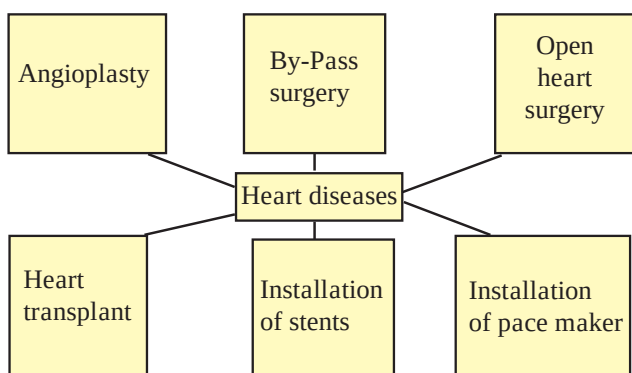
Severe chest pains, pains in shoulder, neck and arms, cramps in hand, uneasiness, tremors.

Reasons of heart attack : Smoking, alcoholism, diabetes, hypertension, obesity, lack of physical exercise, heredity, mental stress, anger, anxiety.



Always remember

Each disease has specific scientific reason. Diseases do not occur due to divine curse or hating by any one. Diseases can be cured by proper medical treatment and not by chanting mantras or performing magic tricks.



Always remember

First Aid for Heart Disease

First, call 108 for ambulance. Check the consciousness of patient by shaking the shoulders. Keep the patient lying on the back in horizontal position on hard surface and perform compression only life support (C. O. L. S.). In this, press the centre of thorax for at least 30 times at the rate of 100 to 120 strokes per minute.



Collect information

1. Have you ever seen your grandparents taking the decoction? Discuss about it with them.
2. Collect information from your grandparents about use of aloe vera, turmeric, ginger, garlic as medicines.

Internet My Friend

Collect the information about different methods of treatment like ayurveda, homeopathy, natural healing, allopathy, unani, etc.

Misuse of Medicines : Sometimes, some people take the medicines without prescription of doctor. Overdose of medicines may affect our body. Ex. Overdose of pain killers may damage nervous system, excretory system, liver. Overdose of antibiotics may lead to nausea, stomach ache, dysentery, rash, white patches on tongue etc.



Think about it.

Poor people do not afford the costly medicines. Is there any alternative for this? Which one?



2.6 Generic medicines

Generic medicines : Generic medicines are also known as general medicines. These are manufactured and distributed without any patent. These medicines are *at par* in quality with branded medicines. Production cost of these medicines is very low due to fewer expenses on research as their formula is readily available.

Use of ICT

You can easily obtain the generic medicines using mobile apps like Healthkart and Jan Samadhan. Download those apps on your mobile and use it if necessary.

Lifestyle and diseases : Lifestyle includes the daily routine and the type of food. Nowadays, habits like staying in bed till late morning and going to bed late in night, frequent changes in meal timings, lack of physical exercise, consumption of junk food, etc. have been increased. Due to this, such people are getting sick frequently.

If frequency of becoming sick is to be lowered, people should follow right lifestyle. It must include sufficient sleep, right food, yogasanas, pranayam and physical exercise. Physical exercise should also be as per one's own capacity.

Pranayam and yogasanas should be performed under the expert supervision. See the videos of pranayam and yogasanas.

Vaccination: Vaccination is important to prevent the infectious diseases. Collect the vaccination schedule chart from nearby clinic and study it.



Do you know?

- * Government of India declared the Pradhan Mantri Jan Aushadhi Yojana on 1st July 2015. In this scheme, best quality medicines are made available in affordable prices to the citizens. 'Jan Aushadhi Stores' are launched for this purpose.
- * Indian companies export the generic medicines on large scale. However, those medicines are sold under brand name with high prices in India. In America, 80% medicines used are generic. Due to this, hundreds of billions of money is saved there.

Let us celebrate Health Awareness Days

7th April – World Health Day

29th September – World Heart day

14th June – World Blood Donation Day

14th November – World Diabetes Day

Understand The Importance...

Blood Donation : One unit blood donated by a person can fulfill the need of three persons at a time, for example- RBCs, WBCs and platelets. One can save the life of twelve persons by donating the blood for four times a year.



Exercises

1. **Distinguish between- Infectious and non-infectious diseases.**
 2. **Identify the odd term.**
 - a. Malaria, hepatitis, elephantiasis, dengue.
 - b. Plague, AIDS, cholera, T.B.
 3. **Answer in one to two sentences.**
 - a. Which are various media of spreading the infectious diseases?
 - b. Give the names of five non-infectious diseases other than given in the lesson.
 - c. Which are the main reasons of diabetes and heart diseases?
 4. **What can be achieved / can be prevented?**
 - a. Drinking boiled and filtered water.
 - b. Avoiding smoking and alcoholism.
 - c. Regular balanced diet and exercise.
 - d. Proper checking of blood before blood donation.
 5. **Read the passage and answer the questions.**

Master 'X' is a 3 year old child. He is living with his family in a slum. Public toilet is present near his house. His father is drunkard. His mother does not know the importance of balanced diet.

 - a. Master 'X' can suffer from which different possible diseases in above conditions?
 - b. How will you help him and his family in this situation?
 - c. Which disease can occur to the father of master 'X'?
 6. **Give the preventive measures of following diseases.**
 - a. Dengue.
 - b. Cancer.
 - c. AIDS.
 7. **Explain the importance.**
 - a. Balanced diet.
 - b. Physical exercise / Yogasanas.
 8. **Make a list.**
 - a. Viral diseases.
 - b. Bacterial diseases.
 - c. Diseases spread through insects.
 - d. Hereditary diseases.
 9. **Write the information on modern diagnostics and treatments of cancer.**
 10. **Enlist the names and composition of the medicines present at your home.**
- Project :**
1. Prepare posters giving information about various diseases, public awareness and arrange exhibition in school.
 2. Visit the public health center / clinic nearby and collect the information about vaccination.
 3. Compose a street-play to increase public awareness about dengue, malaria, swine flu and present it in the area nearby your school.

