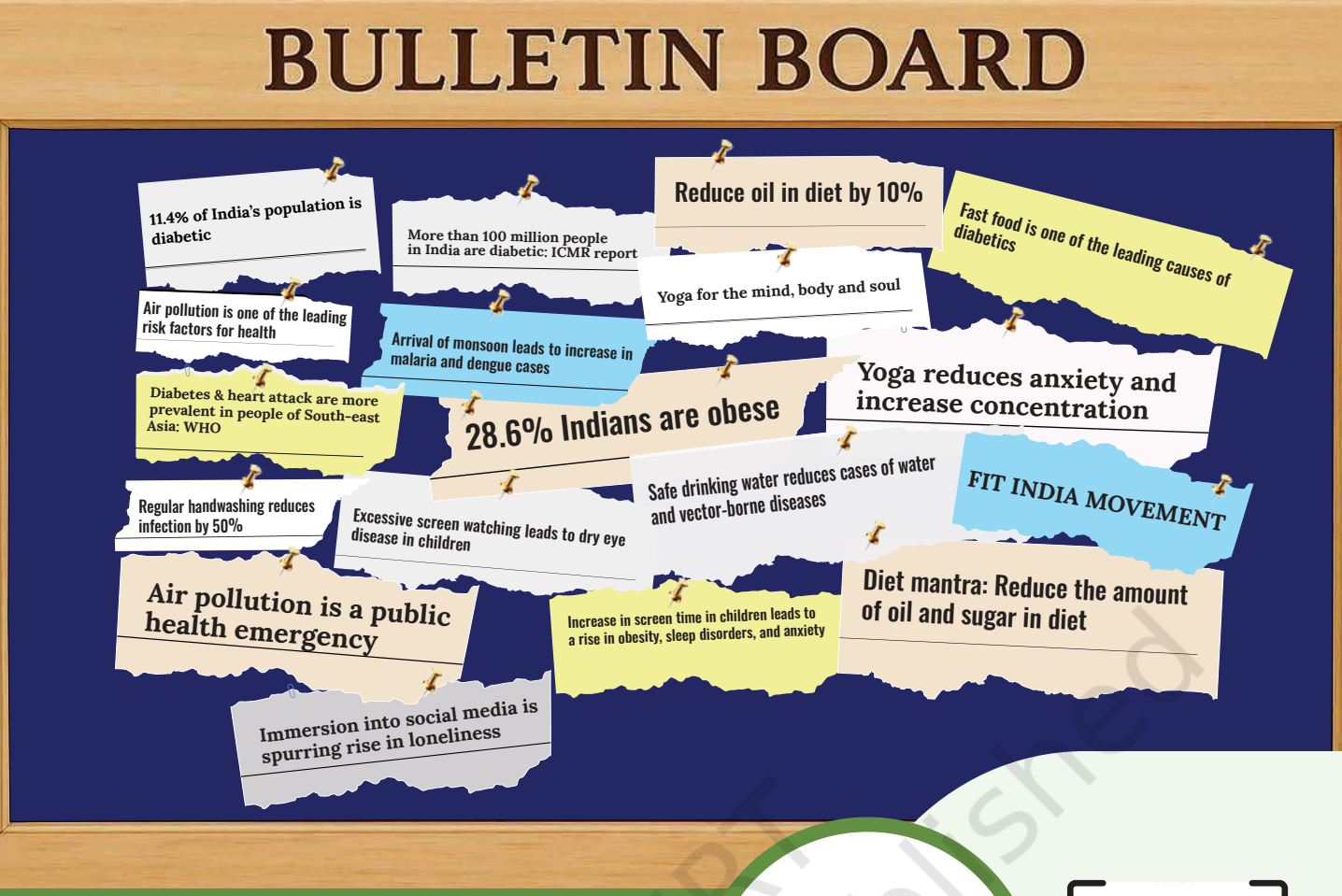


Health: The Ultimate Treasure

3

0877CH03

© NCERT not to be republished

Probe and ponder

- How does your body respond to an infection such as common cold?
- We rarely see cases of smallpox or polio these days, but diseases like diabetes and heart problems are more common. Why?
- Could climate change lead to new types of diseases?
- How do emotions like stress or worry affect us and make us sick?
- Why do some groups of people get affected more than others during disease outbreaks?
- Share your questions

_____

_____?



3.1 Health: Is It More Than Not Falling Sick?

What do the news clippings on the notice board tell you about people's health in our country? Is being healthy just about not having diseases? Health also includes feeling good physically, staying positive, and having strong relationships. A healthy person takes care of their body, maintains a positive mindset, and enjoys social life. Let us now **explore** what it truly means to be healthy.

Activity 3.1: Let us read

A Grade 8 student moved to a new school in another city. With no friends in his new environment and busy parents, he felt lonely. To cope, he spent more time on his phone and social media, but this made him feel worse. He stopped trying to make friends, had headaches, lost weight, and could not sleep well. A doctor advised less screen time and meeting a counsellor. The school counsellor arranged help to support him in making friends and improving his health.

Think and **Reflect**: What was the cause of the boy's health problems? How did his habits and surroundings affect his well-being?

As per the World Health Organization (WHO), health is defined as a 'state of complete physical, mental, and social well-being, and not merely the absence of disease' (Fig. 3.1). A healthy person can generally perform various tasks more efficiently and cope well in different and difficult situations. A healthy person can adjust well with peer groups and other members of society. Let us understand more about health.



Fig. 3.1: Aspects of health

Our scientific heritage

Ayurveda teaches us that true health is a balance of body, mind, and surroundings.

Following *dinacharya* (daily routine) and *ritucharya* (seasonal routine) helps maintain this balance. Eating fresh, wholesome food suited to one's *prakriti* (body constitution) is essential. Regular exercise, cleanliness, restful sleep, and a calm mind support overall well-being. This can also be achieved through practices like yoga, meditation, and mindfulness.



3.2 How Can We Stay Healthy?

For staying healthy we must eat nutritious food, maintain hygiene, stay in a clean place, exercise regularly, get proper

© NCERT not to be republished

sleep, spend time with family and friends, and have a positive attitude. What should we do and what should we avoid to keep ourselves healthy?



Eat a balanced diet



Stay physically active



Say 'No' to smoking or alcohol



Manage stress



Get enough sleep

Fig. 3.2: How to be healthy

Activity 3.2: Let us list

- List some good habits that your parents, teachers, or elders often encourage you to follow. How many of these are already a part of your daily routine? Which ones would you like to start following? Add to the list below:
  - Keep yourself clean by maintaining personal hygiene.
  - Eat a healthy and balanced diet.
  - Exercise regularly.
  - Make time to relax or meditate every day.
- Now, think about habits that are not good for your health. Add more to the list below:
  - Spending too much time on mobile phones or other digital screens.
  - Eating fast food and other junk food every day.
  - Sleeping very late or not getting enough sleep.
  - Skipping meals, especially breakfast.

Taking care of our body and mind is important. Healthy habits support a healthy body as well as a healthy mind.

Discuss your findings with your friends and teacher. From the activity you participated in and the discussions, you may have realised that our health depends on many factors. These factors include our lifestyle (how we live) and our environment (our surroundings).

3.2.1 Maintain a healthy lifestyle

- Eat a balanced diet with plenty of fruits, vegetables, and whole grains.
- Avoid processed, fatty, or sugary food and drinks.
- Stay physically active by playing outdoors, walking, running, cycling, or exercising.
- Limit screen time and spend more time in nature.
- Get enough sleep to help your body and mind rest and recover.
- Practice yoga or simple breathing exercises like pranayama regularly.
- Say 'NO' to harmful substances like tobacco, alcohol, and addictive drugs (Fig. 3.2).

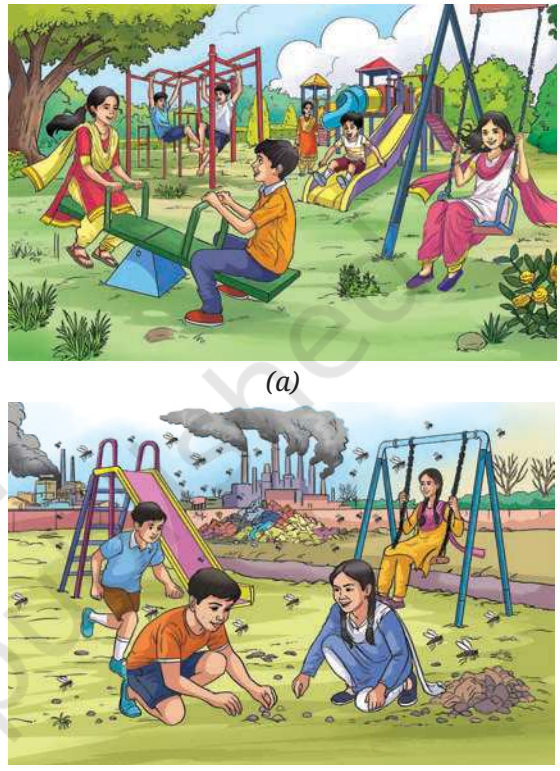
© NCERT not to be republished

Reprint 2026-27

3.2.2 Keep the environment clean

Activity 3.3: Let us compare

- Look at Fig. 3.3a and Fig. 3.3b. Which playground would you like to play in, and why?
- Most of us would like to play in the playground shown in Fig. 3.3a as it is clean, well-maintained, and looks beautiful. The playground in Fig. 3.3b is polluted, dirty, unhygienic, and full of flies and mosquitos. People living in such areas may fall sick more often.
- In addition to inculcating good habits and adopting a healthy lifestyle, we must keep ourselves and our surroundings clean.
- Have you ever found it hard to breathe in a place with a lot of smoke or dust? That is because clean air and water are important for our health. In cities, air pollution from vehicles and factories can cause problems like coughing or asthma. The **Air Quality Index** (AQI) helps us know how clean the air is. A cleaner environment helps us stay healthy and feel better.
- But health is not only about the body. Our feelings and relationships matter too. Even if we eat well and live in a clean place, we may not feel good if we are lonely or upset. Spending time with friends and family, talking, laughing, and having fun help keep our minds healthy too.



(a)

(b)

Fig. 3.3: Two different playgrounds

3.3 How Do We Know That We Are Unwell?

Our body usually works in a certain way to keep us healthy. When we feel unwell, it means something inside us may not be working as it should. We may have symptoms, such as pain, tiredness, or dizziness, and signs like fever, rash, high blood pressure, or swelling that indicate we are unwell. A symptom is what we feel (like pain), while a sign is something that can be seen or measured (like high body temperature when we have fever). These help doctors understand what might be making us unwell.

© NCERT not to be republished

3.4 Diseases: What Are the Causes and Types?

A disease is a condition that affects the normal working of the body or mind. It can happen when one or more organs or organ systems stop functioning properly. Some diseases are caused by germs like bacteria, viruses, fungi, worms, or even by protozoa (single-celled organisms). These disease-causing organisms are called **pathogens**. Other diseases may result from poor nutrition or an unhealthy lifestyle. Some diseases last for a short time, while others can continue for a long time and need regular treatment or care. Diseases can be grouped into two major types based on their causes and how they spread:

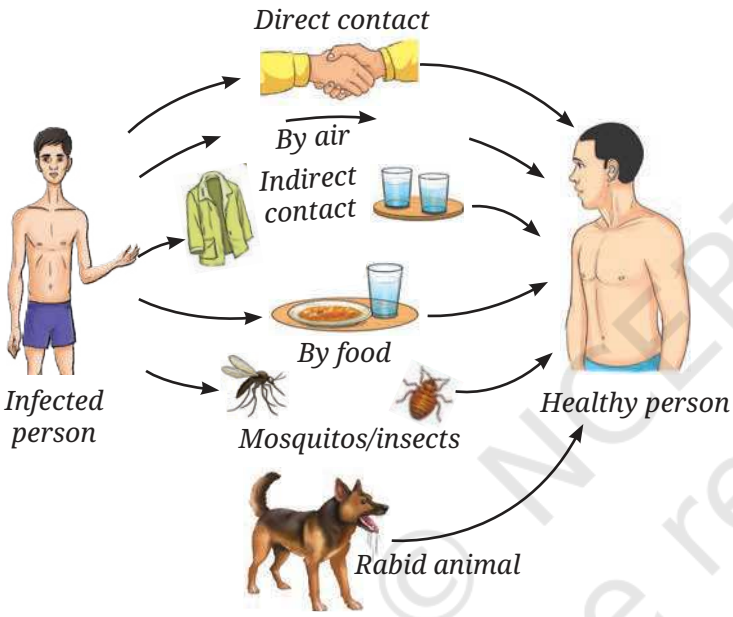


Fig. 3.4: Common methods of transmission of diseases

- **Non-communicable diseases—** Some diseases, like cancer, diabetes, or asthma, are not caused by pathogens and do not spread from one person to another. They are usually linked to lifestyle, diet, and/or environment.
- **Communicable diseases—** Diseases caused by pathogens are called communicable diseases. They can spread from one person to another. Some examples of communicable diseases are typhoid, dengue, flu, chickenpox, and COVID-19.

In recent years, non-communicable diseases (NCDs) like diabetes, heart disease, and cancer have become more common in India. This is happening because of changes in how people live—such as eating more processed food, getting less exercise, and living longer lives. Today, most deaths in India are caused by NCDs. Understanding the difference between these two types helps us know how diseases spread and how to prevent them.

3.4.1 How are communicable diseases caused and spread?

All communicable diseases are caused by pathogens. These pathogens can enter our body through the air we breathe or by consuming contaminated food or water and more. But how do these pathogens spread from one person to another? One common way is through air, when an infected person coughs or sneezes, or through direct contact like shaking hands, or indirectly by sharing

© NCERT not to be republished

Reprint 2026-27

personal items of an infected person. Some of the communicable diseases spread through contaminated drinking water or food. Some pathogens are also spread by insects like mosquitos and houseflies—these insects are called **vectors** (Fig. 3.4).

By understanding how diseases spread, we can take simple steps to protect ourselves and others. Let us find out how these communicable diseases spread and how we can prevent them.

Activity 3.4: Let us find out

- Grade 8 students listed some common communicable diseases in Table 3.1 during a community campaign and a library search.
- Check the information listed by referring to books, trusted websites, or asking your science teacher. Add any missing details.
- Study the table and think about what simple steps can help prevent each disease.

Table 3.1: Some common communicable diseases affecting humans

Diseases	Causal agent	Site of infection	Symptoms	Preventive measures
Diseases spread through the air				
Common cold and influenza 	Virus	Respiratory tract	Nasal congestion and discharge, sore throat, fever, cough, body ache	Washing hands frequently, not sharing personal items, covering the mouth and nose using a mask
Chickenpox 	Virus	Respiratory tract, skin	Mild fever, itchy skin, rashes, blisters	Complete isolation of the patient, covering the mouth and nose, vaccination
Measles 	Virus	Skin, respiratory tract	Fever, sore throat, and reddish rashes on the neck, ears and other parts of the skin	Isolation of the patient, covering the mouth and nose, maintaining good hygiene, vaccination

© NCERT not to be republished

Tuberculosis (TB) 	Bacteria	Lungs	Cough, fever, fatigue, loss of appetite, night sweats	Avoiding close contact with TB-infected people, covering the mouth and nose, maintaining good hygiene, getting vaccinated
Diseases spread through contaminated water and food				
Hepatitis A 	Virus	Liver	Fatigue, fever, loss of appetite, nausea, vomiting, jaundice, pain in the upper right abdomen	Drinking boiled water, vaccination
Cholera 	Bacteria	Intestine	Diarrhoea and dehydration	Maintain personal hygiene and good sanitary habits, consumption of properly cooked food and boiled drinking water, vaccination
Typhoid 	Bacteria	Intestine	Headache, abdominal discomfort, fever, and diarrhoea	Maintain personal hygiene and good sanitary habits, consumption of properly cooked food and boiled drinking water, vaccination
Ascariasis (roundworms) 	Worms	Intestine	Worms in stool, loss of appetite, poor growth, diarrhoea, weight loss, anaemia	Maintain personal hygiene and good sanitary habits, consumption of properly cooked food and boiled drinking water

© NCERT not to be republished

Reprint 2026-27

Diseases transmitted by insects				
Malaria 	Protozoa	Skin, blood	High fever, profuse sweating, periodic chills	Use of mosquito nets and repellents, wearing long–sleeved clothes, control of mosquito breeding in and around your home
Dengue fever (Break bone fever) 	Virus	Skin, blood	Fever, headache, muscle and joint pain, nausea	Use of mosquito nets and repellents, wearing long-sleeved clothes, control of mosquito breeding in and around your home, avoiding areas with still water

By studying the Table 3.1, we can understand how infectious diseases spread and how to prevent them. Here are some simple but important precautions:

- Keeping ourselves and our surroundings clean.
- Practising basic hygiene every day.
- Washing hands with soap and water to remove pathogens.
- Covering our mouth and nose while coughing or sneezing.
- Wearing a mask in crowded places provides protection.
- Avoid sharing of personal items like towels and handkerchiefs.
- Keeping our home, food, and water clean.
- Staying at home and resting when we are unwell helps the body recover and minimises spreading the disease to others.



Some infectious diseases are caused by worms that live inside our bodies, especially in the digestive system. They feed on nutrients and live as **parasites**—organisms that live in or on another living being. These worms usually spread through contaminated food, water, soil, or contact with infected people or animals.

3.4.2 How are non-communicable diseases caused?

You learnt that non-communicable diseases like cancer, diabetes, and asthma are linked to lifestyle, diet, and/or environment. They are the most common cause of death in India. In Grade 6, you also learnt about diseases like scurvy, anaemia, and goitre,

© NCERT not to be republished



which are caused by a lack of specific nutrients in the diet. These are called **deficiency diseases** and are also non-communicable.

Diseases such as cancer, diabetes, and asthma may often persist for a long time (more than 3 months) and are referred to as **chronic diseases**.

Diabetes is a common disease which is becoming more prevalent in adults as well as children. In fact, India now has one of the highest numbers of people with diabetes in the world. It often develops due to a combination of hormonal imbalances, unhealthy eating habits, lack of physical activity, being overweight or obese, and other reasons.

Let us learn more about the causes of non-communicable diseases and their prevention.

Activity 3.5: Let us survey

- Find out the three most common lifestyle-related diseases in your neighbourhood
- Talk to a doctor, nurse, health worker or even a family member who knows about health and what kind of lifestyle changes can help prevent or manage these diseases.
- You can also consult trusted health websites, books, teachers and doctors.
- Fill in Table 3.2 and learn more about lifestyle-related diseases.

Table 3.2: Non-communicable diseases

S. No.	Name of common lifestyle-related diseases	Signs and symptoms	Suggested lifestyle change(s)
1.	Obesity		Eating a balanced diet and exercising regularly
2.	Diabetes	• Frequent urination • Excessive thirst • Weight loss • Tiredness • Slow healing	
3.	High blood pressure		
4.	.....	.....	.....

© NCERT not to be republished

Reprint 2026-27

Be a scientist



Kamal Ranadive (1917–2001) was a pioneering biomedical researcher. She studied how hormones and certain viruses are linked to cancer, helping improve its treatment and prevention. Her work also showed how tobacco, diet, and pollution can raise the risk of cancer, highlighting the importance of a healthy lifestyle.



3.5 How to Prevent and Control Diseases?

You might have heard the phrase 'Prevention is better than cure.' It is important to protect ourselves from both communicable and non-communicable diseases.

Activity 3.6: Let us read

Odisha — community-led sanitation campaign

In Bhadrak district, Odisha, a community sanitation campaign helped more people build and use toilets. This reduced open defecation significantly, and improved child health, with fewer cases of diarrhoea and infections.

What do you **infer** from this case study? Simple steps like good sanitation can greatly reduce the spread of communicable diseases. Find about such community campaigns held in your location. Share in your class and discuss with your peers about the impact of such initiatives.

Ability of the body to fight diseases

You would have noticed that some people get sick more frequently than others, although living in a similar environment. Do you know why? The natural ability of our body to fight diseases is known as **immunity**. Our body has a special system called the immune system that helps fight against diseases.

You might have taken some drops or injections in your childhood to protect yourself from certain diseases, such as polio, measles, tetanus, and hepatitis. These are **vaccines** that help prevent serious infections caused by viruses and bacteria.

A vaccine helps our body fight certain diseases by training the immune system to recognise and attack harmful germs, providing what is known as **acquired immunity**—protection developed after exposure to a pathogen or a vaccine. Vaccines can be made in different ways—from weakened or dead pathogens (like viruses or bacteria), or from inactive or harmless parts of the pathogen. Some newer vaccines instruct our own body cells

© NCERT not to be republished

to make a harmless part of the germ, which our immune system then learns to fight.

For example, a tetanus shot, often given after an injury protects against infection by the tetanus-causing bacteria. It contains an inactivated bacterial toxin that helps the immune system develop protection without causing the disease.

Do you know when the first vaccine was discovered?

Edward Jenner and the smallpox vaccine

Smallpox was a deadly disease that caused blisters and killed millions. A milder disease called cowpox, seen in cows, could also infect humans. In the late 1700s, English doctor Edward Jenner discovered that people who had cowpox did not get smallpox. This led to the invention of the first vaccine and helped protect people from smallpox.



Our scientific heritage

Long before modern vaccines, India had a traditional method called variolation to protect against smallpox. It involved using material from a smallpox sore to scratch the skin and create a mild infection and build immunity. People who performed this practice were known as *teekedaars*.

Think like a scientist

Observations

Jenner observed that milkmaids who had cowpox did not catch smallpox, likely because the two viruses are related.



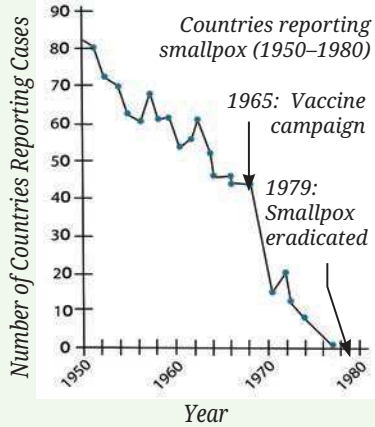
Hypothesis

Content in the pus of cowpox blisters protected people from smallpox.



Experimentation

He tested this by injecting cowpox sap into a boy, who later showed no illness when exposed to smallpox.



Results

He found that people who were infected with cowpox sap were now resistant to smallpox.



Application

Mass vaccination eventually helped eradicate smallpox worldwide.

© NCERT not to be republished

Vaccines are one of the most effective ways to protect people of all ages—from infants to the elderly—against many serious diseases. They help prevent illnesses, reduce the spread of infections, and save millions of lives every year. It is important to remember that vaccines are preventive, not curative—they can help minimise serious diseases before they happen, but do not treat them once someone is already sick. Some people may fear or doubt vaccines, but scientists and doctors carefully test them for safety. Getting vaccinated not only protects you but also the people around you.

Ever heard of ...



India's Role in Vaccine Production

India is one of the world's largest vaccine producers. It manufactures vaccines on a massive scale and supplies them to many countries. Indian vaccine companies played a key role during the COVID-19 pandemic and continue to support global health efforts.



Be a scientist



Maharaj Kishan Bhan was a well-known Indian doctor and scientist. As Secretary of the Department of Biotechnology, he helped promote science and innovation in India. He played a key role in developing the Rotavirus vaccine, which protects children from diarrhoea. He believed in using research to create affordable healthcare and made a big difference in India's health and biotechnology sectors.



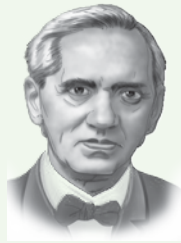
3.5.1 Treatment of diseases

If our immune system fails to protect us against an infectious disease, we fall ill and need to visit a doctor. The doctor may give us medicines called **antibiotics**, which kill the bacteria that might have caused the disease. Antibiotics work only against bacterial infections because they target parts of bacterial cells that are different from human or other animal cells. They do not work against viruses or diseases caused by protozoa.

© NCERT not to be republished

Think like a scientist

Discovery of the first antibiotic, Penicillin



Penicillin was discovered in 1928 by Alexander Fleming, a bacteriologist from London. While studying harmful bacteria, he noticed that a mould on a discarded petri dish stopped the bacteria from growing. He realized the mould released a substance that killed the bacteria. This chance discovery led to the discovery of penicillin, the first antibiotic used to treat bacterial infections.



Though antibiotics are effective in protecting us against bacterial infections and have saved millions of lives since their discovery, their indiscriminate use has led to a decline in their effectiveness (Fig. 3.5a). Nowadays, there are news headlines about **antibiotic resistance**, a phenomenon where bacteria that were earlier killed by a given antibiotic are found to survive and multiply despite treatment with that antibiotic. This makes

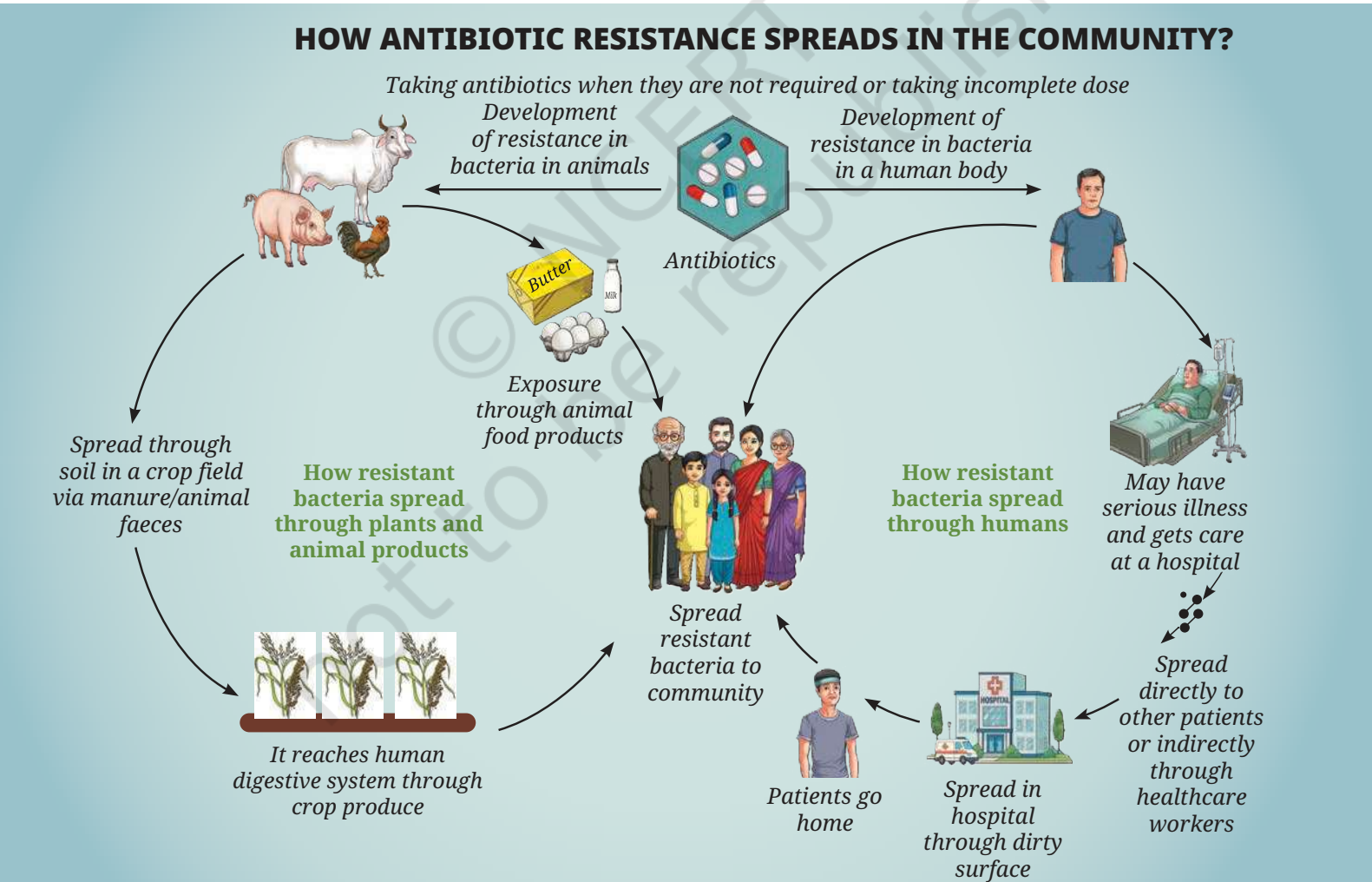


Fig. 3.5 (a): Spread of antibiotic-resistant bacteria in community

© NCERT not to be republished

Reprint 2026-27

common infections harder to treat and increases the risk of complications, prolonged illness, and even death.

Activity 3.7: Let us infer

- Study the infographic given in Fig. 3.5b. How do you think the antibiotic resistance has been developed in bacterial pathogens? What precautions may be taken to reduce antibiotic resistance?
- To tackle the problem of antibiotic resistance, we must use antibiotics wisely—only when prescribed by a doctor, in the correct dose, and for the right duration. Avoiding unnecessary use helps prevent the rise of resistant bacteria and keeps antibiotics effective for future generations.

Traditional medicine systems like Ayurveda, Siddha, and Unani have been used in India for many years to manage common health problems. They use natural substances like herbs, oils,

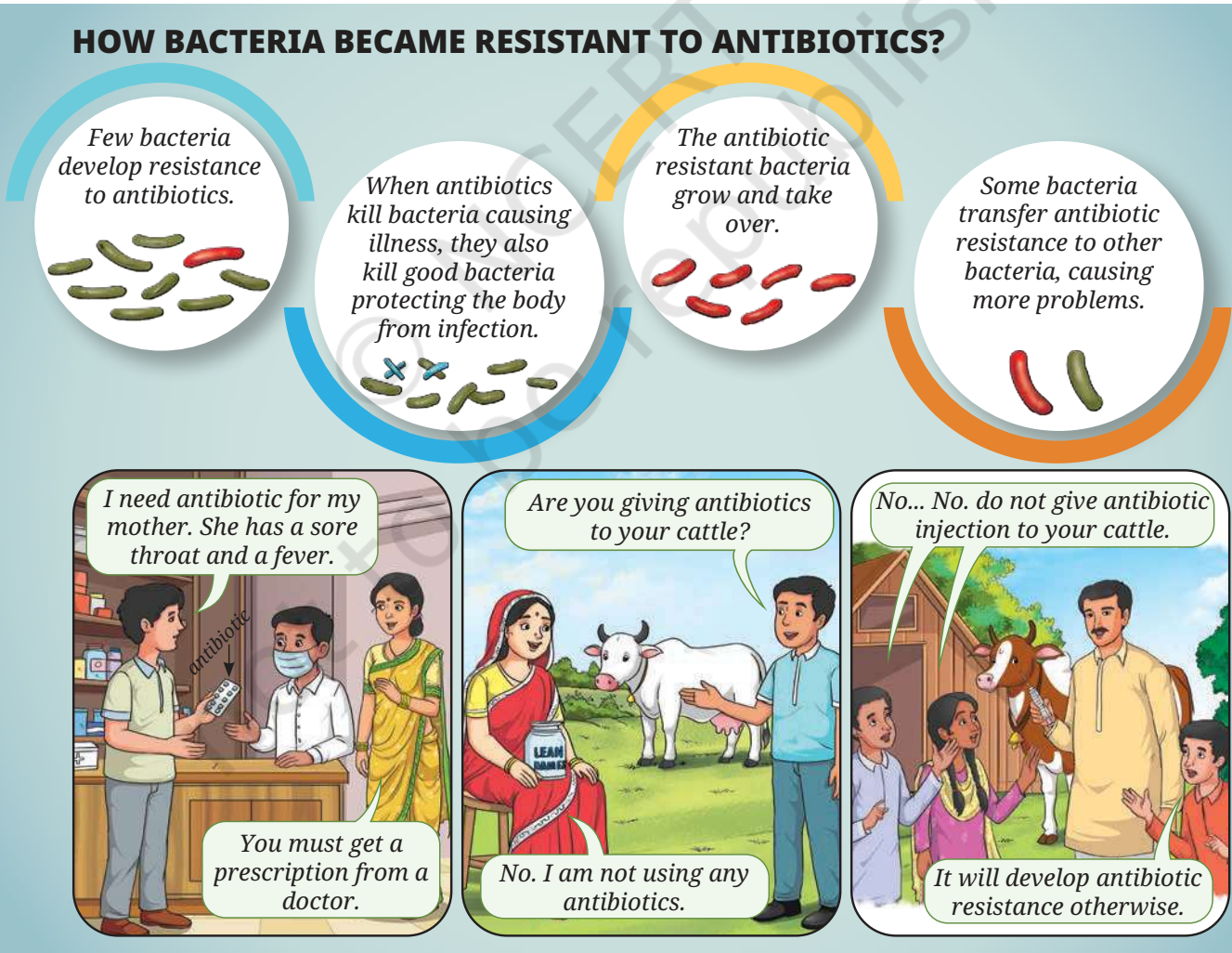


Fig. 3.5 (b): Development of antibiotic-resistant bacteria and preventive measures

© NCERT not to be republished

and minerals for managing illnesses and promoting recovery, and focus on a healthy lifestyle and balanced diet. While these systems can help with some conditions, and are useful for everyday well-being, they may not be effective for all diseases and at all stages.

Therapies for non-communicable diseases focus on managing symptoms and improving quality of life through medication, lifestyle changes, and rehabilitation. Early diagnosis and continuous care are key to control the disease progression and prevent complications.



Snapshots

- Health means complete physical, mental, and social well-being—not just the absence of disease.
- Being happy helps us stay active and healthy, and good health also improves our mood. Health and happiness are closely related.
- A disease affects the normal working of the body or mind.
- Symptoms are what we feel (like pain or tiredness); signs are what can be seen or measured (like fever or rash).
- Non-communicable diseases like diabetes and heart disease are caused by lifestyle and environmental factors, not germs. They can often be prevented with healthy habits, lifestyle changes, and regular exercise.
- Infectious diseases are caused by pathogens like bacteria, viruses, or worms.
- Our immune system helps protect us from harmful pathogens.
- Vaccines train the immune system using dead, weakened, or harmless parts of a germ to prevent disease.
- Diagnosis and treatment are important for managing and curing diseases.

Keep the curiosity alive

1. Group the diseases shown in the images as communicable or non-communicable.



Cold and flu



Typhoid



Diabetes



Asthma



Chickenpox

© NCERT not to be republished

2. Diseases can be broadly grouped into communicable and non-communicable diseases. From the options given below, identify the non-communicable diseases.
   (i) Typhoid (ii) Asthma (iii) Diabetes (iv) Measles
   (a) (i) and (ii) (b) (ii) and (iii) (c) (i) and (iv) (d) (ii) and (iv)
3. There is a flu outbreak in your school. Several classmates are absent, while some are still coming to school coughing and sneezing.
   (i) What immediate actions should the school take to prevent further spread?
   (ii) If your classmate, who shares the bench with you, starts showing symptoms of the flu, how can you respond in a considerate way without being rude or hurtful?
   (iii) How can you protect yourself and others from getting infected in this situation?
4. Your family is planning to travel to another city where malaria is prevalent.
   (i) What precautions should you take before, during, and after the trip?
   (ii) How can you explain the importance of mosquito nets or repellents to your sibling?
   (iii) What could happen if travellers ignore health advisories in such areas?
5. Your uncle has started smoking just to fit in with his friends, even though it is well known that smoking can seriously harm health and even cause death.
   (i) What would you say to him to make him stop, without being rude?
   (ii) What would you do if your friend offers you a cigarette at a party?
   (iii) How can schools help prevent students from indulging in such harmful habits?
6. Saniya claims to her friend Vinita that "Antibiotics can cure any infection, so we don't need to worry about diseases." What question(s) can Vinita ask her to help Saniya understand that her statement is incorrect?

© NCERT not to be republished

7. The following table contains information about the number of dengue cases reported in a hospital over a period of one year:

S. No.	1	2	3	4	5	6
Month	January	February	March	April	May	June
No. of dengue cases	10	12	15	18	22	40

S. No.	7	8	9	10	11	12
Month	July	August	September	October	November	December
No. of dengue cases	65	65	65	30	30	20

Make a bar graph of the number of cases on the Y-axis and the month on the X-axis. Critically analyse your findings and answer the following:

(i) In which three months were the dengue cases highest?

(ii) In which month(s) were the cases lowest?

(iii) What natural or environmental factors during the peak months might contribute to the increase in dengue cases?

(iv) Suggest a few preventive steps that the community or government can take before the peak season to reduce the spread of dengue.

8. Imagine you are in charge of a school health campaign. What key messages would you use to reduce communicable and non-communicable diseases?

9. It is recommended that we should not take an antibiotic for a viral infection like a cold, a cough, or flu. Can you provide the possible reason for this recommendation?

10. Which disease(s) among the following may spread if drinking water gets contaminated by the excreta from an infected person?

Hepatitis A, Tuberculosis, Poliomyelitis, Cholera, Chickenpox.



Prepare some questions based on your learnings so far ...

.....

.....

.....

.....

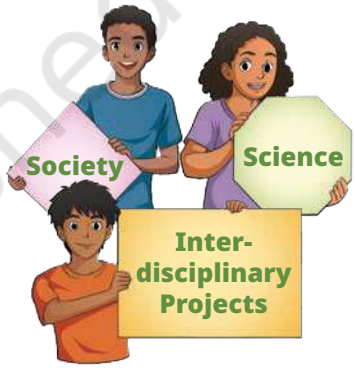
.....

© NCERT not to be republished

11. When our body encounters a pathogen for the first time, the immune response is generally low but on exposure to the same pathogen again, the immune response by the body is much more compared to the first exposure. Why is it so?

Discover, design, and debate

- Students maintain a health diary for at least a month to track food, hygiene, exercise, sleep, screen time, and emotional state.
- Read about Indian scientists like Suniti Solomon, Asima Chatterjee, Yellapragada Subbarao, Mary Poonen Lukose for their contributions in the field of health and diseases.
- The deadly disease smallpox was eradicated by vaccination. Discover how this was done and why it worked. Debate whether everyone should be required to get vaccinated to protect others.
- According to current guidelines, learn the correct sequence of steps for performing cardiopulmonary resuscitation (CPR) on an adult in case of sudden stoppage of breathing. School may invite a doctor or a professional to demonstrate a mock drill.
- Invite a doctor to the school. Students may be encouraged to interact with the doctor on the issues of malnutrition, under-nutrition, and over-nutrition.
- If you are given an opportunity to create a health card, what all would you like to include in it. Create your own health card and have discussion about it.
- Have a debate on 'Are there ill-effects of fast food on companion animals?



© NCERT not to be republished

Reflect on the questions framed by your friends and try to answer ...

.....

.....

.....

.....

.....

