Health and Society

Student Book

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Introduction to the Text Book

This book is for people who want to learn more about personal health, protecting health, and wider health issues. When you complete the book, you will understand more about how a human body works, what is happening when you are ill, and how to prevent diseases and strengthen health. Health is not just about avoiding disease, and health and disease are about more than one person's body. Mental health, physical health, and social health are all considered in this book.

Each section in this book builds on the previous sections. The first section is mainly about personal health. It starts with the basic biology of health. Once you understand the biology, you can have a deeper understanding of prevention and treatment of common diseases in Myanmar and Thailand. This section also encourages you to look at your own life and community from a health perspective, and collect some data about health. Activities start to connect the information in the book to the community you live in.

The second section brings in more community perspective. Insights about your own healthy behaviours are added to knowledge about diseases. You will examine ways that diseases affect communities, and communities affect diseases. You will think about how to improve and protect the health of your community.

The third section of the book visits again many of the same subjects as the first two sections, but this time as issues seen from wider perspectives. You will learn ways to look at the health of a whole country or region. You will be introduced to some of the organisations working in the health field. You will gain skills that will help you evaluate health policies.

With this knowledge you will be able to better protect your own health, improve the health of your community, and understand national health issues. But there is no end to learning about health. If you find a subject you are more interested in, there are suggestions at the end of chapters that you can use to start learning more on your own.

SECTION 1: Individual health

After you complete this section, you will be able to:

- Suggest a minimum of three practical ways to incorporate healthy behaviours into daily life.
- Think about and discuss why you make your decisions to engage in healthy behaviours or not.

Chapter 1: Disease

Objectives

By the end of this chapter, you will be able to:

1. Explain why symptoms alone are not the best way to diagnosis a disease.
2. Explain some of the ways that people can control and prevent diseases.
3. Explain the difference between treatment and cure in your own language.
4. Explain why it is important to have a diagnosis before starting treatment in terms of resistance.

Keywords

acute
antibiotic
cells
chronic
cure
disease
diagnose
effective
expose
immune system
micro-organism
prescribe
prevention
resistant
side effect
symptom
treatment

What is the body made of? Bones, muscles, organs, nerves, and blood are some parts of the body. These are made of cells, the smallest unit of the body. Cells are very small, but they can be seen with a microscope. Cells combine and work together to make tissues, like muscles, nerves, and layers of the skin. Tissues work together to form organs, like the heart, the brain, and the skin. The organs work together to form the body.

Student Activity

Look at the diagram of the tissues of the stomach and answer the following questions:

1. How many individual cells do you see in the nervous tissue?

2. Name the tissues that work together to form the stomach.

3. The stomach is an organ in the body. Name two other organs.

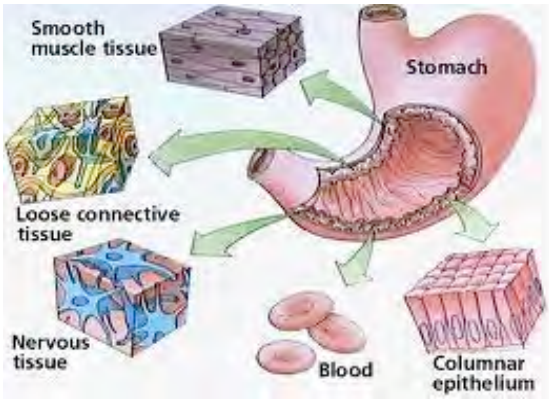


Figure 1: Cells, tissues, and organs

Disease can cause the cells to stop working properly, which causes the tissues to stop working properly, which causes the organs and the body to stop working properly. How do you know when you have a disease? When you do not feel well, you know that something is wrong in your body. You might have a headache, diarrhoea, or a cough. These might feel like diseases, but usually they are **symptoms** of a disease. In order to cure a disease, it is useful to think about diseases and symptoms separately.

1.1. What is Disease?

"Disease" can refer to anything that causes pain, distress, social problems, or death. A **disease** negatively affects the body so that it does not function properly. Diseases can be caused by genes, infections, poisons, nutritional problems, or harmful environmental factors. Diseases and their causes are usually inside the body. Most of these causes cannot be seen.

Symptoms are changes or feelings that tell you that part of your body is not functioning well. Symptoms are caused by disease. Some examples of symptoms are: a fever, becoming angry quickly without reason, stomach ache, and weakness. Some diseases have different symptoms in different people. Sometimes the same symptom can be produced by more than one disease. Some diseases have no symptoms, which means that you can have these diseases without knowing it. While these diseases without symptoms might not affect you, you can pass them on to other people.

Box 1: Types of treatment

It is useful to look at what is a symptom and what is a disease when thinking about treatment. Sometimes you can treat the disease, and solve the whole problem. Malaria is like this. When all the malaria parasites in the body are killed by medicine, the disease is cured, and the symptoms go away.

Sometimes there is no cure for the disease, and you can treat only the symptoms. There is no cure for a cold, or for most kinds of flu. There is no cure for an allergy. All you can do is make someone more comfortable by treating the symptoms.

Sometimes there is no disease, just some pain. Many headaches are like this. Also, an injury might be painful, or an old injury might hurt again sometimes. In this case, all you can do is relieve the pain.

When people are getting treatment, they should understand whether it is the symptoms or the disease that are being treated. When treating symptoms, the treatment can be broken off when the person feels better. When the disease is being treated, it is normally very important to continue the treatment until the end, unless the patient has a bad reaction to the medicine. See Section 1.5 for more about the development of resistance to medicines when people do not take enough.

Always find out exactly what treatment is being prescribed by the doctor. **ASK** the nurse or doctor to explain it to you. Asking about your health is responsible, not disrespectful!

1.2. Causes of Disease

Diseases from the environment

Environmental causes of disease can be found outside the body. If they affect the body, they can make a person sick. Heatstroke, lead poisoning, and liver damage from pesticides are examples of illnesses that come from our environment. Cancers that come from smoking and heart disease from lack of exercise are caused by the way we live — the causes are environmental. Under-nutrition is also an environmental issue. Good nutrition and fitness can increase your chance of staying healthy. Healthy habits will help you stay healthy, even if the environment is harmful.

Disease and genes

Some diseases are caused or influenced by genes, which are found inside the cells of the body. These diseases may be found in more than one member of a family. For example, if your parents or grandparents had diabetes or heart disease, you have a higher risk of getting these than someone whose parents do not have diabetes or heart disease. Your parents may have genes that make it easier for them to get these diseases. You got half of your genes from your mother, and half from your father, so you may have the same genes that caused a health issue of a parent. You may be able to protect yourself from these diseases by actively working at maintaining your health by exercising, eating well, and not smoking.

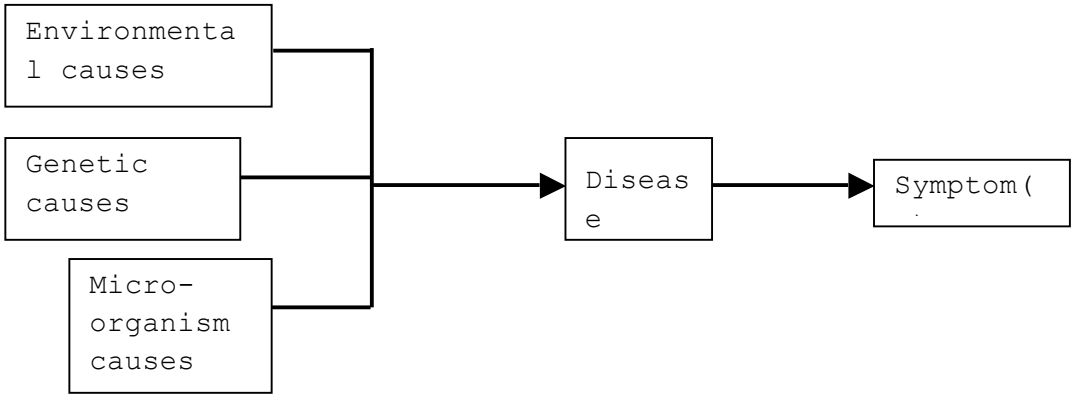


Figure 2: Environment, genes and micro-organisms cause disease, the disease causes symptoms, and symptoms tell us that we are ill.

Changes in genes can also cause disease. Cancer is caused by damaged genes in the cells. The damage may be caused by the environment, or by micro-organisms, but may happen just by chance.

Disease and micro-organisms

Micro-organisms are living things that are too small to be seen without the help of a microscope. Many of them are only one cell. Micro-organisms include bacteria, viruses, protists, parasites, and parasite eggs. Some micro-organisms cause disease but most do not. Many of them live on or in the bodies of people and animals, and some live freely in the water and ground as well. There are *helpful* micro-organisms in the body, but disease is caused by *harmful* micro-organisms. These harmful micro-organisms can get into the cells and stop the cells from working properly. If the cells do not work properly, then the organs do not work properly, and the body does not feel well. Healthy habits such as washing your hands and covering your food to protect it from flies help keep harmful micro-organisms outside the body.

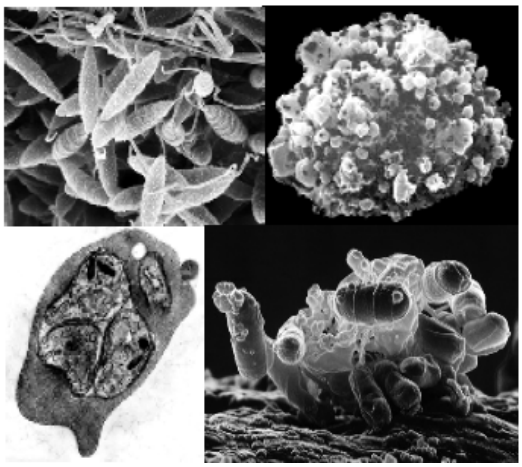


Figure 3: Clockwise from top left: Ringworm fungus, HIV virus, E. coli bacterium, malaria parasite inside a red blood cell

Student Activity:

1. Review the paragraphs about causes of disease. Where in the body do all diseases start?

2. Draw a picture of a healthy cell and of a diseased cell. Use Figure 1 to help.

3. What causes of disease can be controlled? How would you control them?

4. What causes of disease cannot be completely controlled? What can you do to stay healthy?

1.3. Immune System, Treatment and Cure

Your body has an **immune system** that protects you from diseases. The immune system's combination of organs, tissues, and cells inside the body stop some harmful micro-organisms entering your body, and kill most that do enter.

Many diseases are caused by micro-organisms, but not everyone who has been **exposed** to, or comes in contact with, the causes will get a disease. For example, a student might go to school with a cold and sneeze harmful micro-organisms into the classroom air. The micro-organisms float in the air and land on the chairs, desks, door handles, and pens. Other students and the teacher can breathe in the micro-organisms. Also, they might touch things with micro-organisms on them then rub their eyes, eat without washing their hands, or otherwise bring the micro-organism into their bodies. But not everyone will get sick. The immune system of most of the people will destroy the micro-organisms before they can reproduce enough to cause a cold.

Sometimes the immune system cannot stop the micro-organisms quickly or well enough. In this case, medical treatment can help kill the micro-organisms. To **treat** a disease, a symptom, or a person, means to do something to make the person feel better. What kinds of treatment can you think of? Penicillin is a treatment for some infections. Paracetamol is a treatment for pain. Massage is a treatment for aching muscles.

Many treatments result in a **cure**. To **cure** someone of a disease means to make the disease and its cause disappear entirely. For example, someone who takes the whole course of tuberculosis (TB) medicine is usually cured of TB. They have no more TB micro-organisms in the body.

Some treatments do not cure the disease. Some treatments make the patient feel better while the immune system kills the micro-organisms. Treatment for HIV does not kill all of the HIV, but the treatment helps people who have HIV be healthy and live. Treatment for diabetes controls the effect of the disease, but does not cure it.

When you go to a clinic, you may have some tests to find out what is making you sick. The process of identifying a disease is called 'making a **diagnosis'**. Once a diagnosis has been made, the doctor may **prescribe**, or write a note to recommend, a medicine.

Some diseases can be cured by taking by a kind of medicine called an **antibiotic**. Antibiotics kill micro-organisms, but not every antibiotic kills every micro-organism. It is important to get a diagnosis from the clinic before taking medicine to make sure the disease is caused by micro-organism, and that there is a medicine that can kill that micro-organism. Sometimes treatments have side effects (unpleasant or unwanted effects). For example, a side effect of some antibiotics is stomach ache. Some people are allergic to some medicines, so the doctor will usually warn the patient what to do if there are side effects.

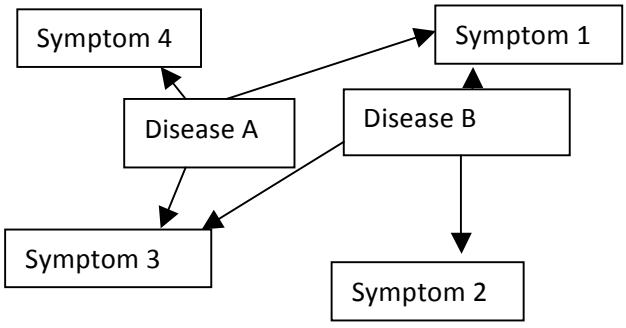
Some diseases have no real treatment or cure, and your immune system protects you from them. For example, there is no cure for a cold. You can treat some symptoms to be more comfortable, but there is no cure for the disease itself. Whether you take medicines or not, you will usually be sick for a few days, until your immune system removes the cause of the disease from the body.

Student Activity:

1. Which symptoms do Disease A and B have in common?

2. Copy the following table:

Diseases	**Symptoms**
Malaria (a,b,c,d,e,i) TB Cholera Flu·	a. Fever b. Sweating c. Headache d. Muscle ache



Heat stroke	e. Tiredness/fatigue
Typhoid	f. Diarrhoea
HIV	g. Coughing
Diabetes	h. Dizziness
	i. Vomiting
	j. Thirst

What symptoms do you associate with the diseases in the left hand column of the table? The first one has been done for you.

3. Explain why symptoms alone are not the best way to *diagnose* a disease.

Extension:

4. Use the 'inference tool' in Appendix A to answer the following question: What is the difference between treating a disease and treating symptoms?

1.4. Disease Classification

Diseases can be classified in a variety of different ways, depending on what characteristic is most important at the time. For example, sometimes it is important to know if a disease is mostly mental, somewhat mental, or mostly physical. Other times it is important to determine if a disease is serious, somewhat serious, or mild. Below are some other characteristics that are used to classify diseases.

Diseases that happen quickly and can disappear again are called **acute** diseases. The flu and tetanus are acute diseases. Treatment for acute diseases often cures them. That is, after treatment, the micro-organism is no longer in the person's body, so the disease and the symptoms are no longer present and the person is cured. Acute diseases often have treatments and cures.

Some diseases, like diabetes and HIV infection, have treatments but no cure. This means that the patient receives care and medication, but the disease remains. Without treatment, the disease would be more severe. We call these **chronic** diseases, and they usually last a long time. Chronic diseases can affect someone both mentally and physically, as contracting and living with a disease can alter one's life and personality. Other examples of chronic conditions are heart disease, depression, and gout. Many chronic diseases have treatments but no cure.

Some diseases can change between acute and chronic. Hepatitis B can give you a fever and make you weak in its acute phase. Most people will overcome the infection and be cured, but some people's immune systems do not kill all of the virus cells, and they will have chronic hepatitis B. This means that after the acute phase, when the fever is gone, the virus can continue to cause them problems, or will continue to live in their body, even though they do not feel sick.

Another way to classify disease is by how easily it is spread from one living thing to another. We call these **'infectious diseases'**. Most infectious diseases are caused by parasites, bacteria, viruses, fungi, or other micro-organisms we often call 'germs'. TB, cholera, and avian influenza (bird flu) are examples of infectious diseases.

Some diseases do not spread from one person to another. They develop inside the body. We call these diseases **'non-infectious diseases'**. Gout, arthritis, diabetes, most cancers, and diseases of malnutrition are examples of diseases that cannot spread from one person to another. They develop inside the body for very different reasons.

Student Activity:

1. Is a person with an infectious disease cared for differently than a person with a non-infectious disease? How? Why or why not?

2. What are some other characteristics of a disease that might be useful for categorising them?

1.5. The Course of an Infection

When micro-organisms enter the body and start reproducing, your immune system recognises that something is happening, and it tries to remove the micro-organisms. Each disease is different, but look at the chart to see the general course of an infection without treatment.

Figure 4 shows typical courses of infection for an acute infection without treatment. When a micro-organism first enters the body, the immune system may not recognise it, so the micro-organisms reproduce freely and it takes the immune system a while to catch up. As the immune system responds to the infection, the number of micro-organisms falls, until the immune system kills them all.

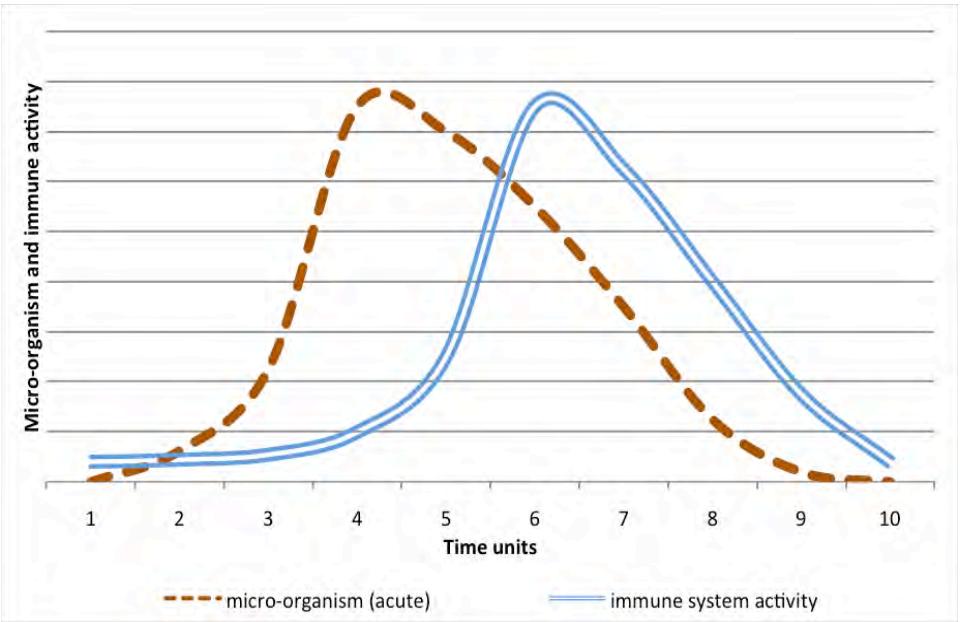


Figure 4: Micro-organism and immune system activity in an acute infection without treatment

The time between point 1 and point 3 on the chart is a time when the person does not feel anything. This time could be just a day or two for a cold, or years for HIV. Between point 3 and point 4, the person begins to feel ill, but symptoms may be general. When the illness is worst, between about point 4 and point 7, symptoms may be more specific, so it is easier to diagnose the disease.

The immune system is a little behind the activity of the micro-organisms, but at about 7, it has cut the number of micro-organisms quite low, so the person feels better again. However, there may still be micro-organisms which can infect other people, until 10 when the immune system clears all micro-organisms. If the immune system finds the same micro-organisms in the body another time, it will recognise them straight away, and prevent them from reproducing so the person does not get sick at all.

In Figure 5 we see what happens in chronic diseases, and in low infections with no symptoms. The immune system still responds, but not as effectively. At the end of the immune system's response, the micro-organism is still in the body. It might be at a very low level that causes no symptoms. The immune system still tries to kill it, but it is not successful. The person may still be able to infect others with the micro-organism.

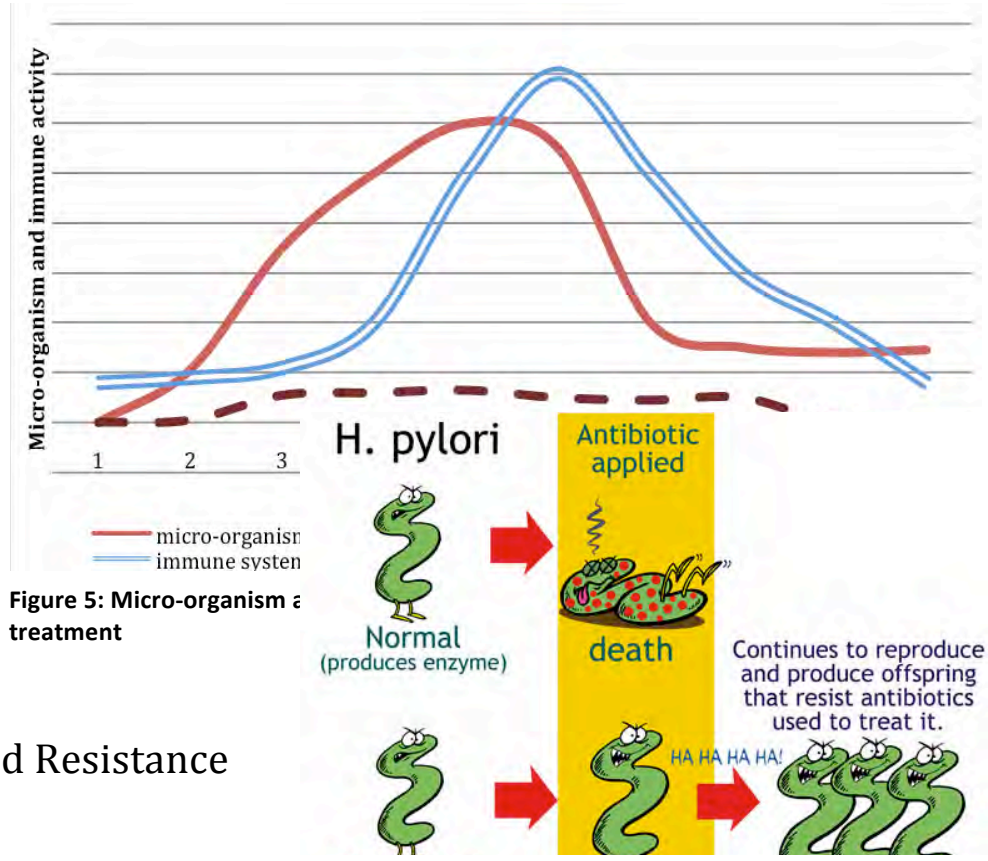


Figure 5: Micro-organism a treatment

1.6. Antibiotics and Resistance

[[This figure for antibiotics needs to be redrawn, as students don't' know much of the vocabulary. I would suggest showing a lot of micro-organisms,, then 'Antibiotic treatment', then show a few remaining.

]]As mentioned above, antibiotics are a kind of medicine used to treat diseases caused by some micro-organisms. Penicillin, Ampicillin, and Cipro are well-known antibiotics. The antibiotic is a poison that kills the micro-organism, but is not very harmful to you. The more micro-organisms it kills, the better you feel.

Sometimes the patient feels completely better before all of the micro-organisms are killed, and some people want to stop taking the antibiotic when they feel better. This is a problem because not all of the micro-organisms are dead, and the ones that are still alive will reproduce.

Just as all people are different, some stronger one way, others stronger another way, individual micro-organisms are slightly different from each other too. An antibiotic will kill most of them, but a few will be will not be affected by the medicine: they are **resistant** to the medicine. They continue to reproduce, and the new, stronger generation of micro-organisms is resistant to the medicine that killed it in the past. This means that the micro-organisms are not killed by the treatment that had originally worked. The treatment is no longer effective, and to treat them you may need stronger antibiotics that usually have more side effects. Stronger antibiotics, cost more, and may be harder to get, too.

Not only that, but these resistant micro-organisms can infect other people, whose disease will also be more serious and more difficult to treat. For example, in the past, penicillin was used to cure pneumonia. Now the micro-organisms that cause pneumonia are resistant to penicillin. Pneumonia can still be treated, but now it takes stronger medicines with more side effects.

Figure 7: Help antibiotics to do their job

The same is true of malaria medicines. Quinine and Chloroquine used to be effective cures for malaria in Southeast Asia. These medicines are no longer effective against many of the malaria-causing micro-organisms. More medicines were developed, but they soon lost effectiveness as the micro-organisms became resistant to them, too. Resistance developed quickly when people did not take the medicines as prescribed. Resistance also developed when people took medicines which do not have the full amount of antibiotics. Because this has happened, now everyone suffers from stronger, more dangerous malaria micro-organisms.

Only take antibiotics and malaria medicines when a health professional tells you to, and then take all of the tablets exactly as explained. Be sure you are getting good quality antibiotics, with the full amount of the medicine in them. Get advice from a doctor about which medicines are good quality. Do not stop taking the medicines after a few days if you feel better. Taking the whole amount of medicine slows the development of resistance to the medicines. In other words, it means the disease stays easy to treat.

Figure 8 shows what happens when the full course of an effective antibiotic is taken, and what happens when the person does not take enough medicine, but stops taking it when he feels better. The person starts feeling sick on day two, and the blue dot shows the start of treatment. The medicine in the body increases, and more micro-organisms die. The

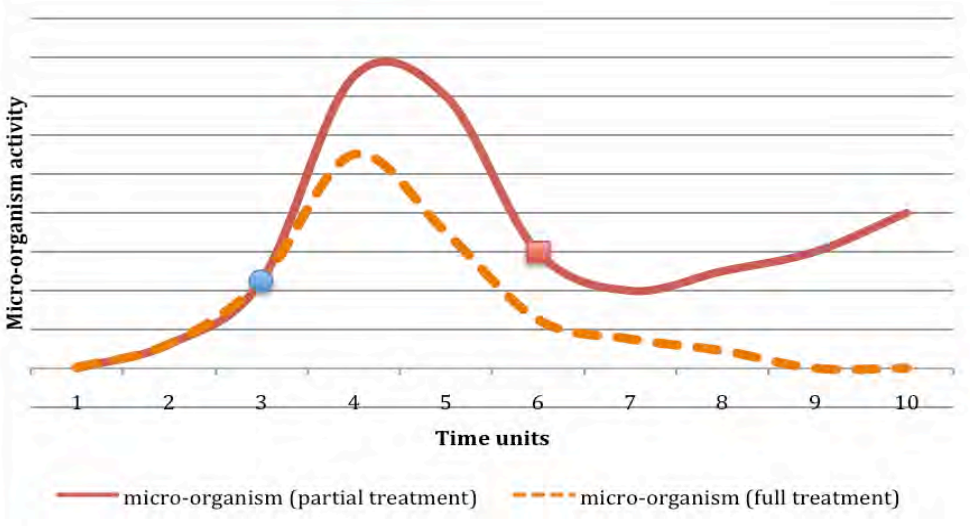


Figure 8: Activity of micro-organisms in full and partial course of antibiotics

immune system is still working, and is helping to kill more micro-organisms than the medicine alone. By day six, shown by the red square, the person feels better, and stops taking the medicine. When someone stops taking medicines, it is the stronger micro-organisms, the ones which were not killed by the medicine, which are still there. The immune system will still be active, and might kill all the micro-organisms. But the immune system may also find it harder to kill the micro-organisms, and then the medicine used before will no longer work against them.

Student activity:

Look at the diagram above of activity of micro-organisms in full and partial course of medicine, and answer the following questions:

1. Which line shows the activity of the micro-organisms in the body of a person who did not take the full amount of medicine, and stopped taking the medicine early?

2. Which line shows the micro-organisms in the body of a person who took all of the medicine?

3. What happens at the blue dot (after 3 days)?

4. What happens on day 4?

5. What happens on day 6?

6. Draw a cartoon to teach someone in your community about the proper use of antibiotics. Include the words: *Antibiotic, resistant, micro-organism*

Project:

Sometimes you decide to change a habit, and you can change right away. Other times, you know that a habit is good, but it is hard to do it all the time. One way to understand about habits is to collect data and look for patterns. Complete a data collection project over two weeks. After the data has been collected, you should analyse your data and look for patterns. Copy the following chart and start filling it in to collect information about your own health habits.

Behaviour	**Yes or No?**	**Date and time it was completed**	**Reason for doing/not doing it**
EXAMPLE: Slept under a bed net	Yes	10 June 2011, 9pm	It was already hanging, so I just slept under it
Slept under a bed net			
Copy as needed			
Ate nutritious foods			
Copy as needed			
Washed hands after using the toilet			
Copy as needed			
Positively dealt with stress			
Copy as needed			

Box 2: More on the immune system: Why am I not immune to a cold?

Normally the immune system learns to recognise a micro-organism, and then kills it. Then, when that micro-organism gets in the body again, the immune system can recognise it right away, and kill it before the micro-organism can reproduce very much. This is how vaccines work. When you are vaccinated, you get a small amount of a micro-organism that is weakened or dead, so your immune system can learn to recognise it without you getting sick. Then your immune system knows the disease micro-organism, and can respond quickly if you are exposed again. You are immune to that disease, you have immunity. Immunity usually lasts for years, sometimes for your whole life.

So, why can you get a cold or flu many times in a lifetime? Why are you not immune to these diseases? In fact, although you may feel you have the same cold over and over, in fact there are over 200 different cold viruses. Each has the same effect on you, so to you they feel the same, but each is different enough that your immune system does not immediately recognise it.

The same is true of the flu. The flu virus is always changing slightly. Your immune system might recognise some kinds of flu virus, but not others.

Chapter 2: Diarrhoea

Objectives

1. Demonstrate understanding of how to promote a healthy habit in your school by making recommendations for small, easy changes that could increase the number of times people wash their hands.
2. Calculate the amounts of salt, sugar, and water needed for diarrhoea treatment based on the given ratio.
3. Demonstrate an understanding of word decoding strategies by using prefixes and common base words to find the meaning of new words.

Key Terms

dehydrate

habit

oral

rehydrate

therapy

2.1. Prevention

Diarrhoea is not a disease, but it can be a symptom of many diseases. Many diseases that cause diarrhoea are spread from person to person. Preventing diseases that cause diarrhoea involves developing healthy habits. Drinking clean water and washing your hands frequently is the best way to avoid diseases that cause diarrhoea.

Clean water

There are a few ways for families to make their drinking water safe for drinking and washing vegetables. Boiling is the safest method, and should be used if any member of the family has diarrhoea. It is simple: bring water to a boil. When the water cools, keep it in clean containers used only for drinking water. Keep these containers free from dust, and close them tightly after filling them. The cover should not touch the water. To be sure the containers are clean, you can rinse them with some of the boiled water, and pour it away before filling with the rest of the boiled water.

Boiling water takes fuel, but there are other ways to improve the quality of the water..Here are three simple ones. One method is to filter water. Water can be filtered through six or eight layers of clean fine cloth, like an old longyi. One layer of cloth or a plastic screen will remove only large organisms. Most micro-organisms are so small that they will pass through the cloth or screen, but six fine layers catch most of the micro-organisms.

Figure 9: Treatment of water with sunlight

A second method to clean water is to use sunlight. The water can also be exposed to sunlight to kill micro-organisms. Fill clear containers, and set in full sunlight for six hours, if possible, in clear plastic bottles lying down at an angle exposing them most to the sun, on a hot surface such as a metal roof. Expose for 12 hours if it is cloudy. Clear plastic works better than clear glass. Coloured glass cannot be used.

A third method is to use iodine. If you have iodine tincture, five drops of iodine per litre bottle of clear water will also kill most micro-organisms. Add five drops per litre, then leave for 30 minutes before using.

Student Activity

1. Discuss which is better to store drinking water in: a container with a wide mouth, or a narrow mouth? Why?

2. What is the problem with rinsing out containers to be filled with boiled or filtered water with water which has not been boiled or filtered? Is this also a problem for water which will be exposed to sun or treated with iodine?

3. Why is it important that the cover not touch the water?

Clean hands

[[Redraw this figure for handwashing as wished, but this one cannot be used, and note that it is NOT better to wash hands in warm water. Liquid soap is also not better that the more familiar, more environmentally friendly, and cheaper cake of soap. A brush is also not necessary. Remove reference to figure 11 if the figure is not replaced.

Figure 10: hand washing

]]Below are some times during the day when you should ALWAYS wash your hands:

- After using the toilet
- After helping someone else with the toilet
- After touching animals
- Before handling drinking or cooking water or water containers
- Before preparing food
- Before eating a meal or snack
- Before feeding someone

Making hand washing a healthy habit is important. To make something a healthy habit, it needs to be added into your daily life so that you do it automatically, without thinking about it. For example, when you walk into the house, you remove your shoes. You do this automatically, without thinking about it. If you forget, someone in your house will remind you. To make something a habit, it needs to be easy to do. If the soap and the water are far away from the toilet, hand washing with soap will not be easy and will not become a habit. Having soap and water near the toilet will help make hand washing a habit. Another way to make something a habit is to work with others to remind each other to do it. Ask each other: "Did you wash your hands?"

In Figure 10, there are instructions for hand-washing. The important thing is to rub your hands carefully with soap and water, EVERY TIME you go to the toilet. Keeping fingernails short makes it easy to keep them clean, too.

Sometimes you need to wash your hands but there is no soap. What can you do? Use ash! Using the ash from a fire is as effective as soap at stopping diarrhoea-causing diseases.

The girl in Figure 11 lives in Bolivia. The students in her school learnt about hand-washing and were worried that they did not have water and soap near the toilet. In order to help themselves and others remember to wash their hands after using the toilet, they made a system so that it is easier for everyone to remember and do.

Student Activity

1. Look at the toilet used by the students at your school. How can you make it a habit to wash your hands with soap after you use the toilet?

2. If your school decides to use ash, where will you get the ash? How will you store it close to the toilet?

3. If your school decides to use soap, who will buy the soap? Who will replace it close to the toilet?

4. What happens if you wash your hands well and then dry them on an unwashed cloth?

Food safety

Another way of preventing the spread of diseases that cause diarrhoea is to be careful when preparing food.

Use care when preparing raw meat, because micro-organisms that can make us sick can grow in the meat. To be safe, make sure meat is properly cooked before serving. Avoid eating any uncooked or partly cooked eggs, shrimp or meat.

When cooking, use different spoons, knives, dishes and cutting boards for raw food and cooked food, and wash them with soap before using them again. Do not let raw meat touch any cooked meat.

Milk and yoghurt can also grow micro-organisms that can make people sick. Raw cow's or goat's milk may have micro-organisms which can be killed by heating the milk until small bubbles begin to form.

Fruit and vegetables that are going to be eaten raw should be thoroughly rinsed in clean water. This is because micro-organisms from the soil, from animal faeces, or from other people could be on the outside of the vegetables.

Hand washing is especially important before preparing food. Micro-organisms are easily washed off with soap and water. But still, it is safer if people who have diarrhoea do not prepare food for others. There is a risk of passing on the micro-organisms to others.

Figure 12: Washing vegetables

Student Activity

If you are at school or in your office and, during a break, you decide to eat a piece of fruit, where could you go to wash your fruit?

2.2. Treatment for Diarrhoea

Diarrhoea is a symptom of many diseases, not a disease in itself. It can be a dangerous symptom, so it is important to treat it early. If a person is healthy, most diarrhoea goes away within a few days, when the immune system defends the body against the disease that is causing the diarrhoea.

Diarrhoea can be dangerous for anyone, but especially for small children. The problem is not the diarrhoea itself, but the fact that it **dehydrates**, or removes water, from the body. It is the lack of water that causes the danger. Sometimes people stop drinking when they have diarrhoea because they want to stop the diarrhoea. Eventually their body will run out of water and the diarrhoea will stop, but they may then be very ill and need a drip to replace the water and save their life. It is better to let the diarrhoea continue and replace the water by drinking.

There is a simple skin test for dehydration. You can try it now. Softly pinch the skin on your own hand. See how quickly it goes flat again. When you have lost too much water, it will go back slowly. Also, any urine will be dark yellow. If you have signs of dehydration, you need to rehydrate.

The best way to **rehydrate,** or replace the lost water, when you have diarrhoea is to keep drinking.

Figure 13: Skin that is dehydrated will stay 'pinched' and go down slowly

Drinking appropriate liquids to replace the water lost to diarrhoea is called **oral** rehydration **therapy** (ORT). If people with diarrhoea drink energy drinks, cola, black tea, coffee, or any sweet drinks, these will not help them and can make them sicker. The best thing to drink is water mixed with both salt and sugar. The combination of salt and sugar is sometimes called oral rehydration salts, or oral rehydration mix. Packets of it are widely available in towns and cities. You can also make your own with salt and sugar.

This is a recipe for one litre of rehydration drink to use for ORT. One litre is the size of a standard water bottle, about five drinking cups.

1. Before you start, make sure you have clean water (purified water, filtered water, or boiled and cooled water), a clean bottle or other container, and a clean cup and teaspoon. Wash your hands with soap. Rinse the bottle, spoon, and cup with clean water before starting.
2. Put six teaspoons of sugar and half a teaspoon of salt into one litre of water. Stir with a clean spoon until it is dissolved. Use within one day.

The sugar and salt help the body to take in the water. **Remember, the water is the important part — do not add more salt or sugar.** The mixture should be about as salty as tears. ORT does not stop the diarrhoea. The diarrhoea is not the problem, dehydration is.

Figure 14: Rehydration mixture recipe

Give children the same amount as they lose though diarrhoea, about 1-2 cups each time they have diarrhoea. An older child or adult should drink at least three bottles a day. Small children should continue breastfeeding.

If the diarrhoea is bloody, if the person with diarrhoea has a high fever, or if the condition gets worse, get medical help, but continue to give ORT as well.

Box 3: Too hot, can't cool down

Most people avoid heavy work in the heat when they can. Normally the evaporation of sweat keeps us cool. But sometimes people still get too hot for their health, and the body's cooling system stops working. There can be different causes, but a common one is that the body has run out of water for sweat. When your body needs more water, you get thirsty. Then you drink, and everything should be fine.

But a few things can go wrong. First, there is a delay between the loss of water and the thirst. Second, some people just drink a small cup of water, even though they have sweat away much more than that. Third, some people don't drink water, but a sweet drink, an energy drink, or coffee or tea. Fourth, some people think that if they drink water when they are hot, they could have a stroke, so they try to avoid water.

People can die when they get too hot and stop sweating, and the best way to prevent this is to drink a lot of water. When you are sweating a lot, do not wait until you are thirsty to drink. Normally you might drink one litre of water in a day (one standard water bottle), but when you are sweating a lot, you could easily drink three. If you are working in the heat, you might need to drink six litres of water.

The body is mostly water. It is not just the blood that is a liquid, water is needed in all parts of the body. Often the first sign of getting too hot is a headache. The heat can make people feel weak or very tired, too. They might get dizzy, or even faint. And the strange thing is that they might not be thirsty anymore. They might not want to drink water. But it is very important that they do.

Just plain water, not hot or cold, is the best thing to drink. They should drink as much as they can, until they have to urinate. Energy drinks or any other sweet drink can make them worse.

If sweating has stopped in the heat, find other ways to cool down. You could wet clothing, hair, and skin, and fan them while they drink water. An electric fan or air conditioning is also good. Wet towels or cloths are another way to cool down. But drinking water is the most important thing. Start with a small glass, but start quickly. It is important to lower their body temperature as quickly as possible, so use the closest materials, do

Student Activity:

1. The recipe given above says that you must use the rehydration drink by the end of the day. What could you do in order to have some ready whenever you need it?

Chapter 3: Malaria

Objectives:

1. Understand more about how malaria is transmitted, treated, and prevented.
2. Recommend simple ways to prevent malaria by reducing the number of mosquito bites

Key Terms

bed net	*repellent*
data analysis	*semiconscious*
falciparum	*transfusion*
insecticide	*transmission*
larva, larvae	*unconscious*

Have you ever had malaria? Do you know how you got it?

3.1. Malaria Basics

Figure 15: Mosquito biting

The micro-organism which causes malaria is a tiny parasite. It must live part of its life in a mosquito, but also part in the blood of another animal. Malaria parasites must always be inside another animal; they cannot live on their own. Many animals in the forest have malaria parasites in their blood, though for many, the parasites live in them without harming their health. The parasites can only live inside a few kinds of mosquito. These mosquitoes bite mainly in the evening and very early in the morning. When a mosquito bites a person or animal with malaria parasites, it drinks some in with the blood. These parasites take about a week to get from the mosquito's stomach to her mouth. Once the parasites are living at the mosquito's mouth, the parasites will get into the blood of any person or animal when the mosquito bites.

Remember the course of infection from Chapter 1? If a malaria parasite gets into your body, at first you feel fine. Symptoms of malaria usually start to appear one to three weeks later. At first it feels like flu, but the parasites reproduce very quickly, and soon you have a high fever and feel terrible. Your immune system has a hard time killing all the parasites, because they reproduce so quickly. Taking medicine will quickly reduce the number of parasites.

There are actually four different kinds of malaria which infect people in Southeast Asia. They are caused by related but slightly different parasites. The best medicine for each of them is different. That is why it is important to have a blood test, to find out which kind you have, and take the best medicine against that one.

Only one of these four types is deadly for a healthy person. This parasite is named 'falciparum'. The others will make you feel sick, but if you rest, you will get better.

Student Activity:

1. Can you get malaria from drinking or bathing in dirty water?
2. Can you get it directly from contact with other people with malaria?
3. Are you more likely to get malaria if you spend time in the forest?
4. Can you get malaria from eating too many bananas?

5. Are you more likely to get malaria if you eat cooling foods like watermelon on a hot day?

6. Can you get malaria from stream water?

7. Can you get malaria from a blood transfusion?

8. Can you cure malaria by using paracetamol or aspirin to lower the fever?

3.2. History of Malaria

Malaria has been known throughout history, but it is only in the last 120 years that the true causes were understood. Previously, there were many theories about the cause of malaria, including bad air, gas from swamps, eating certain foods, birds flying overhead, and imbalances in the body.

The malaria parasite was discovered in 1889 by Charles Louis Alphonse Laveran. In 1897 Ronald Ross proved that the mosquito carried the malaria parasite. After these discoveries people were able to work more effectively to stop malaria. There were two ways they tried: by killing and driving away mosquitoes, and by treating the disease. However, resistance soon developed in both efforts. Some regions could end malaria infections, but malaria is still found in about 100 countries, and is still a very serious health problem.

3.3. Prevention of Malaria

The best way to prevent malaria is to not get bitten by mosquitoes. For children especially, sleeping under a mosquito net is very important. Some nets have insecticide in them, so mosquitoes which rest on them are killed. These are the most effective. Since the mosquitoes that carry the malaria-causing parasite usually bite during the evening, consider how to avoid getting bitten around sundown. Children can sleep safely under a bed net when they go to bed early.

Figure 16: Sleeping under a bed net

Reducing the number of mosquitoes around your house will also help to prevent malaria. Mosquitoes lay their eggs in water, so if you store water near your house, make sure that it is tightly covered to prevent the mosquitoes from laying eggs in it, or keep small fish in ponds to eat the eggs and larvae. Wherever you have uncovered or loosely covered water, like in a bathing tank, change the water entirely every few days to get rid of the developing mosquitoes.

Finally, you may be able to buy insect repellent to put on your skin. Some types have a chemical called DEET in them, and some types have natural herbs and plant extracts, like citronella, which mosquitoes do not like. These are good for temporary protection, but they cannot be used on babies, and they must be washed off with soap and water after some hours. See box for more information about insect repellent with DEET.

Box 4: Insect Repellent

DEET is a strong chemical which biting insects do not like. It is very effective at preventing mosquito bites, but it must be used with care. Do not use insect repellent with more than 30% DEET, and follow guidelines on the bottle, including:

1. Use only where needed, e.g., only around the ankles if mosquitoes are biting only there.
2. Do not use near mouth, eyes, ears, nose, on sensitive skin, or under clothing.
3. Wash off with soap and water within eight hours.
4. Keep away from children, and especially if children touch DEET, wash their hands with soap as soon as possible.
5. Do not use on skin with cuts or sores.

Student Activity:

1. Think about your own house. How could you help to make it a healthy habit to sleep under a net every night? Refer to your record of sleeping under a bed net (see page 15 – Healthy Habit Practical).

2. Do you have malaria larvae in your water containers? Empty a tank or container and check it to see how soon you can see new larvae. Is there more than one kind of larva? How many days does it

take them to develop and start to hatch? What else do you notice about their life cycle?

3.4. Treatment of Malaria

To prevent the serious consequences of malaria, it is important to have a blood test as soon as you feel ill. Falciparum is the kind of malaria that can cause problems in your brain. If a malaria patient is semiconscious or unconscious, the chance of them dying is already about one in ten, even if they get treatment. Without treatment, they have little chance of surviving. That is why it is important to quickly find out if someone with a fever has malaria and if so, which kind of malaria it is.

With a blood test, the health professional can be sure that the disease is malaria, and give the correct treatment for the type of malaria. Taking the correct treatment early can prevent the disease from becoming more serious. It may be possible to save the life of someone who gets the treatment later, as well. To prevent resistance, it is important that the patient take all the medicine, even if he already feels better before the medicine is finished.

Student Activity:

Do some research to find out where in your community you can go for a malaria test? How much does it cost? Where can you go to buy malaria medicines? How much do they cost?

3.5. Gender and Malaria

In Thailand and Myanmar, about twice as many men than women get malaria. Why do you think this is?

In many families and villages, men are more likely to spend more time in the forest. In villages, towns, and cities, only people are likely to have malaria, and many people get treatment. After they are treated, mosquitoes that bite them can no longer get malaria parasites from them. But in the forest, mosquitoes bite many animals that carry malaria parasites, and so these forest mosquitoes are more likely to have parasites.

Malaria is particularly dangerous for pregnant women. It can harm both the woman and the foetus. Pregnant women with fever, aches, or other symptoms that could be malaria should be tested for malaria immediately.

Now what *do* you know about malaria?

1. What causes malaria?
2. How can you get malaria?
3. How can you avoid getting malaria?
4. How do you know if you have malaria?
5. What other diseases have symptoms similar to malaria?
6. If malaria is treated correctly and quickly less than one person in a thousand who gets malaria will die of it. But many thousands of people die from malaria every year in Southeast Asia. Why?
7. Can you cure malaria by using aspirin to lower the fever? Explain your answer.

Student Activity:

Collect more information from books, health workers, pamphlets, the Internet or wherever you can find it, and make a fact sheet with the key information you know about malaria. Some suggestions are in the blank form below.

Fact Sheet: Malaria

Cause:

Symptoms:

Transmission:

Diagnosis:

Treatment:

Box 5: Different kinds of risk in health

You have often heard that something is good or bad for health. Yet, when you change your habits, you might not feel any different. Also, you may know people who have good habits, but still get ill, or have bad habits, and live a long healthy life. That is because there are different kinds of health risk. Some conditions happen slowly, over many years. Some happen quickly.

Imagine creation of a path. At first, there is no path. But as many people walk the same way, slowly a path will form. The grass will get thinner, and then the path will become bare earth. The more that people use it, the wider and deeper it will be. How long it will take to form a path depends on how hard the earth is, the weather, how often people use the path, and whether bicycles and horses use it too.

This is similar to many conditions like heart disease, worms, diabetes, and cancer. There is a little weakening in the body, a little damage, and the condition slowly gets worse. How quickly the disease develops depends on your basic health and your habits.

To prevent these kinds of diseases, you have to have good habits over a long period of time. You will not feel very different right away, because the change is slow. But if you look at a large group of people, you can see what happens to most of them.

Some people are naturally stronger than others. They will be able to resist the damage longer. But over a lifetime, when you look at who is strong and healthy when they get older, and who gets tired and ill young, most of the healthy people will eat a lot of vegetables, not drink too much, not be too fat or too thin, and most of the others will have poor health habits which have gradually weakened them.

Now imagine a football game. There is a player who scores a goal four times out of every ten tries. No one knows which four will score. Sometimes he might kick the ball ten times in a row, without scoring any goals. Sometimes all ten go in. That does not show that his regular level of four out of ten is wrong. If he kicks the ball a hundred times, he will make about 35 to 45 goals. If he kicks the ball a thousand times, he will make very close to 400 goals.

This is similar to diseases like the flu, malaria, and the ones that cause diarrhoea. These diseases do not develop slowly. No one can say exactly who will get them. If there is flu in a community, you might be able to say that half the people will get the flu, but you cannot say which half. You might even be able to say that half of all the people will get the flu, but only one in ten people who wash their hands often. But no one can say which one in ten.

Say one in every 200 mosquitoes is carrying malaria. If a hundred mosquitoes bite you, your chances are even that one of them will have malaria. But you do not know if it will be one of the first ones, or only later, or not at all. The same is true of road accidents. You may ride a motorbike a thousand times without having an accident. But that is not proof that you will not have one. Each time you go out, you are taking the same risk again. That is why motorcycle riders should always wear a helmet, and people in cars should always wear seatbelts.

There are no guarantees in most health matters, but there are a few things you can do to maintain your health, for example, if you never drink, you will never become addicted to alcohol. One really important thing you can do is never start smoking, or quit if you smoke.

Chapter 4: Tuberculosis

Objective

The learner will be able to demonstrate three ways to prevent the spread of tuberculosis.

The learner will have a basic understanding of epidemics.

Key words

active

epidemic

latent

Student Activity:

What do you know about TB? Think about symptoms, transmission and treatment and discuss your understanding of TB with your classmates.

4.1. Introduction

Remember how a disease works. A micro-organism gets into someone's body, and starts to reproduce. At the same time, the immune system recognises that micro-organisms are in the body, and tries to catch and kill them. If the micro-organism is faster at reproducing, the person will get infected. If the immune system is faster, the person may never know he was exposed to the micro-organism. In fact, your immune system is like a farmer who is constantly removing unwanted plants (weeds) from the fields, keeping crops healthy. If there are too many weeds for the farmer to remove with tools, pesticide can be used to kill most of them. In the same way, we use medicines when our immune systems are not killing micro-organisms fast enough.

Tuberculosis is often shortened to TB. Amazingly, one person in three in the world has been infected by TB. TB micro-organisms can infect the lungs. Some people develop the disease soon after becoming infected. Other people may get sick later, when their immune system becomes weak for some reason.

TB infects the lungs more than other parts of the body, but sometimes TB can infect bones, the liver, or other organs. This is more common in children than adults, but can happen to anyone. TB which is not in the lungs is not usually infectious. In this chapter, we will learn about TB in the lungs.

4.2. Infection

[[Redraw or block out text and rewrite in simple language:

One person coughs or sneezes out TB micro-organisms; another person breathes them in.

TB micro-organisms reproduce in the lungs.]]

In nine out of ten people who breathe in TB micro-organisms, the immune system stops the micro-organisms from growing. However, it cannot always remove them. TB infection in the lungs which does not spread is called **latent** TB. The TB micro-organisms are still alive, but they reproduce slowly, and the immune system kills one micro-organism for every new one that is produced. People with latent TB infection have no symptoms, and cannot spread TB to others. Usually the micro-organisms stay inactive as long as the person lives.

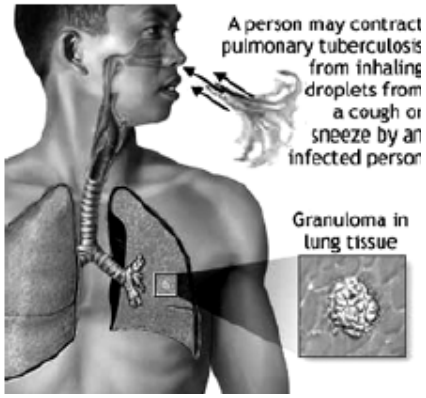


Figure 17: Tuberculosis in the lungs

But if the person's immune system becomes weak — because of other diseases, because of age, or because of poor nutrition — the TB can become active. When TB micro-organisms reproduce more quickly, it is called **active** TB. If the immune system cannot keep up with the new micro-organisms, the number inside the body increases, making the person feel sick. People with active TB have symptoms, such as a cough for a long time. They may also have a fever, especially at night. Some

people feel weak, and lose weight. People with active untreated TB infect 15-20 other people per year on average.

Student Activity:

1. If someone has latent TB, are the TB micro-organisms alive inside their body?
2. If someone has active TB, are the TB micro-organisms alive inside their body?
3. How are latent and active TB different?

4.3. Prevention

Figure 18: Covering your mouth when you sneeze or cough is an important healthy habit.

Coughing, sneezing and spitting spread TB. Coughing and sneezing put TB micro-organisms in the air, where other people can breathe them in. When spit dries, the micro-organisms can be picked up by the wind and breathed in by others, too. When a person breathes in TB micro-organisms, they can settle in the lungs and begin to grow. TB is not spread by sharing cups and dishes, but family members of TB sufferers are at risk of TB infection because they are exposed to the micro-organisms in the air.

TB in the lungs is a disease that develops over months, but it is important to treat it quickly to prevent it spreading to others. The first step is to test to find out whether TB is in the lungs. There are different ways to test, but usually the first step is to go to a lab to cough and spit in a cup. This is then tested to see there are TB micro-organisms in it. TB micro-organisms do not come out in every cough, so usually the test has to be done more than once, over a few days.

To avoid infecting others with TB, everyone should cover their mouth when coughing, and should not spit on the ground. Instead of coughing openly and spitting, it is better to cough into a bent elbow. If someone has to spit, they should spit into a tissue, and throw it away themselves immediately. Others should not have to touch the tissue. In general, there is no need to spit after you cough or sneeze. Stomach acid will kill any TB micro-organisms which are in spit, so swallowing will not do any harm.

Student Activity:

What are two ways you can prevent the spread of TB micro-organisms?

4.4. Treatment

The medicines for TB are strong and often cause side effects, but they work well if they are taken for the full six months. After a few weeks, the micro-organism is under control, and the person cannot spread TB to other people. But it is very important to take all the medicines at the right time, without missing any doses. When people miss TB treatments, the micro-organisms become resistant to the medicines. The micro-organism which can survive the medicine will reproduce, and the medicine will no longer work. If other people get TB from a person whose TB is resistant to the medicines they are taking, the usual medicines will not work for them either, and they will have to take stronger medicines, with stronger side effects. About half the people who have untreated or untreatable TB die from the disease, so it is very important to take all the medicines, on time, for the whole time recommended by the health worker.

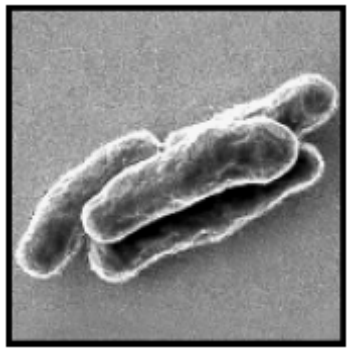


Figure 19: TB micro-organisms

After taking the medicines for a few weeks, the TB infection is controlled, and the person is no longer infectious. However, TB micro-organisms are still in the body, and can become resistant to the drugs used, especially when people do not take them for the whole six months. These people remain infectious. People infected with the resistant TB micro-organisms cannot be cured so easily. They will have to take stronger medicines, and the medicines may not be effective.

Box 6: Vitiligo

When someone has vitiligo, the colour in their skin disappears, leaving white patches. Usually these are found mostly on the face, hands and feet, though some people get it all over the body. The reason the skin goes white is that the cells stop making the colour that usually protects the skin from sunlight. The skin is not diseased, and feels just the same as the skin with natural colour. The cause is entirely inside the body, and does not harm a person's health. In fact, it is similar to hair turning white. However, some people are afraid that they can catch it. Sometimes people lose their jobs, or their friends are afraid to visit them because they have vitiligo. They suffer from **stigma**.

Stigma is something that makes other people want to avoid the person who has it. When you think about it, you see that usually the real problem is not with the person who has the stigma. In this case, vitiligo is entirely harmless. It does not hurt the person who has it, nor anyone else. There is no reason that other people should be nervous, or that a person with vitiligo should lose their job or anything else. Yet sometimes it happens, because of the ignorance and fear of the people around them. Stigma damages the social health of a community.

Student Activity:

What kinds of stigma have you seen? To make people feel excluded because of a stigma is to **stigmatise** them. Do you know people who stigmatise people who have certain diseases? Who have certain jobs? Who have been raped? Who have certain religions? Are children stigmatised for the actions or identity of their parents? What are the reasons for stigma in the cases you know of, and do you agree with the reasons?

4.5. TB in Myanmar

The Myanmar Ministry of Health (MoH) has said that TB is the second most important disease that it has chosen for special attention. TB is an epidemic disease. An epidemic is a disease that happens to many people in one place and time. Because TB spreads to more and more people if no action is taken, a TB epidemic is a public issue.

Figure 20: TB screening laboratory in Myanmar

It is difficult to collect good information on how many people get infected with TB, because many people do not get tested. The MoH estimates that close to one per cent of the population is infected with tuberculosis every year. This includes people with latent TB. About five per cent of recorded deaths are caused by TB.

Testing for TB is important, as the symptoms of TB — coughing for weeks, fever, sweating at night, pain the chest — are not enough to diagnose the disease. Different people will have different symptoms, so if someone has a cough for three weeks or more, they should go to a clinic and the health staff will be able to tell them if they should get tested.

In June 2008, the WHO expressed concern that the devastation of Cyclone Nargis had prevented many TB patients from getting their TB treatment. They are worried about the health of these patients and the risk of the TB micro-organisms developing greater resistance to TB medicines. They said that experts would travel to the affected areas to track down TB patients and help them to start taking their TB treatment again.

Student Activity

1. Look at the statements below. Are they true or false? If they are false, provide a correct statement.

a. It is easy to diagnose TB by the symptoms like coughing, fever, sweating and chest pain.
b. Cyclone Nargis did not affect TB patients in any special way.
c. Most people who breathe in TB micro-organisms do not need TB treatment.
d. TB micro-organisms cannot develop resistance to TB medicines.
e. About one per cent of people in Myanmar die of TB every year.

2. 2. Someone with untreated TB can infect 20 people per year. Assuming a person with TB infects 20 people per year, and 10 per cent of those develop active TB, how many people will be infected in seven years if no one is cured or dies?

3. Make a fact sheet with the most important things to know about TB

Fact Sheet: Tuberculosis (TB)

Cause:

Symptoms:

Transmission:

Diagnosis:

Treatment:

Chapter 5: HIV/AIDS

Objectives

1. Learners will be able to correctly identify the ways of transmission and prevention of HIV infection, and know that it can be treated but not cured.
2. Learners will understand how stigma affects sufferers of this disease and others.

Key Words

abstinence

acquire

deficiency, deficient

disinfect

emerge

membrane

rumour

semen

sperm

syndrome

variation

5.2. History of HIV/AIDS

About once in five or ten years, a new disease comes to light. Sometimes it is really a new disease, like Severe Acute Respiratory Syndrome (SARS) in 2003. Sometimes it is a new **variation** of a disease, like 'bird flu', which is a variation of the flu that emerged in the mid-2000s. Sometimes it is a disease that has existed for some time, but was not recognised, because too few people had it, or because it seemed to be similar to another disease. HIV/AIDS is a disease like that. It began infecting people the early twentieth century, but in remote areas where many diseases are never diagnosed. It was recognised as a new disease only when more people in the USA and Canada started getting sick with it in the 1980s.

The earliest known case of HIV/AIDS was discovered in a blood sample taken from an African man in 1959, but the sample was not analysed until 1998. It is now thought that people in Africa caught the disease from eating, or being bitten by, monkeys who suffer from a similar kind of disease. The first recognisable signs of a new disease which later became known as AIDS, were reported in the 1970s, mainly in the USA and Haiti, but the different patients were not connected. At the same time, a new disease known as 'slim' was spreading among young men and woman in Africa as well, but was little known outside of Africa.

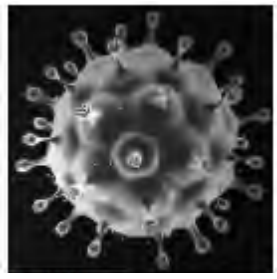


Figure 21: The HIV Virus

In 1983, the Institut Pasteur in France identified the virus that was the probable cause of AIDS. They also developed a way to test for the virus. By 1984 there had been 8000 confirmed cases of HIV/AIDS in the US and 3700 deaths.

In Southeast Asia, many people began hearing about a 'terrible disease' with no cure in the 1990s. In Burma, this was widely known as A.I.D.S., or even just 'Four Letters Disease'. Information was not always very clear, there were many **rumours**, and many people were frightened. People were not only frightened of somehow getting the disease without knowing, but they were afraid of the people who they thought had the infection.

Now, most people know that AIDS is the weakening of the immune system by a virus called Human Immuno-deficiency Virus, or HIV. AIDS stands for Acquired Immuno-Deficiency **Syndrome**. (A syndrome is a group of symptoms that often occur together.) The syndrome is caused by infection with the virus, which slowly destroys the immune system. You cannot get AIDS by getting a lot of other diseases, by being too tired, or any other way, you can get it only by getting infected with HIV. Once you know HIV can be transmitted from person to person, you can protect yourself from it. There is no need to be afraid of people who have HIV infection.

5.3. HIV transmission and prevention

When people are afraid that they can get HIV just by living near people with HIV, are they worried about something that can really happen? In fact, if you think about it, you will see that you cannot get HIV from ordinary friendly contact with people.

Not only that, but you cannot know who has HIV. Most people who have HIV do not know they have it, and no one can guess who has it. Infection with HIV does not create specific symptoms. HIV infection develops very slowly in most people, and they will have HIV for years — often five or ten years — before they start to develop symptoms of AIDS. In those five or ten years they are just as healthy as before. They look healthy, feel healthy and they have no way to know that they have an infection that they can pass on to other people.

HIV can be transmitted only through direct contact with a fluid from the body that has a high level of HIV in it. These fluids are: blood, mother's milk, and sexual fluids. Sweat, saliva, and tears do not transmit HIV. HIV cannot pass through healthy skin.

Blood

The blood of people with HIV has enough virus in it to infect another person. In fact, an amount of blood too small to see can still have enough HIV to infect a person, if it comes in contact with blood. Healthy, unbroken skin does not let blood through.

A common way that people get HIV by blood is through syringes or needles which are reused. The needles and syringes may have only a tiny amount of blood still in them, but this is enough to transmit HIV from one person to another. Another way is by blood transfusion. It is also possible (but less likely) to get HIV by sharing shaving equipment, or by contact with blood and broken skin or the eyes, or by accidentally getting pricked by a needle which has been used by someone with HIV.

Student Activity:

How many ways can you think of that someone else's blood could come in contact with your blood? How likely are these? Have you ever come in contact with someone's blood that way before? If so, how could it have been prevented?

As most cases of transmission through blood contact is from the sharing of needles, the best way to avoid HIV infection is to reduce the number of injections people have. If an injection cannot be avoided, always use a new needle and syringe, or use your own needle and syringe, and do not share it with anyone. In situations where needles and syringes must be used on more than one person, needles and syringes can be disinfected by boiling for 20 minutes. Pouring hot water over them will not disinfect them.

Blood must be tested for HIV before blood transfusions, but even when it is tested there is a small risk. People should not get blood transfusions just because they feel weak.

People can get small cuts in their skin when they shave, whether they are shaving their beard, their head, or any other part of the body. Small amounts of blood get on the razor, and can infect the next person who uses it. Do not share razors; do not use other people's razors. Soaking razors in hot water does not disinfect them.

Mother to child

Most children with HIV caught it from their mothers, either before or during childbirth or through breastfeeding. Without treatment, about one in three babies of HIV-positive mothers will have HIV.

Breastfeeding can transmit HIV, especially when mixed with feeding too early. If a mother breastfeeds without giving any other food or water for six months, about one baby in 20 will get HIV during this time. If she breastfeeds longer, or mixes food and breastfeeding in the first six months, the risk doubles.

One of the key ways to prevent transmission is to test pregnant women for HIV as early as possible in the pregnancy. If the woman is HIV positive, then steps can be taken to try and prevent transmission to the baby. As most babies get HIV near the time of birth, many mothers take HIV medicine just before and after the baby is born. With treatment, only one baby in 20 will be HIV positive.

Figure 22: Baby in the womb

Although breastfeeding can transmit HIV, there are also risks to not breastfeeding. Each family must decide whether or how to breastfeed. Counsellors or health professionals can give families the information they need to make a decision.

Sexual fluids

HIV is found in the sexual fluids of both men and women when they are infected with HIV. It is in the semen of the man, and the vaginal fluid of the woman. In fact the most common way HIV is spread is through sex without a condom. Correctly using a condom reduces the chance of getting HIV during sex. The more people understand about sex, the better they will be able to protect themselves against infection. More information about sexual health can be found in Chapter 7.

Figure 23: Always use a condom!

Student Activity

1. Can you find condoms in your community? Have you ever bought one? Do you ever buy condoms for other people?

2. How many other ways can you think of to prevent sexual transmission of HIV?

5.4. Infection with HIV and developing AIDS

All animals and even plants have an immune system, so micro-organisms which can infect them have different ways to try to survive as long as possible. Some, like malaria, reproduce very quickly, and sometimes can overwhelm the immune system. Others, like TB, reproduce very slowly, and sometimes can be so slow that the immune system does not attack them very much. HIV has a different method. It damages the immune system itself.

When HIV first infects someone, it reproduces quickly, and the immune system attacks the micro-organisms as in any infection. However, HIV gets inside immune system cells, and kills them. In most people, this happens gradually, over years. HIV may cause a brief illness with a slight fever at first infection, but many people have no symptoms at all. For the years when it is killing immune-system cells one by one, people feel perfectly normal until the number of immune-system cells falls very low. Then there are not enough immune-system cells to respond to other illnesses. The person who has been infected with HIV years before begins to get sick more often than before. If they have latent TB, that TB may become active. If they come in contact with just a few micro-organisms that cause diarrhoea, which would not have made them ill before, they can get sick because their immune system is weak.

When people keep getting one disease after another, they may wonder if something is wrong. Many go to a doctor, get a blood test and find they have HIV only at this time. There are medicines to treat HIV, which can prevent HIV infection from becoming AIDS. However, the person remains infected with HIV, and must be careful not to infect others.

Box 7: Condom facts

The two kinds of condoms that are effective at preventing HIV from going from one person to another are latex and polyurethane.

Condoms are used together with 'lube', a slippery lubricant that you can buy at the same time as the condoms.

There are male and female condoms. Female condoms are not as well known as male condoms, but they are actually better at preventing transmission of HIV and other micro-organisms.

HIV infection is not the only thing condoms prevent. They keep the man's sperm and the woman's eggs separate, so they prevent pregnancy. They also prevent most sexually transmitted infections, like syphilis.

Condoms should be stored in a cool place, outside of direct sunlight.

When people put holes in condoms, for example to add beads or feathers, the condoms are no longer effective at preventing HIV infection

It is a good idea to carry extra condoms for friends who might need them.

Student Activity:

1. Discuss each of the methods of prevention with your classmates. How realistic is the use of these methods of prevention in your community? What obstacles can you think of?

2. In groups, look back through the section about HIV/AIDS prevention. Prepare five questions about prevention for other groups.

3. Do you think people in your community are well informed about the transmission risks of HIV/AIDS, and ways to prevent transmission? What ways can you think of to improve people's knowledge?

5.5. Treatment for HIV

Medicines for HIV have been improving and reaching more and more people. HIV is still a very serious disease, and the medicines do not work for every person. However, the situation that shocked the world in the 1980s, when everyone with HIV died, and little could be done for them, has changed. People with HIV must watch their health and take their medicines carefully, but many people with HIV infection live to be old, and eventually die of something else.

HIV develops resistance easily because HIV reproduces very quickly. People with HIV must take the medicines very regularly to control the infection and prevent resistance. Specialists are trained to help people decide when to start treatment. Once treatment begins, they can test blood to make sure the medicines are working, and help patients with any side effects.

Pregnant women who are HIV positive can get treatment that will greatly reduce the chance of their babies being infected with HIV. This can be taken even quite close to birth. It needs to be given by a doctor, so HIV-positive pregnant women should stay in close contact with their doctors.

Box 8: If you might have been exposed to HIV

If you think you may have been exposed to HIV, whether by sexual activity including rape, or a needle or any other way, consult a doctor as soon as you can. If you can take the right medicines for HIV soon after exposure, you may be able to prevent HIV infection. The medicines to take are different depending on the type of exposure, so a doctor must make the decision with full information from the person infected. The faster treatment is begun, the greater the chance of preventing infection.

5.6. HIV, stigma, and blame

When someone gets infected with a disease, normally others do not wonder where they got it. With HIV, this is often the first question people ask. This may be a habit from the early 1980s, when it was not clear what caused AIDS, or how HIV spread, but it is not polite or helpful to ask or talk about how someone got infected with HIV. You know the ways that it can happen — it was one of them, and even the person with HIV may not be able to say for sure which way they got infected.

Not only that, but some people even blame people with HIV for their situation. Blaming someone for an infection, or making them feel ashamed for having it does not benefit anyone. Like someone with diabetes, cancer, stroke, heart disease, or any other serious and long-term disease, each person with HIV will react differently to the new situation. Some people want to go on living just like before the illness. Some have a new appreciation for every day of life. Some become depressed. Some have a new determination to finish some plan or project. Some have changing moods. Some turn with new devotion to

religion. Some want to do as much good in the world as they can in the time they have.

Just as with any health problem, the best thing you can do for someone is to help keep their spirits up, help them take care of their health if they are having trouble doing it themselves, and be a friend as always.

UN Secretary-General Ban Ki Moon says about the stigma of HIV/AIDS:

> *"Stigma remains the single most important barrier to public action. It is a main reason why too many people are afraid to see a doctor to find out whether they have the disease, or to seek treatment if so. It helps make AIDS the silent killer, because people fear the social disgrace of speaking about it, or taking easily available precautions. Stigma is a chief reason why the AIDS epidemic continues to devastate societies around the world".*

5.7. Life with HIV

People who are taking HIV medicines are less likely to infect others with HIV, but infection is still possible. This means that they should still use condoms for all sexual relations, and also make sure that others are not exposed to their blood.

People with HIV can work and live like anyone else with a chronic disease. They must take extra care in some situations, but generally can continue their lives. People with HIV have won medals in the Olympics, run companies, made great art, been elected to public office, raised their families, and contributed to their families, communities, and the world in many other ways.

Case Study: HIV/AIDS in Uganda

Uganda is a country in central Africa with a population of about 31 million people. The people in the country make up four main ethnic groups and over twenty tribes. Since the 1980s the country has suffered from civil wars which have damaged the country economically. Uganda is one of the countries hardest hit by HIV/AIDS. It is estimated that there are 1.6 million HIV positive people living in Uganda. Fortunately the government has a policy of openness on AIDS, and there is a lot of political support for controlling the disease.

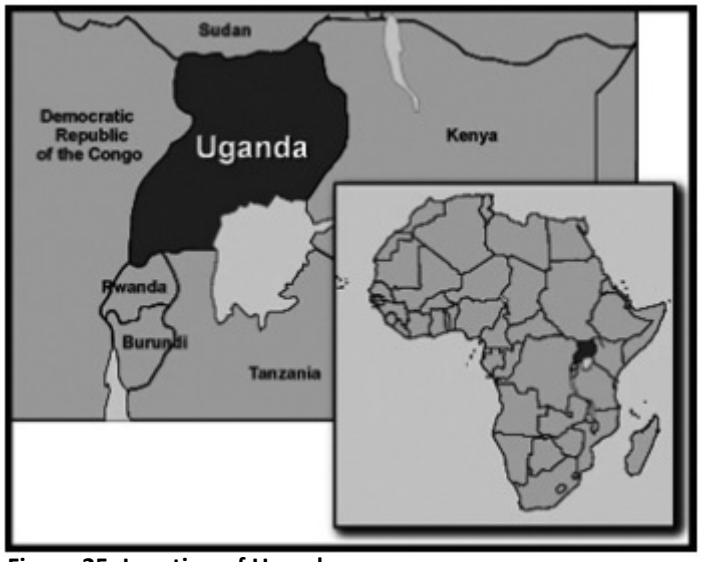


Figure 25: Location of Uganda

There are many strategies to reduce the spread of HIV, encourage community involvement, and promote research.

91% of Ugandans live in the rural areas, with the majority involved in subsistence farming. There is a clear difference between the urban rich and the rural poor. Literacy levels are low in rural areas. About 49% of the Ugandan people have access to basic health services.

The first HIV/AIDS cases in Uganda were recognised in 1982. At this time there was a 'silence' about the disease, until 1986. This silence may have contributed to the rapid spread of HIV/AIDS.

When President Museveni came to power in 1986, he acknowledged the existence of HIV/AIDS in the country. He immediately requested a conference and this led to the establishment of the National AIDS Control Program (NACP), supported by WHO's Global Program on AIDS. A huge HIV/AIDS prevention campaign soon followed. This campaign dealt almost exclusively with prevention of transmission and advised people to 'love carefully' and 'love faithfully'. It gave little regard to the fact that there were already people being diagnosed with HIV/AIDS.

The impact of this campaign increased fears among the population and resulted in discrimination and stigmatisation of people with HIV/AIDS. Families failed to care for their loved ones and many health care workers expressed prejudice in using resources to care for AIDS patients who were 'going to die anyway'.

Then, community groups began to be formed to fill the gap in services. In early 1987, Christopher Kaleeba, who had been diagnosed with AIDS, died at Mulago hospital. Before his death, he and his family had experienced stigma and rejection which had led them to seek support and to need to share their agony with

other families with similar experiences. After Christopher's death, his mother, Noerine, helped to found a support group called The AIDS Support Organisation (TASO).

The group began to advocate for care and support, not only for AIDS patients, but also for persons and families living with HIV. They did this by example and practically demonstrating what could be done.

This triggered a powerful care and support movement under the slogan 'living positively and dying with dignity'. AIDS service organisations, covering activities ranging from awareness promotion, counselling and testing, legal advice, and care and support of infected and affected persons sprang up. Moral support and technical guidance was provided by the government through the NACP.

Today, over 80% of people in Uganda are aware of HIV, and there has been a change in sexual behaviour within the country. The political commitment of the Government of Uganda, combined with the efforts of the donor agencies, international and local NGOs, people living with HIV/AIDS, and religious organisations in the struggle against HIV/AIDS in the last decade have contributed to the following successes:

- The HIV/AIDS awareness level is above 80%.
- All health units use sterile and/or disposable syringes and needles.
- Traditional Birth Attendants use protective hand gloves for delivery.
- There is an increased demand for voluntary testing and testing facilities.
- More and more couples are being tested for HIV before marriage.
- A high demand for condoms is reported at testing centres.
- A decline in the number of HIV infections among the people between the ages of 13 and 24.
- Formation of independent networks of people living with HIV/AIDS has led to increased self-esteem, a sense of belonging, shared confidentiality and breaking of the stigma associated with HIV/AIDS.
- Recent studies have shown a decline in the number of women with HIV/AIDS.
- 68% of survey respondents reported change in behaviour in the last five years in response to HIV/AIDS. Changes included faithfulness, abstinence, and condom use.
- There has been a significant delay in the age at first sexual intercourse. A smaller proportion of the 15–19 years age group report sexual intercourse compared with 1989.

Student Activity:

1. Why do you think there was a 'silence' about HIV/AIDS in Uganda from 1982 to 1986?

2. What were the problems with the government's NACP programme in the late 1980's?

3. How did TASO help to change attitudes to HIV/AIDS in Uganda?

4. What do you think are the most important lessons to learn from the actions of TASO in Uganda about dealing with HIV/AIDS epidemics?

5. Fill in the Fact Sheet about HIV/AIDS on the next page, making a note of all the important facts you learnt in this chapter.

Fact Sheet: HIV/AIDS

Name:

Cause:

Transmission:

Treatment:

Chapter 6: Nutrition

Objectives

The learner will be able to plan food for an entire day that contains proteins and the micronutrients often found to be deficient in Myanmar diets.

Key Terms

calorie

carbohydrate

evaporate

fat

macronutrient

micronutrient

protein

One of the best and easiest things you can do for your health is to eat well. Eating well does not cost a lot, and is not hard. Good nutrition is essential to mental and physical health. However, many families spend up to three quarters of their money on food. So it is not surprising to learn that between 2000 and 2010, nearly one in five people in Myanmar was not eating enough healthy food.

How can families reduce the amount they spend on food but still eat enough healthy food? Healthy food is not hard to find, does not need to be imported, and is not expensive. You can improve your nutrition by choosing foods wisely. In general, food that is fresh and close to its natural form is better for you and costs less than packaged foods. To save money and eat healthy foods, buy fresh foods and cook them yourself.

6.1. What is Food?

Have you ever been tired because it had been too long since you last ate? Food is fuel for the body, it provides the materials for making and repairing the parts of the body, and provides the nutrients that keep us healthy.

When you buy food, you might measure it in viss, pounds, kilos, scoops, tins, packets, bags, or pieces. When you are comparing and analysing food, you need to convert the food you eat to a common measurement. For the energy in food, that is the calorie. A **calorie** is the unit of measure that we use to measure how much energy is in food. On average, people need about 2000 calories each day to have enough energy. People who walk far or do physical work need more; people who are smaller or less active need less. When you have not had enough calories in a day, you feel hungry.

There is more to food than energy. Food also has macronutrients and micronutrients. You may know the individual macronutrients: protein, carbohydrates, and fats. Micronutrients include minerals such as iron and calcium, and the vitamins.

Macronutrients

Each food has a combination of carbohydrates, protein, and fat. The body uses **carbohydrates** for energy. Rice, noodles, and potatoes are mostly carbohydrates. Sugar and honey are almost pure carbohydrate. One gram of carbohydrate has about four calories of energy.

Figure 26: High-protein foods

The body uses **protein** to make materials to repair and maintain itself. Foods that contain a lot of protein include peanuts, tofu, egg, meat, and fish. One gram of protein has about four calories of energy.

The body uses **fat** for energy, to absorb and store micronutrients, and to work with the proteins to make the materials the body needs to repair and maintain its cells and tissues. Foods that contain a lot of fat

include oil, any nut, seed, or bean you can make oil from, coconut, and meat fat. One gram of fat has about nine calories of energy.

Table 1: Daily requirements

Calories	2000-3000
Protein	35-55 g
Iron	10-13 mg
Calcium	1000-1200 mg
Vitamin A	1000 µg
Vitamin B_1 thiamine	1.2-1.5 mg
Vitamin B_3 niacin	16 mg
Vitamin C	50 mg

Micronutrients

Macronutrients are not all we get from food. Food has vitamins, minerals, and other micronutrients in it. Cells use micronutrients for growth and development. You only need a very small amount of each micronutrient, but if your diet does not give you enough micronutrients, you can become very ill.

You know when you need more food for energy because you feel hungry, but you do not always know when you are not eating enough micronutrients. However, if you do not eat enough micronutrients, you will feel tired because your body is not working as well as it could. The immune system needs micronutrients to work well, so people who do not get enough will be sick more often. The table shows guidelines for how much of each nutrient should be eaten in a day for good health.

Lack of micronutrients in the diet can cause blindness, anaemia, paralysis, beriberi, goitre and other diseases. Children who do not get enough micronutrients will not be as strong or intelligent as they could have been.

Many people in Myanmar do not get enough protein, iodine, iron, Vitamin A, and B vitamins.

Box 9: Iodine

When you buy factory salt, iodine has already been added to it. However, in a damp climate, iodine will evaporate from salt if it is kept an open container. **It is important to keep salt in a sealed container in order to keep the iodine in the salt.** Glass jars with tight lids kept shut are best for keeping iodine in the salt.

I**odine** is important for brain development and function. While everyone needs iodine in their daily diet, it is especially important for children and pregnant women. Children's brains are still developing as they grow, and they need to have enough iodine to have the best development.

If someone has a goitre, or an enlargement of the neck, it usually means they do not have enough iodine. Because it is hard to get enough iodine in food, iodine is added to salt in factories.

Iron is necessary for the cells, especially red blood cells. People who are deficient in iron tire quickly. This is because red blood cells need iron to carry oxygen to the rest of the body. When children do not get enough iron, they may find it hard to behave well, and not do well in school. Foods that are rich in iron include green leaves, tofu, beef, liver, lentils, and egg yolks.

Vitamin A strengthens our immune system, the system that fights disease. Children who do not get enough Vitamin A get sick more often. Vitamin A is also important for the eyes. If you do not have enough Vitamin A, you cannot see well in the dark. When small children do not get enough Vitamin A they may go blind. Foods that are rich in Vitamin A include dark leaves and liver.

B vitamins. The B vitamins help digest food and deliver nutrients to cells. Digestion includes changing carbohydrates into energy. B vitamins are particularly important in the immune and nervous systems.

Some diseases caused by the lack of B vitamins are beriberi, pellagra, and anaemia. Foods rich in B vitamins include rice, peanuts, almost any kind of bean, sesame seeds, sunflower seeds, phi kyan bananas, guava, yoghurt, and liver. In rice, the whiter the rice, the less Vitamin B it has.

There are eight different B vitamins. Most are found in similar foods, except Vitamin B_{12}, which is found only in foods which come from animals. Vitamin B_{12} is in milk, yoghurt, and eggs as well as fish and meats.

Student Activity:

Using Appendix C, add two foods to each category of micronutrient-rich foods and add two foods to the list of protein-rich foods in the section above.

Recommended amounts for how much protein and micronutrients to eat every day are guidelines. They are averages used to estimate how much a person needs. Everybody is different, and some people need more or less than the guidelines show. How much people need depends on how active they are, how much they weigh, whether they are growing, and other factors. For example, the recommended amount of protein for a healthy adult to eat per day is 0.8g of protein for every kilo of body weight. A woman who weighs 45kg (100 pounds) should eat about 36g of protein in a day. The amounts listed here will normally prevent diseases like anaemia (from lack of iron) and beriberi (from lack of Vitamin B_1). There is no need to worry about eating too much of a vitamin or mineral in a diet with a variety of different foods. The amounts the body needs are balanced with the amounts found in food.

Food also has natural variations in the amount of nutrients. The exact amount of Vitamin C in a particular mango, for example, depends on the tree, the season, the weather, when it was picked, how long it was stored, and how it was served. The nutrients in an egg depend partly on the health and diet of the chicken that laid it. The amounts shown in the tables are averages for food in Myanmar.

Different micronutrients can be stored in the body for different periods of time. Vitamin A and iron can be stored in the body for years. B and C vitamins are not stored in the body and should be eaten every day. While it is possible to not eat for weeks without any permanent health effects, getting micro- and macronutrients every days is best for the health,

Student activity

1. How much protein does someone who weighs 60kg need in a day?

2. Do children need to eat more or less total protein than adults? Why or why not?

3. Do children need to eat more or less protein per kilo of body weight than adults? Why or why not?

4. Do pregnant women need to eat the same amount of protein as others?

6.2. Choosing Healthy Food

Eating a variety of foods is an important part of staying healthy. Healthy eating does not depend on one kind of food. Many combinations of foods are healthy, and the most important thing is to eat and drink many different kinds of food, so that you can get different nutrients from each. Choosing a variety of foods with protein and micronutrients improves the diet. If you are eating a variety of food with enough protein and micronutrients in a variety of food, you will also have enough carbohydrates and fat, as these are very common in everyday food.

Every day we choose what to eat. We can choose food that both fills our stomachs and keeps our body healthy, or else we can choose food that fills our stomachs but does not have many micronutrients. Most food that is close to its natural state has more of its natural micronutrients. The best food for your health usually does not come in a package, and you can buy it in the market. Food that is good for you is often less expensive than food that is not.

Here are some easy choices you can make to improve your nutrition:

- Whenever you have the chance to eat black sticky rice instead of white rice, choose the black rice. Black

Box 10: Non-dairy creamer. What's in a name?

What is that white powder found in coffee mix and some other packets? Most people just call it 'powdered milk', but it is very different from milk. It is mostly unhealthy fats and sugars with chemical flavourings. In English, it is called 'coffee whitener' or 'non-dairy creamer', and it is not nutritious.

It was created to use in coffee and tea when no milk was easily available. When it was just taken in small amounts from time to time in coffee or tea, it was not a problem. But in Southeast Asia, it is getting more and more popular to not only to drink a mix of whitener with sugar and coffee, but it is found in other packets, with misleading names like 'Nutritious Cereal' which people give to children and old people, thinking they are doing something good.

'Quaker Oats' in packets is also largely non-dairy creamer and sugar. These foods cannot replace cow's milk and should not be given to children. It is not healthy for anyone, and could be harmful for old people who are more at risk for diabetes and heart disease.

rice has more than twice the micronutrients of white rice.

- When you are going to eat a meal with a lot of iron in it — a meal with beans, tofu, fish or meat and leaves — do not eat tea-leaf salad, drink any kind of tea, coffee, or cola within an hour of that meal. These prevent your body from using much of the iron that was in your meal.
- Always have some salad of leaves or fruit with your meal. Fresh fruit and vegetables that are high in Vitamin C (such as hot and sour foods) help your body to absorb iron.
- Do not eat snacks made of white flour every day. These include snacks like fried dough sticks, tat ta-ya (sugar palata) and bread. These have few micronutrients.
- Avoid sweet drinks, especially energy drinks. If you are at a cold-drinks shop with your friends, you can choose soy milk or lime juice with just a little sugar instead. One sweet drink has all the sugar you should eat in an entire day — and all at once, which is not good for your body.
- Try to eat something with turmeric every day. Eat something with black pepper in the same meal. Turmeric is good for your immune system, and pepper helps your body use it.

Student Activity:

1. What is 'good' food? You can look at food from several perspectives. From a cultural perspective, the whiter the rice is, the better the quality. From a nutritional perspective, the darker the rice is, the better the quality. From a personal perspective, your favourite kind of rice is the best. Think about drinks and snacks from different perspectives.

2. Use Table 3 at the end of this chapter and Appendix C to help you plan the food you will eat for one day. Make sure you include proteins and micronutrients and eat a variety of foods.

	Breakfast	Lunch	Snack	Dinner
Proteins				
Iron				
Vit A				
Vit B_1				
Vit B_3				

6.3. Nutrition and Weakness

Some people eat a lot because they feel weak, and know that we get our energy from food. However, there are four main causes of weakness:

3. Lack of energy because you have not eaten recently;
4. Poor nutrition for a long time, so your body cannot repair itself;
5. Lack of fitness, because of long illness or too little exercise;
6. Illness, which could be a particular disease, excessive stress, or dehydration.

Student Activity:

1. Consider these five people: Which is the most likely cause of their weakness? What can they try to increase their strength?

A: Ni Ni likes certain foods and not others. Ni Ni will eat two plates of rice, or a bowl of noodles, but does not like beans or salads, and never eats fruit. Ni Ni will sometimes eat potatoes, cucumber, and radishes, but does not like anything with leaves. When other children are playing, Ni Ni often just sits and watches.

B: Maw is from a poor family. Maw's father is working in another town, and sends home money when he can. Maw's mother sells soap in the market when she can, but is often cannot because one of the four children is ill. Maw goes to school, but cannot play as much as many of her classmates, because she gets tired quickly.

C: Mun used to ride a bicycle everywhere in town, and go swimming in the river often. Mun also helps out planting the rice. Now it is time to harvest the rice, but Mun feels weak, and has to sit down after harvesting for only an hour.

D: Kham played a football game all afternoon yesterday. His team won, and they went visiting around the town instead of eating dinner. They drank a lot of tea, but did not have a meal. In the morning, he carried his sister to school on his bicycle, and did some shopping at the market. Now it is noon, and he feels tired.

E: Cho loves karaoke and TV. She sings very well, and she and her friends spend a lot of time practicing singing. She also is a good student, and spends many hours a day studying. She is also taking some courses in the school breaks. When she is with her friends and they run to catch a bus, she is out of breath very quickly and she feels her knees shaking.

2. Explore the data in Table 2, below. Find the food highest in each nutrient, and the food with the least amount of each nutrient.

Table 2: Nutrient Units Value per 100g of certain foods

g = gram, mg = milligram (0.001 gram), µg = microgram (0.000001 gram)

Food (100g)	Protein g	Iron mg	Calcium mg	Vit A µg	Vit B_1 mg	Vit B_3 mg	Vit C mg
Daily requirement	50	12	1000	550	1	15	70
Dried shrimp	77	20	251	-	0.06		
Imitation meat	33	10.5	261	-	-	-	-
Chicken	19	1.5	12	-	0.5	3	12
Chickpeas	16.5	3.5	42	-	0.77	1.1	4
Chicken egg, raw	13	2.1	84	162	0.24	0.07	
Duck egg, raw	13	3.9	64	194	0.16	0.2	0
Chicken egg, hard boiled	12.5	1.2	50	149	0.07	0.06	0
Chicken egg, fried	12	4.3	227	236	0.14	0.08	
white tofu	13.5	3	136	1	0.06	-	-
Shan tofu	10.5	4.5	310	-	0.04	0.4	-
Peanuts	27	2.5	48	2	0.53	15.3	5
Lentils	19	1.4	126	0	0.26	2.6	0
Tomato	1.4	1.4	5	1155	0.06	1.6	23
Amaranth leaf	5.5	4	192	5601	0.05	1.2	
Indian pennywort	1.5	3	170	1086	0.15	1.2	
Roselle leaves	2	1.5	11	377	0.02	1.8	34
White rice, raw	7.7	1.1	11	-	0.16	1.3	
Brown rice, raw	7.5	1.8	33	-	0.43	4.3	
Black rice, raw	8.3	3.9	13	-	0.31	4.2	
Ripe tamarind	2.5	1.5	81	1.5	0.22	1.1	3

To compare foods in order to determine which has more nutrients, we need to compare the same amount of each food. When we look at the nutrients in food, we usually compare 100 grams. Of course people do not usually eat exactly 100 grams of each food. Looking at 100 grams at a time lets us compare the foods to see which ones are high in which nutrients.

The next step is to measure how much of each food a person will eat, and calculate the nutrients in their diet. The table below shows some typical amounts for some of these foods.

Table 3: Weight of common foods

Food	Approximate weight in grams
Chicken egg	40
Tin of uncooked rice	300
Tin of uncooked lentils	380
Tomato	70
Half a cup of tofu	125
One cup of bean sprouts	100
Chilli pepper	1
Bunch of leaves (e.g. amaranth, roselle)	100
One peanut	1

Student Activity:

Use the tables above to help you answer the following questions.

1. How many hard-boiled chicken eggs would you need to eat in order to get 25 g of protein?

2. How many peanuts do you have to eat in order to have 5 mg of iron?

3. What fraction of your daily iron requirement do you get from one bunch of amaranth leaves?

4. What fraction of your daily iron requirement do you get from one fried egg?

5. Put together typical meals from the foods on the list, and see what percentages of the daily requirements are in the day's food. If some are below 90 per cent, how could you change the meals to get near 100 per cent?

6. What is the cheapest way to get the most protein? And iron?

7. How much white rice do you need to eat in order to get the number of mg of vitamin B_1 found in 100g of black rice?

Chapter 7: Starting a family and Health

Objectives

By the end of this chapter, learners should know:

1. That pregnancy occurs only when sperm and egg combine.
2. How to use two common forms of contraception.
3. How to protect themselves from sexually transmitted infections.
4. How to decide if they are ready for marriage and sex.

Key words

abort, abortion
anaemia
foetus
herpes
interdependent
intimacy
mature
reproductive
rape
sex
sperm
syphilis

7.1. Starting a family

Some people like to stay single, but more people want to marry, and to have a family. There are many ways to think about who is a good person to marry. P. Monin was an important Burmese writer from the 1920s and 1930s. In his autobiography, he tells how he met a young woman. Before you read about his life, think about these questions:

Figure 27: Traditional Burman wedding

Student activity

1. What does it mean 'to marry'?

2. What are some reasons people get married?

3. Read the story together as a class. Summarise the story in your own words.

What did P Monin and Me Me each want from the marriage? Did they have love? Did they have intimacy? Have a debate about the question, 'Should P Monin and Me Me have stayed together?'

The Marriage of P. Monin and Me Me

From the day of my arrival I became aware there was a young woman in a house opposite; she kept on coming out and looking at the house I was staying in. When I told my aunt, Daw Thant, about it and asked her who the young woman was, I learnt that she was called Me Me.

I did not know Me Me at all, but one day I happened to talk about her with my aunt. She told me that the girl was in love with me. I told her that I had no feeling for her at all. I had no wish for Me Me to love me.

My aunt suggested, 'This young girl will most certainly not agree to elope with you. So if you really want to stop her, why don't you write her a letter saying: "Me Me, come away with me tonight. If you won't, then don't even so much as mention my name in the future."? She won't do it — and so it will all be over and done with.' I agreed to this, and wrote a short letter.

I wonder if it was in my horoscope that I should get a wife on that day? At about six o'clock in the evening a weeping Me Me came and gave me a small parcel saying, 'You shouldn't have written a letter like that. You know me too well,' and then went off back to her home. I was so amazed that I just stood staring without a word. On unwrapping the parcel I saw it was full of gold, jewellery, and money.

Me Me's parents were rich, and I had most unexpectedly done very well, like the Karen chieftain who found himself made a king, but I was not happy. I did not love Me Me and had no wish to be married yet.

There was no longer any hope of correcting the huge mistake that I had made, and there was no sleep for me that night either. Sometime after mid-night I heard the sound of footsteps coming towards my room and, raising my head, I saw a brother of Daw Thant's. He pulled me up from where I lay on my bed and said, 'Hurry up! They are already there. Let's go.' Surprised at his words, I asked, 'Who has arrived? Where am I to go?'

'Why, to Set-daing Hill. Me Me's there already.' I felt a lot of pressure to go to meet Me Me. When I arrived, I found Me Me happy and expecting to get married. How could I say no in this situation? We were married at Set-daing Hill and we stayed up all night celebrating with our friends.

After the marriage, P. Monin did not live with his wife for very long. They did not have any children, and she died young.

7.2. Intimacy vs. Sex

Sex is the physical act of making love. But what is intimacy, and how is it related to sex? **Intimacy** is the level of commitment, positive feelings and thoughts, and physical closeness that a person experiences with a partner in an *interdependent* relationship. Intimacy is a way of describing the emotional and physical acts of love. In a romantic relationship, intimacy comes before sex. When both partners feel intimacy for each other they may want to have sex.

There are many questions about whether to have sex, when, with whom, and why. The answers to these questions are different in different time, different cultures, and for different families and people. There are no universal standards for relationships, but there are legal and ethical answers to some of the questions about who, when, and why.

Each person should be able to decide whether to be intimate and with whom, but sometimes deciding is not easy. Most people do not want to marry before they are ready to have sex. A couple has to make the decision together, but many do not know how to begin talking about intimacy and sex. So then, how can they decide? Talking about important matters makes it easier to think clearly about them, so talking about intimacy is important. Think about whether you agree that a couple is not ready to take that step unless:

- they can talk about sex.
- both feel sure that they want to have sex.
- neither is afraid.
- neither feels pressure to decide quickly.
- both feel like adults.
- neither is ashamed.
- both can control their feelings and actions.
- they have condoms and lubricant.
- they feel they can speak openly with each other.
- each is thinking about the benefit of the other.
- they trust each other.

What do you think? How can a person or couple decide when they are ready?

Student Activity:

Copy the following three questions in your notebook, leaving room for the answers. Talk to 3 people in your community about how they would answer these questions. Record their ideas. After talking to three people, write down your own answers for each of the questions.

1. What can be proof of love?

2. What makes you an adult?

3. What makes people love each other?

7.3. Planning Pregnancy

Many people want to have children, but there are times in life when having a baby is not good for parents or children. When the parents are still in school, for example, if one or both of them have to leave school to support the baby, is that good for the new family? Or would it be better for a child to have parents with more education? Each couple can decide not to have children until they are ready, but many people are not sure how. The result of this is that many couples have a child at a time when they are not best able to start a family. Many feel desperate, and try to end the pregnancy in ways that are dangerous and illegal. This chapter is about reliable ways to control pregnancy, and other issues that have to do with the results of sexual relationships.

There are many rumours and beliefs about methods to prevent pregnancy. There are also many couples who have had children when using these methods. The only way for a couple to be sure they do not become pregnant is to make sure that none of the man's sperm gets to a woman's egg. See the illustrated booklet for more facts and details.

As a couple, you can prevent pregnancy until you are ready to have a baby. Most people are happier in their relationships too, when they are not worried about pregnancy. When couples do not plan ahead, and get pregnant when it would be hard for them to raise a child, this can be such a difficult situation that they decide to abort the foetus. In fact, more than one in ten sexually active women in Myanmar will have an abortion. Abortion can be sad for the couple, painful for the woman, and often dangerous, too. Sometimes the woman gets very ill, and some have health problems that will prevent them from having babies afterward.

Condoms

From a health point of view, condoms are the best way to control pregnancy. This is because as well as preventing the man's sperm from reaching the woman's egg, they prevent most infections which can be spread through sex. Condoms for men are more common, but there are condoms for women too.

Figure 28: Different types of birth control pills (The Pill)

Student Activity:

1. Name as many slang terms as you can for condom.
2. How many advantages can you think of to using condoms?

Pills

Birth control pills work by preventing the release of eggs. Pills are taken every day at the same time for three weeks, and then stopped for a week so she can have her period. Some brands include iron pills to be taken during that week.

Some women have a lot of pain with their period, and some bleed a lot. For many women, pills make them bleed less, and they also prevent the pain. Some women use take pills just for this benefit.

Student Activity:

How many advantages can you think of to using pills for birth control?

Rape and pregnancy

Among 100 women who are raped, a few will become pregnant if they do not take any action. There is a combination of pills that can be taken after sexual intercourse to prevent pregnancy. These are not good for regular birth control, because they are strong and have side effects, but they can be useful in an emergency. Ask a medical professional about them. They should be taken within two days to be most effective.

7.4. Understanding Pregnancy

How do you know if you are pregnant?

The first sign of pregnancy for most women is that their period is late. Most women get their period every four weeks, but some women sometimes miss a period. It does not always mean you are pregnant if you skip a period, but if your period is more than two weeks late when it is usually regular, and you are sexually active, get advice about it.

In the early part of pregnancy, some women also feel dizzy, vomit, or just feel very strange. However, there are many reasons why these symptoms could appear. There are tests for pregnancy, which may be available from a pharmacy or from a health worker. The easiest tests measure changes in the urine which show when a woman is pregnant.

The earlier a woman knows she is pregnant, the better she can prepare, eat well, and avoid the things that might be harmful. Many medicines should not be taken during pregnancy, for example, including some traditional and some Western medicines. Pregnant women should try to avoid breathing in smoke, whether from cigarettes, cheroots, or fires. Health workers who have experience and education in reproductive health will be able to answer questions and give good advice.

Pregnancy and health

Most women have babies without any health problems for them or for the baby. However, pregnancy is a time when some risks increase. Women need to eat especially well during pregnancy, especially getting enough iron, iodine, B vitamins and protein. Many women do not get enough iron before they are pregnant, and they need much more — 27mg per day — when they are pregnant and the foetus is growing and developing. Pregnant women need to eat an extra 30g of protein every day as well.

Some diseases, especially malaria and the flu, are more dangerous for women when they are pregnant. Also many traditional and Western medicines can harm the foetus.

Student activity:

Use your knowledge of nutrition to suggest food to add 30g of protein per day to the diet of a pregnant woman.

Figure 30: Pregnancy

7.5. Sexually Transmitted Infections

For people, sex can be something very special, but for disease-causing micro-organisms, it is just another way to get from one person to another. 'Young bachelors' diseases' are common in young men and women alike, and some people do not take them seriously. In English, they are called sexually transmitted infections (STIs). Some people think that washing right after sex will prevent transmission of micro-organisms. But washing is not enough to prevent infection, and there can be serious results.

The most common STIs are easy to cure if treated quickly. If you have any kind of sore or rash on or near your sexual organs, or any pain, especially when urinating, go to a clinic or health worker as soon as possible. Burning and pain can be caused by several different infections. The pain may go away, but the micro-organism may still be in the body. Some sores are painless and go away without treatment, but this might be only the first stage of infection. Even when there are no symptoms, infections can pass to sexual partners.

Syphilis is an example of a disease that can seem to disappear when it is really still infecting a person. It usually starts with a painless sore near the sexual organs, which goes away after some weeks. In women, the sore can be inside of her, so she will not know she has it. The infection continues, and comes out later as a rash. All this time, the person with syphilis can infect sexual partners with the micro-organism. The rash also goes away, but the micro-organism continues reproducing in the body, and in many people begins to affect the nerves and organs. If a woman has a baby, the baby may be born with syphilis. Syphilis is a disease which killed many people before a good treatment was developed. Now it can be treated with the right medicines. Better, it can be prevented by using condoms.

Most people who get HIV are infected during sex. It is another infection that can be spread by people who think they are healthy, and who look and feel healthy. Guessing who has HIV will not keep you safe; condoms will.

Herpes is another disease that can be spread during sex. In herpes, sores or blisters appear on the skin near the sexual organs or near the mouth. Many diseases which are spread during sex can only be spread to the sexual organs, so using a condom is very effective at preventing them. But herpes can also infect the mouth, or the area around the genitals. This means that any contact between the mouth and sexual organs can spread herpes, and condoms do not always prevent its spread. There is no cure for herpes, and the treatments are not always effective, and are not available everywhere. A baby born to a woman with herpes can also get herpes, especially if she gets infected in the last months of pregnancy.

Herpes is not usually very dangerous to adults, but it can be painful and inconvenient. The best way to prevent it is still using condoms, but they are not as effective as for other diseases. Female condoms are more effective at preventing herpes transmission than male condoms. People who have herpes should avoid sex while they have the sores, for a week afterward, and if they feel them coming. Usually people with herpes feel a tingling or numb feeling in the area where they get the sores before they appear. There is still a small chance of spreading herpes when there are no sores, so partners have to know about and accept the risk.

There are other micro-organisms that can be spread during sex if one partner is infected. As with other diseases, it is important not to try to diagnose and treat these diseases without a health professional, because the wrong treatment can make you think you are cured when in fact you still have the infection. Any time you see or feel something different in your sexual organs, go to a clinic or health worker, and take the whole treatment you get.

7.6. Social and Mental Perspectives

Sex is a good part of life and love. Most people go through life without getting any of these diseases, but there is a chance of getting them, and some are serious. The more partners you or your partner has, the greater the chance that they will have sex with someone who is infected. It is important to use condoms with every new partner, and also if you are not 100% sure that your partner does not have sex with anyone else.

Figure 31: Network diagram about STIs

Many people promise to be faithful, but in fact sometimes are not. If everyone had only one sex partner, most infections spread through sex would not exist. They would die out in one generation because they would not be passed to more than one person. The fact that these diseases are common, and have been common for thousands of years, shows that people are not always as faithful as they intend to be, or as they say they are. Be romantic, but be realistic too. Smart people use condoms for a number of reasons.

Student Activity:

Discuss the following issues with your classmates:

Do you think people should put limits to having sex? What kind of limits should they be? Social? Legal? Physical?

Do you think there are rights to have sex? What are those rights?

Should people over or under some age not be legally allowed to have sex? If so, what ages?

Should rights or limits relating to sex be the same for men and women?

Most people who marry want to have children and start a family, which is one reason to have sex. We all know that people have sex for other reasons too, especially just to be happy together. Partners who respect and love each other can show and feel their love and respect by their sexual behaviour.

However, there are some times when sex is a problem. The next section is about some of those problems.

7.7. Sex, Power, and Violence

Ideally, sex is associated with intimacy and love. There are times, however, when it is associated with power and violence. Everyone has the right to decide when to have sex and with whom, and everyone also has the right to decide when NOT to have sex, even with a husband or wife, boyfriend or girlfriend. Everyone can refuse at any time, for any reason. With people who love each other, this is not a problem. People in a family do not normally force each other to eat, to sleep, to do anything else, and sex is one more thing that they do not force each other to do. . Sex is best between people who love each other and want to make each other happy. Making someone have sex when they do not want to destroys the trust, respect, love, and feeling that can make sex so special.

Sex that is associated with power and violence is called rape. Rape is often one way of having physical power over another person in order to hurt that person or her family. Taking power over someone in this way is cowardly and shows that the only way the rapist can get power is by violence, rather than by earning respect of others. Rape also involves mental and emotional power. Sometimes the person who is raped is ashamed to talk about it.

Rape is a violent crime, just like any other violent crime. If someone is beaten by a thief, he is not blamed for the beating and is offered assistance and care from his friends and family. However, sometimes people who are raped are blamed for the rape and are made to feel shame by their friends and family. This is unfair. Those who survive rape are brave and honourable people. Just as you would help someone who has been beaten, so should you help someone who has been raped.

Another definition of rape is dependent on the age of the people having sex. The **age of consent** is the age at which a person is legally allowed to agree, or consent, to have sex. If anyone has sex with someone below the age of consent, it is rape, even if the young person said they wanted to have sex. The age of consent is chosen by a government process and is different in different countries. Some countries have changed the age of consent several times.

Table 4: Age of consent for sexual activity

Country	Age
Indonesia	16f/19m
Laos	15
Singapore	14
South Korea	13
Thailand	15*
Vietnam	18

*If someone regrets giving consent later, legal action can be taken until age of 18.

Student Activity:

Read one of the following stories out loud in your group. Answer the following questions:

1. Does this story describe rape?

2. What feelings do you think each partner had before, during, and after sex?

3. Did the experience change the relationship between the partners? Explain your answer.

Story A. The story of my rape

http://www.guardian.co.uk/world/2000/sep/08/gender.uk

On a night train from Bangkok, I was forced to have sex with a businessman on his way to a biscuit factory he wanted to buy.

I was a Chinese graduate student with many bags, taking the train from Bangkok to Chiang Mai. I had to wait for two hours, so I went to a restaurant in the train station. The businessman was there. He insisted on buying me a first-class train ticket, instead of my third class one. He took my ticket and returned a few minutes later with a first-class ticket. When we got to the train, I realised that he had traded my third class ticket for a first-class room with two beds. He hurried me inside the room, took off my clothes and had sex. I woke a few hours later just outside Chiang Mai to find him on top off me again. Even now, more than 20 years later, I feel angry at the memory of waking up to find him doing it again.

There was no physical violence involved. Some people would say I was convinced or even that the sex was my choice. The man's weapon was my own tiredness and my bags. I had two heavy bags and a backpack, so I couldn't run away. I did not want to abandon my bags because they had many gifts for my parents inside.

This was rape. I did not want to have sex with the man and had certainly not given consent. To some people, it looked like I agreed to have sex with this man. But really, I had sex with man because I had to. I was in a foreign country, and did not speak the language well. I was not able to find help and explain what happened to me.

Story B. The age of consent: When young love is a sex crime

http://abcnews.go.com/2020/Stossel/story?id=4400537&page=1

By JOHN STOSSEL, GENA BINKLEY and ANDREW G. SULLIVAN
March 7, 2008

Twelve years ago, Frank Rodriguez pleaded guilty to raping a child.

He signed a plea document that gave him seven years probation. He was told he must never be near children.

Rodriguez completed his seven years' probation without another violation, but he will always be on the Texas sex offender registry. And what was the nature of the sex crime he committed? Well, when he was 19, Frank had sex with his 15 year-old girlfriend, Nikki Prescott, at her suggestion.

"It was my idea," she said. "I would say I pushed it more."

"All my friends were having sex, all of them," Nikki said. "All my friends, you know, were dating older guys."

'I Was Not Raped'

Nikki's mom, Melissa Wiederhald, knew her daughter was intimate with Rodriguez. But she did not like it and she thought their relationship was getting too serious.

Wiederhald went to the police station because she knew that it was illegal for Rodriguez and her daughter to be having sex. The age of consent in Texas is 17, and Nikki was not quite 16. The police questioned Nikki. She wrote a statement explaining that the sex between she and Rodriguez was wanted by both partners, but it did not matter because at her age, having sex with a 19-year-old was rape.

The next morning, Nikki's mom realised the mistake that she had made by going to the police. She tried to drop the charges, but the officers told her it was not possible.

The day Nikki turned 17 she moved in with Frank. They lived together, and a few years later, got married. They now have four young daughters.

A Texas government official defends the tough law that labels Rodriguez a rapist. "While it seems unfair, he was 19, she was 15," says Patrick, "That's the price you pay. Even if you end up getting married."

Figure 32: Frank and Nikki getting married

Chapter 8: Mental health

Objectives

The learner will be able to

1. Analyse stressors and decide which stress response would be the best option, based on short and long-term consequences.
2. Discuss addiction and why it is a health issue

Key Words

addiction

cope

rehabilitation, rehab

sober

stress

stressor

stress response

withdrawal

8.1. Introduction

Mental health allows you to have good relationships and a meaningful life. The WHO defines mental health as a state of well-being in which individuals realise their potential, can cope with the normal stresses of life, can work well, and are able to make a contribution to their communities. Like physical health, mental health changes throughout people's lives. Just as some people get physically ill, some people get mentally ill. And just as physical illnesses may be treated and cured, the mental illnesses may be treated and cured.

When someone is physically ill, they go to a health professional to find out the cause, then take medicine or change their behaviour in order to become healthy again. When someone is mentally ill, they, too, need to go to a health care professional to find out the cause, then take medicine or change their behaviour in order to become healthy again. Health promotion and disease prevention are important for both mental health and physical health. The best ways to promote mental health are reducing stress, having strong relationships, and improving coping mechanisms.

Figure 33: World Mental Health Day is on the 10th of October every year and it raises awareness of mental health issues.

There are a few reasons why mental health gets less attention than physical health. One is that mental illness can be invisible — symptoms of mental illness are not always obvious to other people. Another is that many people with a mental illness are ashamed of their condition, feeling that it is a personal weakness. Also, some people with very serious mental illnesses cannot communicate well, or may change suddenly, and may frighten people. The less communication there is about a disease, the more difficult it is to diagnose and treat it. Mental health is as important as physical health. Seeking help from health care professionals is important.

Mental illness is common. Estimates made by WHO in 2002 showed that 154 million people globally suffer from depression and 91 million people are affected by alcohol use disorders; 15 million people suffer from other drug use disorders. A recently published WHO report shows that 24 million people are affected by other mental illnesses that affect the way the work and socialise in the community.

Student Activity:

1. Read the above four paragraphs out loud to a partner or to your class, pausing after each paragraph. As you are reading, write down at least one word you do not know, cannot remember, or are reminded of from each section. Share your new words with a partner and find the definitions. Write short summaries of each section.

2. Using the information from above, compare and contrast physical and mental health and illness by filling in the table below

	Physical Disease	SAME	Mental Disease
Cause			
Prevention			
Treatment/Cure			
Symptoms			

8.2. Stress

An important aspect of preventing mental illness is ensuring that individuals know how manage stress. Stress cannot be avoided, and a person's mental health is directly related to how they react to stress. Some mental illnesses are caused directly by too much stress. Other mental illnesses can start or get worse because of too much stress.

Stress means the feeling in the body and mind that begins when a situation requires a person to react in order to feel in control and comfortable. A **stressor** is a situation that makes people feel stress. A **stress response** is the way in which a person reacts to stress. This reaction is both physical and mental and can be caused either by making a decision or simply acting without thinking. The purpose of a stress response is to increase one's control over a situation or give them mental comfort.

Figure 34: Stress cartoon

A stress response can be good for you. It can make you more alert, more interested, or it can make you work harder and better. Sometimes, we have a choice of how we react to stressors. For example, students who have to take an exam feel stress. When they study, the stress decreases. If they do not study, the stress increases. When the exam is over and the results are out, the stress of the exam is over. The person who studied and passed the exam has no more stress about it. The person who did not study may now have stress about the exam results. Another example of a stressor is being late to class. What are some possible stress responses?

Box 11: Stress response

The stress response in your body is both mental and physical. You can calm your mind by talking, meditating, planning, and other ways. You can calm your body by exercising or playing sports to use up extra energy.

Student Activity:

1. Is stress visible?

2. Is a stress response visible?

3. Is a stressor visible?

4. Do people react to stress or to stressors? Explain your answer.

5. Think about the following reasons for stress:

Late for class; GED exam in 1 month; Lost your phone; District championship cane ball match in one week; Want to go out with friends, but parents ask you to take care of little brother; Community member is drunk and angry. He enters your house; The price of rice increases by 200% overnight; Your baby sister is sick and you do not have money for medicine; You receive a scholarship to study abroad; Someone you love asks you to marry him/her.

Your teacher will give you one of these 'stressors' on a card. Think about a potential stress response and a short or long term consequence. When it is your turn, act out this stress response and consequence and see if the rest of the class can work out what you are acting.

Stressor	**Stress response**	**Consequence (short and long term)**
	1. 2.	Short term 1. 2. Long term 1. 2.

6. For homework: Before class tomorrow, list three stressors that you experience, how you felt, and what was your stress response?

Stressor (Event that caused stress)	**Stress (How you felt physically and mentally)**	**Stress Response (What you did to relieve the stress)**	**Consequences (short and long term)**

8.3. Common Mental Illnesses

Depression

Depression is the most common mental illness. According to the WHO, about 154 million cases of depression are reported worldwide every year.

Depression as a mental disorder is different from the sadness you feel when something bad happens. It is a serious and chronic disorder that can include the following symptoms:

- a depressed mood during most of the day, particularly in the morning
- tiredness and lack of energy almost every day
- feelings of worthlessness or guilt almost every day
- difficulty concentrating and making decisions
- inability to sleep, or sleeping excessively, almost every day
- little or no interest or pleasure in almost all activities nearly every day
- regular thoughts of death or suicide
- a sense of restlessness
- significant weight loss or gain (more than 5% in a month)

Depression may last a few weeks, or much longer. Depression can be treated with therapy and counselling to help people understand the reasons for their depression and suggest ways that they can improve their mental health. In some cases, particularly with severe depression, doctors may recommend that sufferers take medicine, called anti-depressants, to help them cope with depression. However, these medicines do not cure depression; they just make it easier to live with. When patients stop taking the medicine their depression may return. It is hard for people who are depressed to eat well and exercise, but depression involves both body and mind. Eating healthy food and getting exercise, even if it is just walking, is important during depression, and help shorten the time of depression. Religious people may find relief from depression in talking with their community's religious leaders.

Schizophrenia

Schizophrenia is a chronic, severe, and disabling mental disorder. It usually strikes in late adolescence or early adulthood, but can strike at any time in life. People with schizophrenia may hear voices other people do not hear or they may believe that others are reading their minds, controlling their thoughts, or plotting to harm them. These experiences are terrifying and can cause fearfulness, withdrawal, or extreme agitation.

People with schizophrenia may not make sense when they talk, may sit for hours without moving or talking much, or may seem perfectly fine until they talk about what they are really thinking. Many people with schizophrenia have difficulty holding a job or caring for themselves.

There are various treatments that are used to treat schizophrenia. These include medication, therapy, support groups, hospitalisation, and programmes to help schizophrenics keep a job and live more independently.

Post-traumatic stress disorder (PTSD)

Post-traumatic stress disorder (PTSD) is an anxiety disorder that can develop when someone has experienced terrifying events in which serious physical harm occurred or was threatened. It is a severe and ongoing emotional reaction to an extreme mental trauma. Possible sources of trauma include experiencing or witnessing childhood or adult physical, emotional or sexual abuse. Other possible events that could trigger PTSD include war, natural disasters, a car or plane crash, or a terrorist attack.

Symptoms of PTSD can include recurring, frightening memories or nightmares of the event. Some people suffer hallucinations in which they see the events happening again. Sufferers will often experience intense mental distress if they encounter things, situations or places that remind them of the event, and will try to avoid them. PTSD develops differently from person to person. Symptoms may appear within days of the event, or they may take months, or even years to develop. Symptoms can arise suddenly, gradually, or come and go over time. PTSD can seriously affect people's lives. Treatments for PTSD include therapy, counselling and medication. These treatments can help to control the disorder.

Figure 35: Soldiers often suffer from PTSD

8.4. Addiction and Dependence

Student Activity:

Do you know what addiction means? Discuss what kinds of things can you be addicted to? How can addiction affect someone's mental health?

Addiction, dependence, and abuse are ways to talk about people and the drugs and alcohol they feel they strongly they have to take. To abuse drugs or alcohol is to use them in a way that is damaging to oneself or others, or in a way that they were not designed to be used. To be dependent on or addicted to something is to feel you have to have it, to need more and more of it to get an effect, and to suffer physically or mentally if you cannot get it.

Drugs

A drug is any chemical which has a certain kind of effect on the body or mind. It includes medicines, which are used to treat people for illness or to prevent illness, and those which people may take for its effects on their mind.

The terms ‘medical’ and ‘recreational’ refer to how and why the drugs are taken, rather than the drug itself. For example, some drugs can be prescribed by a physician for some people, and others take the same drug to make themselves feel different, when they are not ill at all.

The legality of drugs is also very different. Different countries have different laws controlling drugs, for example, marijuana and alcohol are legal in some countries and illegal in others. Caffeine and aspirin are drugs that are not controlled or limited at all. Valium and cough syrup are drugs that have medical uses, and are used by some people legally, and used by others illegally. Methamphetamines, cocaine, and heroin have no medical uses, and are illegal in almost all countries.

Student Activity:

1. In groups make a list of as many drugs, medical or recreational, as you can. Include slang names if you know them. Then, divide these drugs into the following three categories: medical drugs, abused medical drugs and recreational drugs

2. Is there drug and/or alcohol addiction in your community? If so, what kinds of things are people addicted to? What problems does this addiction create?

3. Why do you think governments try to control drug use? Why are some drugs only available with a prescription and other drugs illegal?

In general, governments try to control harmful and highly addictive drugs. For instance, caffeine does not cause much harm and is only mildly addictive and is legal in all countries. Heroin causes a lot of harm and is very addictive. It is illegal in most countries. However, for social, political, and historical reasons, the judgment of the law and the judgment of science and of individuals is not always the same. For instance, marijuana, which is illegal in many countries, causes little harm and is not very addictive. However, tobacco, which is legal for adults to buy almost everywhere, has very harmful effects and is very addictive. Laws about drugs can change and are often different between countries.

Drug addiction

Drug addiction can be seen as a treatable or curable mental disorder. However it is very difficult for users of the most addictive drugs to stop using them by themselves. Often their addiction controls their whole lives. Addicts will take drugs even when they know that they are harmful, and will need more and more of the drug to get the same effect. If they take too much, which is called an overdose, they can die.

One of the reasons that governments try to punish the use of some drugs is because they are so addictive. Drug dependence harms society as well as the person who takes the drug. Drug use can lead to crime, antisocial behaviour and the inability of people to function well in society. Drug taking can create many health problems for the user. Most drugs are addictive in two ways:

Mental addiction - the drug user becomes addicted to the feelings caused by the drug.
Physical addiction - the drug user’s body becomes addicted to the presence of the drug.

Different drugs have different levels of mental and physical addiction.

Student Activity:

Here is a list of recreational drugs. Which do you think is the most addictive? Put them in order of addictiveness: ***caffeine, tobacco, yaba, heroin, alcohol, marijuana.***

Many people manage to stop taking drugs. They may just stop on their own, or with the help of friends, with medical help, or because the drug is no longer available to them. When someone stops taking a drug they are addicted to, they go into withdrawal. This means that they have some mental and physical effects from no longer taking the drug. In the case of drugs which are not very serious, such as caffeine, this may just be a headache, or feeling irritable. In the case of stronger drugs, such as heroin and alcohol, withdrawal symptoms can be very unpleasant, and even dangerous.

With heroin for instance, withdrawal symptoms can include, sweating, anxiety, depression, cramp, muscle spasms, sleep difficulties, cold sweats, chills, severe muscle and bone aches, nausea and vomiting, diarrhoea and fever. Many users also complain of a painful condition called "itchy blood", which often results in compulsive scratching that causes bruises and sometimes ruptures the skin, leaving scabs.

For some drugs, there are other drugs that addicts can take to make withdrawal easier or less dangerous. For example, methadone is a drug prescribed in some countries to help people stop taking heroin.

Tobacco

The earliest evidence of people using tobacco is from South America in about 3000 BCE. It became commonly used around the world in the 19th and 20th centuries.

Figure 36: Tobacco plant and cigarettes

Although it is used in many forms — smoked, chewed, snorted as a powder — the most popular use of tobacco today is in cigarettes. About 5.5 trillion cigarettes are produced in the world every year, and smoked by 1.1 billion people. Tobacco contains nicotine, which is considered by many experts to be the most addictive drug in the world.

Tobacco also contains chemicals which cause diseases, including cancer and heart disease. The WHO estimates that tobacco related products will be responsible for the deaths of one billion people in the 21st century. Statistics show that regular smokers live up to 10 years less than non-smokers.

Tobacco is only illegal in one country in the world: Bhutan.

Student Activity:

1. Have you ever known anyone who has tried to give up smoking? How difficult was it and what withdrawal symptoms did they experience?

2. Are there problems with alcohol abuse in your community? What kinds of problems does alcohol abuse cause?

Alcohol

There is evidence that humans were drinking alcohol over 12,000 years ago. The ancient Egyptians made beer and wine from about 4,000 BCE. They believed that a god, Osiris, invented beer and that it was a necessity of life. There is also evidence of the drinking of alcohol in the ancient civilisations of China, India, Babylon, Greece and South America.

Figure 37: Wine in ancient Egypt

It is estimated that 2 billion people in the world today drink alcohol. Drinking small amounts of alcohol can help reduce the risk of heart attacks, diabetes, high blood pressure and other health problems.

Figure 38: Drunk men

However, it is estimated that 76 million people in the world suffer from alcohol addiction, and that abuse of alcohol causes 1.8 million deaths per year.

Alcohol addiction is also called alcoholism. An alcoholic is a person who suffers from alcoholism. A small amount of alcohol, not enough to make you drunk, is not harmful for an adult. However, some people keep drinking until they get drunk. The more often they do this, the more likely they are to get addicted to alcohol. Once someone is addicted to alcohol, it is difficult for them to stop drinking.

Harmful use of alcohol is the fifth leading cause of injury and premature death in the world. However, alcoholism does not only harm the person who drinks too much, but also affects families and communities. People who are drunk often make bad decisions, do dangerous things, and many get into fights that would never happen if they were sober.

Alcoholism also affects mental health. Sufferers can be aggressive and depressed. Over a long period of time, drinking too much alcohol can severely damage the brain. It can also cause diseases of the liver, pancreas and heart.

Amphetamines

Amphetamines are a group of highly addictive drugs, including methamphetamines, which are also dangerous to use. Some amphetamines have a medical use, but those commonly sold as recreational drugs have few or no widely accepted medical uses. Taking amphetamines is damaging to the brain.

Addiction can happen very quickly, and is very hard to get over. Common illegal amphetamines include Ecstasy, Speed and Yaba.

Figure 39: Ecstasy tablets

Figure 40: Yaba pills

Yaba

Yaba means 'crazy medicine' in Thai. It usually contains a combination of methamphetamine and other drugs. The drug makes people feel very awake and full of energy. It can also cause hallucinations. Taking yaba can cause high blood pressure, damage the heart, liver and kidneys, overheat the body, and even cause death. Yaba can also have serious mental affects, causing violent behaviour, paranoia, anxiety, confusion, insomnia and suicidal thoughts.

Figure 41: Smoking a Yaba pill

Yaba was invented by German scientists in the 1940s to help keep soldiers awake for days during World War Two. Today, hundreds of millions of Yaba pills are produced in the Golden Triangle area. Yaba can be produced much more cheaply, quickly and easily than many other drugs. Yaba has become the biggest youth drug problem in Southeast Asia. In Thailand, the number of young people entering rehab to deal with Yaba addiction has risen very rapidly.

Opiates

Opium, codeine, morphine, and heroin are drugs made from the opium poppy. Opium is used as a traditional medicine, but is also addictive and so is controlled by law in most countries. Codeine stops coughing, and can be found in some cough syrups and pain relievers. In most countries, these can be prescribed by a physician — people cannot buy them in shops without a prescription. Morphine is used as a painkiller for severe pain. It is used medically for only a short period of time, because it is addictive. It is also abused as a recreational drug.

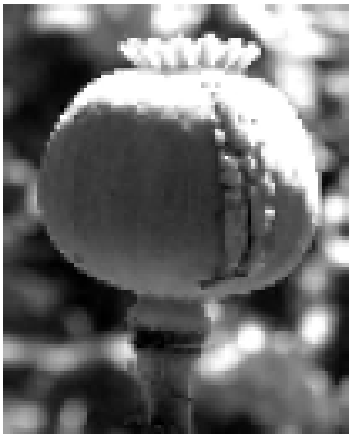


Figure 43: An opium poppy

Figure 42: Injecting heroin

Heroin is a recreational drug without a medical use, and is highly addictive. It is very difficult for people to stop taking heroin, because the effects of stopping after long addiction are very painful and disturbing.

To treat heroin addiction, some people take methadone. Methadone does not cause pleasant or unpleasant feelings, but it prevents withdrawal symptoms. People can gradually take less and less of it, until they are free of the addiction.

Section 1 Review

Diseases caused by micro-organisms or the environment come from outside the body; diseases caused by genetics happen inside the body. Sometimes these causes of disease influence each other. The environment can make it easier to get a disease caused by a micro-organism. For example, smoking (an environmental influence on the body) makes it easier to get pneumonia, TB, and other lung diseases. Some people are born with genetic features that protect them from malaria, but they need a lot more iron than others to stay healthy. Mental illness too can be caused by a combination of stress (an environmental influence) and genetics.

Most diseases that affect people before they are very old can be prevented. Just keeping hands clean by washing several times a day with soap can prevent most flu, colds, diseases that cause diarrhoea, intestinal worm infections, and even more serious diseases. Not every disease can be prevented. Of 10 people who get diarrhoea, five typically get it from their own hands after touching something with micro-organisms on it. The other five eat or drink the micro-organisms. Some people get the flu from their hands, but some breathe in the micro-organisms. When people are getting intestinal worms from their hands or from food, this is easier to prevent; but if they are getting the worm eggs from contact with earth or water, it is more difficult to prevent.

Health and long healthy life cannot be guaranteed, but there are many ways to reduce the risk of diseases. Some diseases are like accidents, for example some cancers just start inside the body by chance. But for many more diseases, include many cancers, it is possible to reduce the risk by avoiding smoke and eating a lot of fruit and vegetables. It is not hard to keep food and hands clean in your home. In reality, people are likely to eat at other people's houses, at markets, and in other places where there may be many micro-organisms in the food. Keeping clean at home reduces the risk of getting diseases that cause diarrhoea, but it does not reduce the risk of having diarrhoea to zero. It is also possible to reduce the number of mosquito bites and so reduce the risk of getting malaria, but it would be very difficult to reduce the number of mosquito bites to zero.

Keeping hands clean with soap, drinking clean water, eating food protected from micro-organisms, using toilets without flies, sleeping under bed nets, and using condoms greatly reduce the risk of getting common diseases. However, exposure to disease-causing micro-organisms cannot be avoided completely. That is why eating food with protein and micronutrients is also important to keep the immune system strong. Coping with stress well is also good for both physical and mental health.

With a strong immune system and good health habits, most diseases can be prevented. It is important to know what diseases are serious, and get the correct treatment for them quickly. Malaria is especially dangerous if treated with the wrong medicine, or if treatment is late. It is also really important for people with TB to get treatment and avoid infecting others. When people get full treatment will fewer and fewer people get infected.

A good immune system can deal with most micro-organisms, and a good coping system can deal with most stress. Some coping systems include family, religion, activities, friends, art, philosophy, love, or music, and there are many more. Poor coping systems lead to decisions which do not improve the situation. People who cope with stress by abusing alcohol or other drugs usually cause themselves more problems. They may need the help of friends and family to give up drugs and find healthier ways to cope.

Some issues that many people face as they grow up are: Deciding when to get into a relationship, what a relationship will be like, and whether to start a family. Although these are some of the most important decisions in life, many young people are not thoroughly informed when they face these decisions. Making such decisions under pressure and without being able to talk about them can harm mental and physical health.

With knowledge and a few resources, couples can decide if and when to have children. When both partners in a relationship can discuss and make decisions about such important issues, both will be stronger and happier as well.

With the knowledge of the causes of diseases, the ways they are transmitted and the ways they can be treated, people can improve their health by making choices in what they eat and do, and developing a few good habits. A few items including soap and bed nets may also be necessary. With knowledge, people also do not need to fear people with disease, as they did in the past when the causes and transmission of the diseases was not known. In the past, people stigmatised others partly out of fear and ignorance. This was bad for the mental and social health of both those who stigmatise others, and those who are stigmatised. The health of the whole community is harmed by stigma, and strengthened by support.

Chapter 1 Review

1. Make a mind map for the vocabulary words found on page 10.

2. Ko Tay had a fever, headache, and diarrhoea. The doctor prescribed Ciprofloxacin (Cipro), an antibiotic, and recommended that Ko Tay take 2 tablets every day for seven days. After 3 days, Ko Tay started to feel better. He decided to stop taking his medicine. Several weeks later, Zaw Min Htut had symptoms similar to what Ko Tay had.

a. Given the list of symptoms, what diseases might Ko Tay have had?

c. Was it a good idea for Ko Tay to stop taking the medicine after 3 days? Explain.

d. Should Zaw Min Htut take the medicine that Ko Tay had left over? Why or why not?

3. Split into groups and do the Diseases and Characteristics card activity – Appendix B. Your teacher will provide the cards. Each group chooses a characteristic by which you would like to classify the diseases, and places the 3 characteristic cards – 'most', 'somewhat' and 'least' in order across the table. Now place the disease cards in front of the correct characteristic card. Do this several times for different diseases and characteristics, and then discuss the results.

4. Find five people in your community and read them the story of Ko Tay and Zaw Min Htut. Ask them the three questions you answered above, and use what you have learned to explain to them why Ko Tay and Zaw Min Htut should not share medicine.

5. To review the vocabulary learned in this chapter, make a crossword puzzle in your notebook of all the vocabulary words. Trace the puzzle onto another sheet of paper, giving only the outline of the boxes, not the answers to the clues. Trade your clues and outline of the crossword puzzle with a partner. When you are both finished, use your original version to check your partner's answers.

Chapter 2 Review

1. What do the words dehydration and rehydration have in common? How are they different? Using the context of the paragraphs, what do you think 're-' and 'de-' mean? What do you think 'hydrate' means?

2. Diarrhoea is especially dangerous for young children. Why are young children more at risk than adults?

3. If an adult weighs 50 kg and looses 1 kg of water, what percentage of her body weight does she lose? If a child weighs 10 kg and looses 1 kg of water, what percentage of her body weight does she lose? How much water is one kg?

4. The ORT recipe calls for 1 litre of water, 6 teaspoons of sugar, and 0.5 teaspoon of salt. How much sugar and salt would you need if you wanted to make 3 litres? How much water and salt would you need it you only had 2 teaspoons of sugar?

Chapter 3 Review

1. There are four kinds of malaria. Can you get more than one kind of at the same time? Why or why not?

2. Can you cure malaria by using aspirin or paracetamol to lower the fever? Explain your answer.

3. Divide the class into two groups. Each group learns about dengue fever. One group presents ways in which dengue is similar to malaria; the other presents ways in which it is different.

Chapter 4 Review

1. TB appears in three different forms. What are they, and how are they different?

2. The three defences against TB are good hygiene, quick treatment of people with active TB, and good nutrition. Explain how each of these prevents TB.

Chapter 5 Review

1. Make a mind map of all the terms you know relating to HIV.

2. Is HIV different from other micro-organisms you have learnt about? In what ways is it different or the same?

3. Choose one part of your community (e.g., people in a certain kind of job, people of a certain age, people with certain habits, people in a certain condition) and think about what message about HIV/AIDS would be most important to give them. Make materials to educate or support them.

Chapter 6 Review

Keep a food diary for you and for one other person for three days. Write down everything eaten. It will be hard to know the exact amounts, so just estimate. When estimating weight, remember that one viss is 1.6 kilograms, so 10 ticals is a little more than 150 grams. One litre of water weighs one kilogram. Divide a litre of water into 10 equal parts, and you can see 100 gram of water. Whatever floats on top is lighter than water, whatever sinks is heavier.

1. Use the food tables to estimate how much protein, iron, and vitamin B_1 each of you ate.

2. Did either of you eat more than about five teaspoons of sugar per day? How much more or less?

3. Did you find that you wanted to eat differently while you were keeping a food diary? Did the other person? If so, how? Why do you think people eat differently or not when someone is keeping a record?

Chapter 7 Review

1. Interview two of the oldest men and two of oldest women in your community about how they got married. What did they hope for? Who made what decisions? What do they wish they had known before they married? How do they see things changing in the present? What do they think about the changes?

2. Analyse the issues that came up on the four interviews by gender. For example, in these relationships, did the boy and girl have equal ability to initiate contact? Did they have equal ability to decide whether to marry, or was there more pressure on one? Is gender still relevant in these issues today?

Chapter 8 Review

1. In small groups, interview someone who has overcome an addiction, or someone who knows someone who has, about the experience. This could be someone who quit smoking, cut down on drinking, stopped chewing betel, cut down on coffee, even someone who has stopped gambling, stopped eating sweets, or given up some other habit which was hard to stop.

2. Based on the interview, make a presentation to the class. The presentation can include the difficulties the person faced, how they overcame them, how many times they tried to stop before they succeeded, whether they got help and if so, from whom, whether they suffered from stigma at the time, whether they still feel they do, and what advice they would like to pass on to others. Do not name the person.

Further Reading for Section 1

Chapter 1

More information about the immune system:

http://nobelprize.org/educational/medicine/immunity/immune-overview.html

http://www.biologycorner.com/APbiology/pathology/immunology.html

Chapter 2

Latest advice on oral rehydration therapy: www.rehydrate.org

Household water treatment:

http://www.cawst.org/en/resources/pubs/education-materials/category/24-fact-sheets-simplified

General advice about water, sanitation, and diarrhoea:

http://www.hesperian.info/assets/environmental/Water_EN.pdf

History of cholera epidemics:

http://www.britannica.com/EBchecked/topic/114078/cholera/253250/Seven-pandemics

Chapter 3

SE Asia: http://www.searo.who.int/EN/Section10/Section21.htm

Thailand: http://eng.moph.go.th/SpecificHealth/malaria/malaria.htm

Shoklo malaria research unit: http://www.shoklo-unit.com/

Myanmar: www.rollbackmalaria.org/wmr2005/profiles/myanmar.pdf

http://www.searo.who.int/EN/Section10/Section21/Section340_4024.htm

Chapter 4

General information on TB:

http://www.who.int/mediacentre/factsheets/fs104/en/
http://www.tbsurvivalproject.org/FAQ/faq.html

Singapore on TB: http://www.hpb.gov.sg/diseases/article.aspx?id=586

Chapter 5

http://him.civiblog.org/blog/Myanmar

http://hivinsite.org/InSite?page=pb-00-00

http://www.undp.org.zm/joomla/attachments/004_dr07_youth.pd

http://health.ngoinmyanmar.org/2011/01/hiv-sexual-transmission-hiv.html

Chapter 6

www.who.int/nutrition/databases/en/

www.who.int/nutrition/topics/evidence_informed_guidelines_NHD/en/

www.nal.usda.gov/fnic/foodcomp/search

Chapter 7

http://health.ngoinmyanmar.org/2010/09/puberty.html

http://www.factsforlifeglobal.org/01/

http://www.plannedparenthood.org/info-for-teens/our-bodies-33795.htm

http://www.ashastd.org/

Chapter 8

http://simple.wikipedia.org/wiki/Mental_illness
http://www.psychologymatters.asia/article/40/state-of-mental-health-services-in-southeast-asia.html

SECTION 2: Community Health

Chapter 9: Community Health Introduction

Objectives

The learners will practice working for community engagement around health-related issues, using their data analysis from Section 1.

Key Words

access

advocacy

awareness

community

factor

participation

policy

social status

Good health means mental, physical, and social well-being, so communities need much more than doctors, nurses, clinics and hospitals to be healthy. The environment, economic situations, and social situations in the community affect health. Everyone is healthier when the whole community has understanding of and access to health promotion and disease prevention.

Before looking at community health, it is important to define 'community'. Because community health is linked to where people physically live and work, a **community** is defined as a group of people who live and/or work in the same area. This may mean that people of different ethnic backgrounds, different religions, and different social classes are all in the same community. Health has the same definition for everyone, and disease-causing micro-organisms act the same way in everyone's body, regardless of race, religion, or any other social factor.

Three key aspects of health promotion and maintenance in the community will be examined in this section: **access**, **community participation**, and **policy**. While each is important on its own, putting them together greatly improves community health. This section will discuss each of these categories in general, and the following chapters will give you more specific information about some major community health concerns in Myanmar.

Access refers to the supply and distribution of technologies and materials needed for health and safety. Examples of technologies and materials are vaccinations, clean water supply, disaster readiness plans, and latrines. Fair access for all members of all households in the community is important. In some communities, people do not think to give access to migrants, servants, illiterate people, alcoholics, prisoners, very poor people, or some other people. But when it comes to promoting community health and preventing disease, social status is not important.

Community participation is the involvement of the community is in protecting their own health,and the health of their community. It includes people from the community doing the health promoting activities, such as telling neighbours and family about health, encouraging community members, and having good health habits. It can also include advocacy from the local to the national level.

Student Activity

Discuss why It is important that all community members are aware of their **rights to access** and **to participate.**

Chapter 10: Healthy Communities

Objectives

The learner will demonstrate understanding of the link between individual health and community health by brainstorming ways to educate community members about disease prevention, and ways to educate community leaders about disease prevention.

Students should be able to explain the importance of community participation in health efforts.

Students should be able to raise awareness of health issues in their communities.

Key Words

arsenic
contaminate
disposal
heavy metals
hygiene
advocate
awareness
confidential
insecticide
judgemental
outreach
practitioner
voluntary
latrine
pollution
sanitation
ventilate
waste

As you learnt in Chapter 2, and probably know from personal experience, diarrhoea is not only unpleasant, and can make life difficult, but it can even be dangerous, especially for small children. You already know what to do when someone has diarrhoea, but how can you help prevent it? There are three main ways that communities can reduce diarrhoea-causing diseases.

The first is access to good toilets. The second is a supply of clean, safe drinking water. Finally, communities can encourage using soap and cleaning better.

The rest of this chapter looks at infectious diseases: those that are spread from one person or animal to another. Infectious diseases are dangerous for people of all ages, and most of the children and young people who die in Southeast Asia die of infectious diseases. When someone in a community gets an infectious disease, the whole community is at risk. In communities where diseases and their transmission is not well understood, there has been fear of people with diseases. Previous chapters covered malaria, TB, and HIV mainly as diseases affecting an individual and family. In this chapter, community, access, and policy will be more important.

10.1. Sanitation

Sanitation means managing all kinds of waste and the environment to decrease health risks. This can include:

- Safely disposing of human waste,
- Safely disposing of household waste,
- Reducing disease transmission in the environment, especially by supplying clean water.

Figure 44: A woman pumps water at a well

Figure 45: Hand washing with soap

Hygiene means promoting what that people can do for good health and cleanliness. It can include:

- Bathing and hand washing,
- Cleaning the home and compound, washing clothing and bedding
- Promoting food safety

Improving sanitation alone can reduce deaths from diarrhoea by 32%. Hygiene education and hand washing can reduce diarrhoea cases by as much as 45%.

Every community has ways to handle its waste. *Household waste*, such as plastic bags and empty packets, might be burned or buried. In cities, people pour water into the toilet to get rid of *human waste*, which is carried away by pipes. In areas with no pipes, latrines, or pit toilets, are a safe way to handle human waste. There will be more about latrines in the next section. *Animal waste* might be collected, or just washed away by the rain.

When a community starts to improve its sanitation, people will consider whether household waste disposal is safely far away from houses, water, and fields. They will think about how to provide every household that wants one with a toilet, and where to place toilets. When deciding where people will keep animals in a community, they will also think about where the water goes after a heavy rain, so that water from fields used by many animals does not go near the community water source.

Student Activity:

Name three types of waste that sanitation methods keep away from people.

How disease spreads

Most diarrhoea is caused by micro-organisms which can live in human and animal waste. They get into your body when a tiny bit of that human or animal waste somehow gets into your body. Here is one way it could happen. A cow has an infection which can also cause diarrhoea in people. The cow is in a field, and there is a stream that flows by the field. A boy drinks water from the stream, and so he also drinks in the micro-organisms that caused diarrhoea in the cow. Now the micro-organisms reproduce inside him. A few days later, his stomach hurts. He goes into the trees, and has diarrhoea. A fly comes along and puts its feet in the diarrhoea. Some of the micro-organisms stick to its feet. Next the fly lands on some food and a few of the micro-organisms from its feet stay in the food. The micro-organisms reproduce in the food, and by the time his aunt eats it, there are enough micro-organisms to make her sick, too.

This is not the end of the story. Even when the boy goes to the toilet, he can get a little of the diarrhoea on his hands. Will he wash well with soap, or just rinse his hands with water to get it off? Washing well with soap will remove the micro-organisms. If he only rinses with water, his hands look clean, but even though he cannot see the micro-organisms, they are still on his hands. These micro-organisms can then get on anything he touches next, like a spoon, a plate, or food. They can make the next person who eats from these things sick.

Student Activity

1. There are many points between the infected cow and the aunt where the chain of infection could have been stopped. Name three.

2. There are micro-organisms in each picture below but you cannot see them. Draw and label the micro-organisms in each picture. Write a caption for each of the following pictures. The first one has been done for you.

3. Look at the pictures above. Label three places in the sequence above where you could recommend procedures to prevent the transmission of the micro-organisms.

Arrows in between boxes indicating a sequence of events

Suggested answer—for student version, delete (microbe…) in boxes 2-5 and delete the subtitles under boxes 2-5.

1. Person Dipping cup into uncovered water and drinking (microbes in water)

Remove uncovered water from around your house. OR wash your hands before eating and drinking

2. Sick person(microbes inside the person)

People get sick when there are disease-causing micro-organisms in their water.

3. Inside toilet-diarrhea with fly (microbes on diarrhea and on fly's feet)

When flies land on waste, the micro-organisms

4. Fly on food (microbes on fly's feet and in food)

When the fly lands on food, the micro-organisms that are on its feet are transferred to food

5. Person eating (microbes in food and inside the person)

The micro-organisms can reproduce in the food

Community participation

Individuals may work to prevent illness in their family, but it is much easier to avoid getting sick if the community works together to prevent disease. If one family washes their hands with soap after every time they use the toilet, there will be fewer micro-organisms in their house and the family members will not get sick as often. But if others in the shops and neighbourhood are not washing with soap, the clean family may still occasionally get micro-organisms from the community. If everyone in the community washes their hands with soap after every time they use the toilet, there will be fewer micro-organisms in the whole community. People are not perfect in their hygiene, so fewer micro-organisms in the community is better for everyone.

Access

Some people might want to wash their hands with soap, and want use a latrine, but do not have access. In some communities, people are too poor to buy soap. Some community members may not live in a place with a toilet. Some also may not have easy access to clean water. But it is good for the entire community's health if *everyone* has access to toilets, soap, and clean water. Sometimes the solution is simple, like building more water stations throughout the community.

Often access is affected by social status. People with higher social status may be able to arrange for wells to be dug near their homes or shops, for example. But the health of all community members is interdependent. One of the best examples of this is in access to latrines. Latrines are not just for comfort and convenience. If some people do not have access to latrines, what can they do except go to the toilet in the river, the forest or the fields? The whole community will be affected.

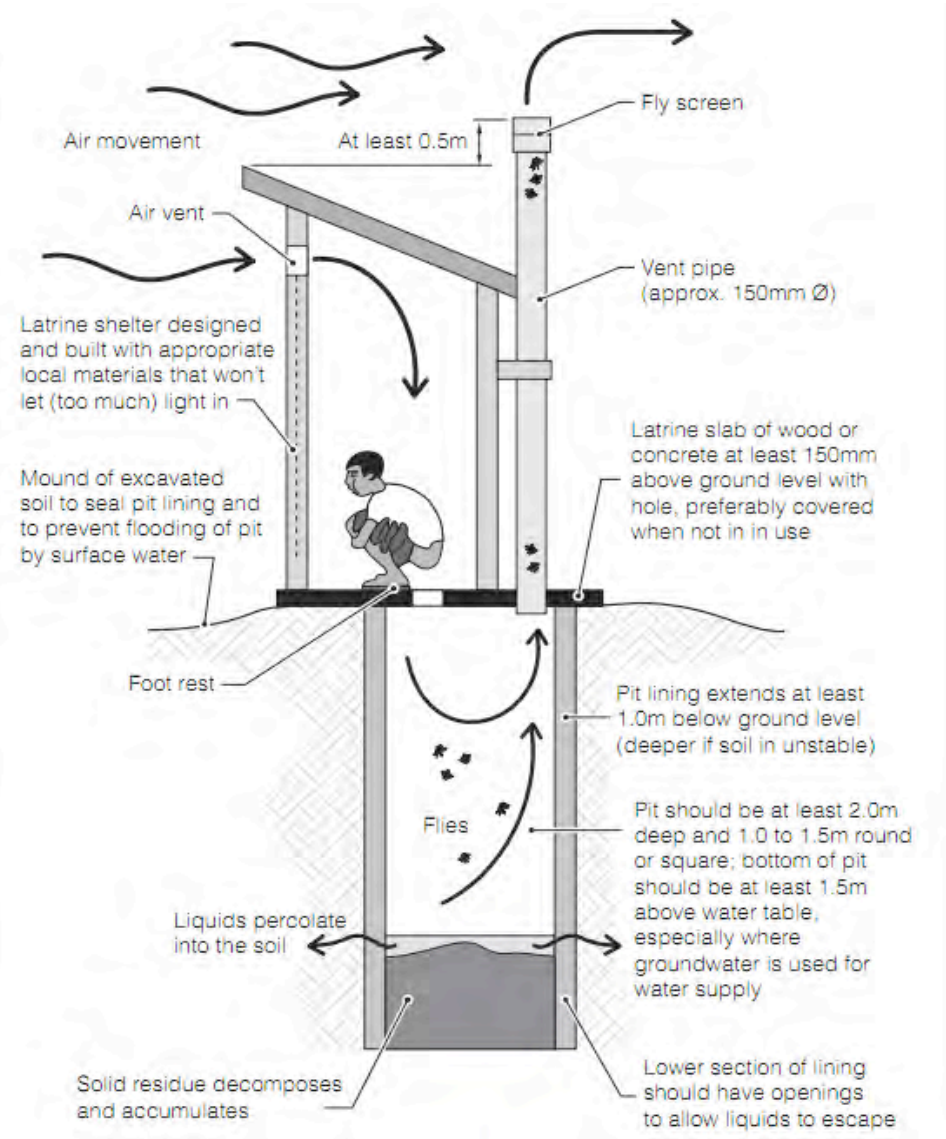


Figure 46: The 'VIP' latrine

How can the community ensure everyone has access to a latrine? Building latrines together is faster and less expensive. There may even be organisations like NGOs or the Red Cross that a community can ask for help or advice.

The community needs a design, PVC pipe, concrete, and toilet pans, and a small screen. Toilet pans can be made out of wood and bamboo if no others are available. The floor can also be made out of wood, if concrete is

not available, or is too expensive. The most important thing is the design. This picture shows a good design which does not allow flies to get out. It is called a 'VIP latrine', for 'ventilated, improved pit latrine'. '**Ventilated**' means that air flows through it. 'Improved' means that it traps any flies inside it. So, it does not smell bad, and flies cannot spread micro-organisms from the waste. Of course a well-designed latrine will also have a nearby place where people can wash their hands with soap after using it.

The community must make sure each household chooses a good site for the latrine, so the latrines do not affect any water supply. If experts come to give advice on latrine building, they can help advise on where to build each latrine. Latrines must be at least 30 metres (100 feet) away from any water which a community will use, like wells or streams. This is because water moves through the soil, and the micro-organisms in waste will move with it. As water moves farther through the soil toward a stream or river, the soil is like a filter, and after it has travelled about 30 metres underground, the micro-organisms are left behind in the soil.

Depending on the size of the community, it may be wise to build a few latrines for common use. Visitors and people without a household latrine can use these public latrines.

Student Activity:

1. What are two ways that well-designed latrines stop the spread of micro-organisms in the community?

2. Why is it important for every member of the community to have access to a latrine?

3. What if a household does not want to build a latrine? What should the community do?

Box 12: Snakebite!

One of the advantages of using a latrine is that you will never be bitten by a snake that you have surprised! But snakes move around freely and quietly, so it is hard to avoid them entirely. Not all venomous snakebites are dangerous to life, but many are.

The only cure for snakebite is an injection of anti-venom. This is different for different snakes. So, if someone is bitten by a snake, find out what kind of snake it was. If the snake is dead, bring it along. Do not chase it and risk another snakebite, and do not handle even a dead snake with bare hands. Without the snake, get the best description possible.

First keep the bitten person still. They should lie down with their head higher than the bite if possible. They need to stay still, not move around. The more they move, the faster the venom will spread. Squeezing or pressing the bite wound will also spread the venom faster. Leave it alone.

People are most often bitten on the leg or arm. Splint and bind the bite and surrounding area as you would a broken bone, or put it in a sling if that is possible. It should be firm, but not tight enough to stop blood flow entirely. Keep the bitten area lower than the rest of the body if possible. The person should not move the bitten part of their body. If the person has other problems, like trouble breathing, treat them as you learned in first aid demonstrations.

If the person is wearing a watch, ring, bracelet, or anything else restrictive that is near the bite, remove these. The area may swell and the item may be impossible to remove safely later.

Take the person to the nearest hospital or other place with anti-venom as quickly as you can. The person bitten should keep as calm as possible. If possible, someone should phone or go ahead to say that a person bitten by a snake is on the way.

There are many traditional and new treatments for snakebite. When tested by comparing results with anti-venom, none of them has been as good as anti-venom. Some, including cutting or puncturing the bite wound, make it worse.

Most people treated with anti-venom will recover from snakebite. But for the best and quickest recovery, it should be given quickly.

This is general advice for snakebite. If you want to learn more about snakebite, ask the Red Cross, public health office, or other health experts for more education. There are other techniques which can be a little better if you are sure you know what kind of snakebite it is. You should learn these directly from a trained health educator who knows the latest research.

Policy

To ensure sustainability of the sanitation system, it is necessary to have some community agreements in place before anything becomes a problem. A community and its leaders need to decide the answers to questions such as: Who will clean a community latrine? Who will be responsible for putting soap in public latrines? How will the community pay for the building materials and cleaning supplies? These questions and others should be answered *before* any building starts. Otherwise, conflict can occur in the community.

Student Activity:

Why do you think it is important for communities to make all decisions about maintenance and funding before opening a new latrine or water system?

10.2. Water

Water is essential for life. The average adult needs to drink about one and a half litres per day to stay healthy. To stay healthy, it is important to drink only clean water. For health, clean water means more than just water that is clear and has a good taste. No one can taste a few micro-organisms in the water, but they can still make people sick. Clean water does not have *any* human or animal waste, heavy metals or fertiliser chemicals in it.

Access

Everyone wants clean water, available close to or inside their home. In some communities, getting the water is the main issue, as the water source is far away. In others, there are water sources, but they are not clean enough to drink. In many places, each household gets their water at the same place and purifies it by boiling or some other method. But it is better for everyone if the community has a supply of water that is clean enough to drink. It is also much less expensive if the whole water supply can be treated or protected at once.

A water supply system for a community is quite a large project. Some good ways to get very clean water for a village, neighbourhood or town are:

- tube wells,
- collecting water from a clean spring in a place where it is protected from animals, leaves, fish, etc,
- filtering pond or river water centrally,
- hand-dug wells with concrete rings, treated with chlorine at least once per year.

Box 13: Really clean hands

Water only washes off the dirt you can see on your hands — but the tiny pieces of dirt that you cannot see can make you and others sick.

Always wash your hands with soap when you leave the toilet, before you prepare food, after you prepare food, before you eat, before you give someone else food or drink, and after you touch or feed animals. It is also a good idea to wash your hands with soap as soon as you get to home, work or school.

People who wash their hands frequently get diarrhoea, colds, and flu less often than people who do not wash their hands.

Some communities are too poor or too remote to buy soap. There is no need to buy soap from the town if there is a local soap. In some places, people can make soap from acacia and bark; in others, there is a soap fruit. There are other local soaps as well. If none of those are convenient, ash also will serve for hand cleaning.

There is no need for antiseptic soaps for hand washing. The dirt and with it the micro-organisms are washed away with the soap, they are not killed on your hands. Wash with any kind of soap — the most ordinary kind will do, as long as you wash your hands.

Which way is the best depends on many local factors. Deciding where to put the water source and what kind of water source to have are complicated decisions which the community can make together. Before beginning, the community may want to ask a local expert, the health department, or an NGO for help in making the best decisions. Some things to think about include:

- the area around a well should be protected with a brick, stone, or concrete area, and the well should be covered,
- the water supply must be away from any latrines, waste collection sites, or other waste,
- if there is a tap, it is worth investing in a really good tap, because the cheap ones break quickly,
- if the community is digging a well, the well should be located in a place that can be accessed by the largest number of people. It should be located on public land, not on private property,
- people must be able to get water without contaminating the water supply.

Another local factor to consider is the quality of the water before it enters the community water system. To be sure that the water for the community is really clean enough to drink, it is important to test it after the system is completed, and to test the water in homes. If it is not surface water, it should be tested for heavy metals such as arsenic, as well as for micro-organisms. Heavy metals are found naturally in the earth. They cause harm slowly, over years. Testing is not easy for a community to organise by itself, but the community may be able to ask NGOs or the health department to test the water.

Student Activity:

Think back to what you know about how diseases are spread. What is a cheap easy way that a family could treat their water to kill the micro-organisms that cause disease? Would this method

be useful for removing heavy metals from the water? Why is this not a suitable method for the whole community?

Community participation

Once a community water system is in place, it is necessary to maintain it. Some things community members do to help keep the water supply in their community clean include:

- Keep animals away from the water supply.
- Cover the well after getting water.
- Keep buckets, containers, and hands from touching the water where it is collected or stored. This means that there should be a good tap, a separate bucket that never touches the ground, or another way to get the water into pipes or household containers.
- Keep containers used for carrying and storing water for a household separate from containers used for other purposes. Drinking water containers should not be used for watering the garden, giving water to animals, cleaning, or storing other things.
- Containers should be cleaned with soap and water, rinsed, and if possible dried in sunlight in a place which is not dusty.

Figure 47: The women in this photo are in danger of contaminating their water supply with any micro-organisms that are on their individual buckets

Student Activity:

What would you recommend if you were in a community where people got water by dipping buckets into a shared source of water?

Policy

What happens if the water system needs repair? Taps can break easily if not handled carefully. Who will replace broken taps? Who will maintain a pump? Who will make sure the water is tested, especially when the rainy season begins? All of these questions need to be answered in order to keep the community healthy. The community and its leaders should work with a trained public health worker to answer these questions and others *before* the system needs repair and *before* the water system is due to be tested again. By making arrangements before problems occur, the community can avoid conflict and keep working together to prevent disease.

Student Activity:

Think of three other issues related to 1. Community water supply, and 2. Community sanitation, that need to be decided on before they become a source of conflict.

10.3. Community mental health promotion

When some people in a community have poor mental health, it is difficult for the entire community. Mental illness can result in aggression, depression, addiction, and other mental health problems. Prevention of mental illness is not as direct as prevention of infectious disease, but there are steps communities can take.

The root causes of mental illness are not always clear. For some people, it may start with their experiences as children. People who experienced violence as infants and young children are much more likely as adults to have major mental illnesses than those who experienced a safe childhood. Children do not suffer from violence only at the time it happens, but some will later suffer from depression, anxiety disorders, and drug abuse or dependence because of the violence. What is particularly sad is that they are also more likely to be aggressive and use violence against others. It is very important that even if children grow up in a violent environment, they

should not experience violence from their family. The trust and love of a family can protect children from future mental illness.

When we look at people and societies with more and less mental illness, we see some differences. Communities with better mental health:

- support children, for example by skills building and child-friendly schools,
- give nutritional support where needed,
- have child and youth development centres, for children who do not go to school, or time out of school,
- have educated women with job and business opportunities,
- give social support to their older people,
- have safe and healthy housing,
- prevent violence and support victims of violence,
- have a strong community spirit.

Student activity:

1. How is mental health related to access? Who needs access to what? What is the result when some people do not have access?

2. How does your community compare with the list of factors above? What does your community provide for children? What is still lacking? Collect examples of each of these issues in your community, noting whether it is positive, negative, and if there is any trend to becoming more or less child friendly.

10.4. Malaria and Community

The key to preventing malaria is to stop people from being bitten by mosquitoes carrying malaria. This can be seen as having three parts: fewer mosquitoes, the mosquitoes not biting, and mosquitoes not having malaria. From an individual point of view, the easiest to affect is the mosquitoes biting. Sleeping under a bed net, using mosquito repellent, and burning mosquito coils are ways to prevent mosquitoes biting. Having bed nets with insecticide, and using an electric mosquito killer also reduce the number of mosquitoes somewhat. To reduce the number of mosquitoes more, individuals can empty standing water in their area, and tightly cover any water containers, or keep fish in open water containers and pools.

The community can do more to reduce the number of mosquitoes. One family can only reduce the number of mosquitoes living right near their home, but mosquitoes can come from all over their neighbourhood. A community effort to drain and cover standing water will reduce mosquitoes much more.

Community education does not stop with standing water. Many people who get malaria think that their symptoms are caused by something else. They might believe they have a different disease, or that their fever and other symptoms are caused by something they ate, or something they did, such as bathing at the wrong time. Information they get from their family and friends who have learned about malaria is important. Family and friends increase access to information. With this information, they can decide to get a blood test to find out if they have malaria, and to get the correct treatment if they do. While they have the malaria micro-organisms in their blood, mosquitoes that bite them can pass malaria on to other people. So, the sooner they get treated, the better for their community, as well as for them.

Student Activity:

1. What are the most important parts of malaria prevention and treatment?

2. Malaria used to be a major problem in Europe and North America. These areas still have mosquitoes, but not malaria. How do you think malaria was stopped in these areas?

3. Can a community affect access to malaria testing? How?

10.5. TB and Community

Anyone can get infected with TB, but it is more dangerous for some kinds of people. TB is more dangerous for children, partly because they are more likely to get TB outside of the lungs, which is harder to diagnose. The side effects of TB medicines may be more harmful to children as well. TB is also more dangerous for people with weak immune systems, including people with cancer and HIV. The best way to prevent TB infection is to by involving the community. People need to be tested and treated as quickly as possible Where there is access to free treatment, people get treated earlier, and so spread micro-organisms to fewer people.

The World Health Organisation (WHO) and NGOs support access to free treatment for people with active TB. In countries without a national health insurance system, access to treatment for diseases is usually a private matter. But in the case of TB, private health care results in much more TB, so free TB treatment is one way to promote rapid treatment. But even when treatment is free, it is not simple. Access to treatment is not enough. Treatment for TB takes months, and it is hard for people to remember to take all the medicine at the right time for so long. However, if they do not, TB becomes resistant to the medicines.

To prevent resistance, WHO programmes use Directly Observed Therapy, Short Course (DOTS). In DOTS, an independent observer gives TB patients their medicine for the first two months, and watches them take it. The independent observer does not have to be a health worker. It could be a community leader, a volunteer, a teacher, Red Cross member, or anyone who is not close friends or family of the person taking the medicine. Patients are more likely to take all the medicines at the right time when someone is waits to watch them.

Figure 48: DOTS poster, Myanmar

The DOTS strategy is now working in 134 countries around the world, including all the countries of Southeast Asia. Community involvement is the key to the success of DOTS. The community must not stigmatise people with TB, or people will hide their illness. Trusted community members help spread information about DOTS so that everyone in the community can understand and help to support people in their referral and treatment.

Student activity:

Think about DOTS from the community health perspective. What are the access, participation, and policy elements?

10.6. HIV and Community

Most people who have HIV infection do not know they have it. Not knowing they are carrying HIV, some transmit it to others, and some wait very late to start treatment for their HIV. Reaching people who unknowingly have HIV is an important part of treatment and prevention for a community. Some organisations, like clinics, usually wait for people to come to them. But some reach out to the community, trying to contact people who might not otherwise come to them.

In the case study below, look at how community attitudes of acceptance of differences, non-judgmental attitude, and co-operation of people with different ideas resulted in a successful project. The staff at the clinic in this case study have a biological understanding of HIV/AIDS — they understand that it is caused by a micro-organism that slowly destroys the cells of the immune system. The traditional health practitioners had a very different view of the disease, according to their traditional understanding of health. Although the traditional practitioners cannot treat HIV effectively, people who go to traditional practitioners when they are sick do not know they have HIV, and they go to the traditional practitioners first. The clinic had effective HIV treatment, but could not reach many of the unknowingly HIV-positive people who needed it. Instead of rejecting the traditional practitioners and their ineffective treatments, the clinic tried to co-operate with them to find out who was HIV-positive and offer them treatment. The clinic staff recognised traditional practitioners as valuable members of their community.

Case Study: HOPE Cape Town Project

In October 2005, The HIV Outreach Programme and Education (HOPE) project at Tygerberg Hospital in Cape Town, South Africa launched a pilot project to try include traditional health practitioners (THPs) in their HIV/AIDS prevention and treatment programme. South Africa suffers from an HIV/AIDS epidemic. At the end of 2007, there were about 5.7 million people living with HIV, and about 1000 people dying of AIDS every day. The project had three main goals:

- to encourage THPs to cooperate with doctors and refer patients,
- to encourage THPs to support their HIV-positive patients in taking HIV/AIDS medicine,
- to request THPs' help in persuading more men to take HIV/AIDS tests.

Nine THPs were asked to work with five HOPE Community Health Workers in five poor townships near Cape Town. They received a 6-week training course in biological understanding of HIV/AIDS and its treatment, which included advice on combining HIV medicine and traditional remedies.

At first, the results were disappointing. Six of the THPs dropped out of the project. However, the remaining three THPs continued to co-operate with HOPE. They referred 80 people to HOPE clinics in the first 18 months of the project. As leaders in the community, the THPs became advocates for testing and treatment, and counsellors for sexual health, parenting and relationship issues. They encouraged frightened patients, accompanied them to the clinics for testing or treatment, and supported them in taking their HIV/AIDS medicines.

The THPs also provided help to children and young people. They gave advice and support to children caring for parents with HIV/AIDS, and supported and even adopted orphans whose parents had died of AIDS. They became an important source of condoms for young people in the community. Although young people could get free condoms at clinics, at the clinics they were often seen in a disapproving way by staff.

Young people appreciated the non-judgemental attitude of the THPs and were confident that information concerning their sexual relationships would remain confidential.

As it was the first time that this kind of cooperation between THPs and clinics had been tried in that community, the HOPE project faced several difficulties. However, the project was also successful in many ways, and showed the potential benefits of different forms of health care working together. The project continues to work closely with THPs to provide better HIV/AIDS prevention and treatment services to the people of Cape Town.

Student Activity:

1. Read the case study and prepare five questions about the information for other groups.

2. How did lack of respect and stigma prevent access to effective HIV prevention?

3. Are there traditional healers in your community? Do you think that traditional healers and doctors could cooperate in your community? How?

10.7. Immunity and Community

The immune system learns about a disease through being exposed through vaccination, or by getting a disease. Once the immune system has been exposed to a micro-organism, it can find and kill micro-organisms causing that disease so quickly that no infection develops. This is individual immunity, the immunity of one person. However, there is another kind of immunity that depends on a community. Each person is different and conditions for vaccination are not always perfect, either. One result is that not every vaccination will successfully give full immunity to every person who gets it. However, individual immunity is not the only kind. A community can also have immunity. Even if a few people are not immune to a disease, being surrounded by many people who are immune can protect them.

Each disease has a rate at which it spreads, which depends on how many new people on average catch the disease from a person infected. You calculated this in rate the TB chapter, where it is known that each person on average infects 10-15 people per year. When a lot of people get the disease at the same time, there is an epidemic.

Diseases can die out in a community, or continue to infect new people. If the number of new people infected in a community is small, the disease will disappear from that community. If it is large, there is an epidemic. Some infectious diseases can be transmitted to a lot of people easily, like cholera. Others do not spread as easily, like hepatitis C. Each has a different average number of new people infected by someone who has the disease.

Let's make an example of a disease we will call Y that lasts for 10 days, where the average infected person infects 10 new people per day. In a community of 1000 people, how many days will it take to infect all of them with Y, if everyone is exposed every day? On day 1: one person, who infects 10 = 11 people infected. Day 2,

11 people each infect 10 people 11 x 10 = 110, plus the original 11 = 121. 121 people each infect 10 people = 1210, so almost the whole community will be infected in 3 days if no one is immune to disease Y.

Try this again if 90 percent of the community is immune to Y. That leaves 100 people of 1000 who are not immune to the Y. Day 1: one person, who infects 10, so 11 people. Day 2: 11 x 10 = 110, plus the earlier 11 = 121 people, So by day 2, everyone who can get infected is infected.

If someone brings Y into this community *again*, they are not likely to meet anyone who is not immune to Y. There may be a few people in the community who are not immune, but the people with Y are not likely to meet these people within the 10 days of the infection. The people who are not immune to Y are protected by all the people who are immune. This is easy to see when you use a grid where each box represents one person.

Student Activity

Get or make graph paper, and mark out a grid of 30 x 30 squares. This represents a community of 900 people with each square representing one person. Now, choose one square anywhere on the grid. Suppose that there is a disease which infects one out of three contacts that are exposed to it. Each square away from the edges is surrounded by eight other squares. Start anywhere, and count through the squares surrounding your starting square (the infected person), marking every third square (infected contact). Each infected person can infect other people for one round only, so now count through the squares surrounding the newly infected people. Squares which have already been marked are immune. They do not count as contacts. Go through as many rounds as you need to, until no more people are getting infected. Count continuously, not starting over with each infected person. Each contact is exposed only once per round, but may be exposed again on the next round.

Look at your grid and answer questions:

1. Are all squares marked, or are there squares which were never marked?
2. Will it take all the students the same number of rounds to get to the point where no more people are getting infected?
3. Was the number of new people getting infected the same each round all through the exercise, or did it change?
4. How would it be different if two out of every three people were infected?
5. How would it be different if one of out every six people were infected?
6. How would it be different if you start with five infected people, and one in every 12 people is infected?
7. How would it be different if the five were all next to each other, or spread throughout the community?
8. How would it be different if people could continue to infect others for three rounds?

10.8. First Aid

Part of living in a healthy community is having people available who know what to do in an emergency. If someone has an accident, it is good to be able to provide ‘First Aid’ to help them until they can get proper medical care.

You should have done some first aid training with your school or organisation. There is first aid trainng available from the Red Cross. Take some time to review what you know about first aid and remind yourself of what to do in an emergency.

In any kind of accident, or when you find someone unconscious, what are the first things to check?

Chapter 11: Child Health

Objective

- The learner will be able to explain why children are more at risk then adults for health problems.
- The learner will be able to apply knowledge and data from section 1 to children's health.

Key Words

eradicate

immunisation

intestinal

potenial

11.1. Introduction

Children are the future of society. All children have the same value to society, regardless of their ethnicity or who their parents are. The way children are cared for today, by their parents and by their community, will determine the future of the community and of the society.

"Much of the next millennium can be seen in how we care for our children today. Tomorrow's world may be influenced by science and technology, but more than anything, it is already taking shape in the bodies and minds of our children." **– Kofi Annan, Secretary-General of the United Nations**

Why is focusing on child health important?

The world community has recognised that children need special care and protection for several reasons. First, children are physically weaker than adults. Poor living conditions, such as a lack of healthy food, pollution, and poor sanitation, harm children more than adults. Because children's bodies are still forming, deficiency or illness may affect their health and potential for their whole life. Second, young children are dependent on adults to take care of them. Even when children are old enough to say what they need, they often must ask adults for help. They get money, food, medicine or whatever they need from adults. They are not socially or physically strong. For these reasons, children's mental, physical, and social health must be addressed by adults in the community.

Student Activity

1. Name two deficiencies or diseases and their long-term effects on children as they are different from adults.

2. Children need access to many of the same things adults do in order to stay healthy. Look back at Section 1, and make a list of things you think children might need access to.

Figure 49: (From UNICEF website) Families have the primary responsibility for raising children

Access

This chapter will focus on three things that all children need access to: enough healthy food, good medical care, and safe spaces. To be physically healthy, all children need to have enough healthy food and good health care. Because their bodies are smaller than adults, an poor diet or an untreated disease has more effect on children than on adults. To be mentally and socially healthy, all children need safe spaces to play and learn. In these spaces, they learn to interact with other children their age as well as learn school subjects and community

culture. It is a community responsibility to make sure that all children have access to the things they need, including healthy food, good medical care, and safe spaces.

Community participation and policy

The Convention on the Rights of the Child is the most widely accepted human rights document in the world. It has been accepted by all but two countries in the world. Governments have committed themselves to protecting and ensuring all children's rights. "All children" is an important part. It does not matter what their ethnicity is, who their parents are, or where they live, all children have the same rights. Some governments are farther ahead in achieving this goal than other governments. For a government to achieve the goal of ensuring all children benefit from their rights, each community must work to ensure that all of the children in their area have access to enough healthy food, good medical care, and safe places to learn and play. Government or community leaders can make policies to improve the health of children, but in the end it is the community that takes action to protect and encourage children.

11.2. Healthy Food

Children are more at risk of not getting enough healthy food because their bodies are smaller, which means a lack of nutrients in the diet will have more of an effect on children than on adults. Also, children are dependent on adults to provide and cook food for them. Children must accept whatever food they are given, even if it is not healthy. They depend on adults to make wise decisions for them. This means that adults who take care of the children must know what foods are healthy, must have the resources to get and prepare these foods, and must be willing to give the food to the children.

Figure 50: Children receive food in a refugee camp

Almost all children get infections during their first years, and some get very ill. About one child in ten in Myanmar dies before the age of five. In many cases, the difference between the children who get sick and recover and the children who die is poor nutrition. Many children do not get enough protein and micronutrients, and the deficiency weakens their immune system. Malnutrition contributes to about half of childhood deaths. A disease that a well-nourished child could survive can be too much for a child who has not been eating well.

Breastfeeding is recommended for all babies for the first 12 months. From birth to six months, health experts recommend only breast milk—no solid foods or liquids, not even water. After six months, a baby's body is ready to for solid food, but some breast milk is still recommended until the baby is one year old. Babies who are not breastfed for at least six months are more likely to get sick. Breastfeeding also has health benefits for the mothers.

Table 5: Children's nutritional requirements

Nutritional requirements for by sex and age (WHO)				
Child, age	Protein g	Iron mg	Calcium mg	Vitamin C mg
Infant, 0-6 months	13	6	400	30
Infant, 6 months – 1	14	10	600	35
Child 1 – 3	16	10	800	40
Child 4 – 6	28	10	800	45
Child 7 – 10	28	10	800	45
Boy 11 – 14	45	12	1200	50
Girl 11 – 14	46	15	1200	50
Boy 15 – 18	59	12	1200	60
Girl 15 – 18	44	15	1200	60

When babies start eating other food, it must be high in micronutrients. A recent survey found that 80 per cent of children under the age of two in Myanmar did not have enough iron. This was partly because of worms (see Box 16) and partly because of low iron in the diet of mothers and children.

Student Activity:

1. Why are children more at risk than adults of not getting the amount of healthy food they need?

2 Look back at Table 3 and Appendix C. For each micro-nutrient listed, name a food that you commonly see children in your community eating. Are there any micronutrients that children in your community do not usually eat?

3. Look back at the data collected for the Section 1 'healthy habits' project. Were there any days when you did not eat a completely balanced diet? If so, why was that? What do you think the effect of an unbalanced diet has on children? How can you use this data to help design an education campaign for adults to teach them the importance of eating healthy food for themselves and for their children?

4. Talk to three mothers about the kind and amount food they feed or fed their children before the age of two. What kinds of foods do they avoid? Estimate using similar food from the Table 3 and 5 whether the children get enough nutrients from the food. Propose kinds and amounts of food that will give children adequate nutrition, and be acceptable to mothers. How do these relate to the food kinds and amounts given to the children?

Box 14: Intestinal worms

Some of the few parasites that are large enough to see are intestinal worms. There are a number of different worms that live inside people and animals, like roundworms, threadworms, pinworms. They are not related to earthworms. Each is somewhat different, but generally, we eat the eggs of a parasitic worm, which then hatch in our intestines and start eating our food, interfering with our digestion, and making our intestines bleed. Some eggs can be breathed in, some can go through the skin from water or from the ground (which is why walking barefoot is not a good idea), but the most common way of getting infected is from one's own fingers, from food, or from water which is not clean.

Worm infection is very common, especially in children. Fortunately there is a good, cheap medicine which is effective. Studies in schools show that attendance at school improves after children are de-wormed, and children grow taller, remain healthier, and get better marks after worm treatment. However, they often get worms again, so usually treatment is given twice per year.

Think of three ways to lower the risk of worm infection.

11.3. Good Medical Care

Good medical care includes both preventing disease and treating of disease. There are two parts to this: keeping micro-organisms from entering the body or make sure the body has the resources it needs to kill the micro-organisms if they do enter the body. To keep micro-organisms from entering the body requires good sanitation, including washing hands with soap, a clean toilet, and using clean water for drinking and cooking. The immune system is strengthened by good nutrition. Some diseases can be prevented by immunisations, too.

Immunisations teach the immune system attack disease-causing micro-organisms quickly. This can prevent illness or make the disease milder. People need to have most immunisations before the micro-organism enters the body so they can protect the body from attack. This is why it is important for small children to get immunised before they are exposed to disease micro-organisms. There are different immunisations for different diseases, and not every disease has an immunisation. Some immunisations protect for your whole lifetime; others need to be given again every few years.

Student Activity:

1. Name two things that are important for good medical care.

2. What immunisations have you had? How do you know?

Box 15: Eradication - Making diseases disappear

Think about illnesses with different causes. Some are caused by infection, some develop in the body, some are caused by a lack of something, or too much of something. If you are trying to make a disease disappear, never to appear again, which kinds of diseases could that be possible with?

When a disease is entirely removed from the whole world, we say it has been *eradicated.* To eradicate a disease takes a world-wide effort, and decades of concentrated work. They key to successful eradication has been immunisation. When many people are immune to a disease will it not be able to infect them, and it will die out. Once there is no one in the world who has the disease, immunisation for that disease can stop.

The first to be eradicated was smallpox. Smallpox killed about one of every five people who caught it. Smallpox epidemics were feared, and many survivors were scarred or blind. There was no effective treatment once infection was established, but smallpox could be prevented by vaccination. A long and careful vaccination campaign prevented people from getting the disease. The last person to catch smallpox outside of a laboratory was in Somalia in 1977.

The second disease that was eradicated was a disease of cattle called rinderpest. The last known case was in 2001.

Polio is another disease that has caused great suffering and death. Polio has been greatly reduced by vaccination, and may soon be eradicated. About 350,000 caught polio in 1988, and these people were in most of the countries of the world. Twenty years later in 2008, polio was found in only four countries, and only 1,652 people were infected. Consistent vaccination can eradicate polio as well.

There have been efforts to eradicate malaria, as malaria causes so much harm. But as many wild animals can also be infected by the malaria parasite, it may be impossible to eradicate.

There have been efforts to eradicate leprosy, but because in rare cases people can get active leprosy up to 30 years after they were exposed, it will be difficult to be sure it has entirely disappeared. Also, one kind of wild animal, the armadillo, can carry leprosy, so people could get re-infected from animals.

11.4. Safe Space

A safe space is any space in the community where children can play together and learn together without the threat of outside harm. The safe space should be surrounded by a fence or wall to protect children from outside harm, including recruitment into gangs or militaries. The safe space is a place for children to get away from any violence in their homes or community. It should be supervised by a trusted adult, to keep the children safe and help them learn how to play and learn together. There should be no stigma in the safe space. All children should be treated equally, as is their right. For older children, school is a safe space during the week. During the weekends, after school, and all day for younger children, communities need to provide a safe place for children to spend time.

Student Activity:

1. How does a safe space for children relate to mental health in the community?

2. Think about your own community. Does it have a safe space for children? If so, are there rules about who can use it and how it can be used? Are these rules written down so everyone can see them? If your community has a safe space for children, then ask people in your community what they think the rules of use are. Include who can use it, how can it be used (and not be used), when can it be used, where are the boundaries of the safe space. Also include why community members think the space is important for your community.

3. If your community does not have a safe space, write a paragraph about why you think it is important. Make up the rules for use, including who can use it, how can it be used (and not be used), when can it be used, where are the boundaries of the safe space. If you decide to share this with your community, be willing to change some of your rules after you listen to their discussions.

Chapter 12: Accidents and Disasters

Objectives

1. Students will determine what kinds of disaster can happen in their community, and know what to do in case of disaster.
2. Students will apply knowledge from sections one and two do a disaster setting.

Key Words

first aid

disaster

harass

shelter

transparent

Box 16: Save a life - Float

Falling in the water is very frightening if you do not know how to swim. Drowning is the most common cause of accidental death in Myanmar. Almost all people who fall into the water can survive, even if they cannot swim. That is because even without being able to swim, almost everyone can float for many hours.

If people who fall in the water have no injury, if they know how, they should be able to float until they can climb out of the water, or until someone can save them. Most people who drown, drown because they become too frightened, breathe out the air in their lungs, and sink below the surface. But almost everyone will float if their lungs are full of air.

When people who cannot swim fall into the water, most of them want to stay upright, and keep their head out of the water. But although people float if their lungs are full of air, they float low in the water. A person floating upright will have just the top of their head out of the water, not the face. But if you lie on your back with your arms and legs out, it is your nose that will be out of the water. In still water, this is a good way to float. But if there are waves, they will get in your nose and mouth.

So the best way to float in most situations is face down, like in the picture. Raise your head whenever you need to take a breath. Take breaths more often than usual, even if you do not need to yet, because sometimes when you are trying to get a breath, a wave might be coming. Keep your lungs full of air. The most important thing is to try to stay calm so you will float.

[Needs illustration: person floating upright, with water level near the crown of head; person floating face down, with arms and legs relaxed and face in water; person floating in nearly same position, but with head up taking a breath]

12.1. Health in Disasters

A disaster is when something unusual harms or kills a lot of people. So even though the number of people who die in road accidents every day will total more than those who die in a train crash, we call a train crash a disaster because it happens rarely, and affects a lot of people at once. Some disasters happen only once every fifty or one hundred years, so people may think of them more as a story from the past, instead of a danger that could happen again. But if a disaster has happened once, even a long time ago, it can happen again.

There are different ways to categorise disasters, for example, man-made or natural, slow or sudden, affecting mainly separate individuals or affecting whole communities, preventable or not preventable, predictable or unpredictable.

Student Activity:

1. Name seven kinds of disaster, and then think about different categories to put them in.

2. How many ways can you think of to classify disasters? Do all disasters fit exactly in one category or the other?

3. Can disasters be prevented? Pick two, and explain.

4. What kind of assistance will affected people need after these two kinds of disaster?

One of the ways you can categorise disasters is:

- disasters that can happen in my community
- disasters that cannot happen in my community.

Some disasters can happen to anyone, in any community, but the disasters most likely to happen in each community are different. There are whole areas of the world with no earthquakes. Tornadoes happen only in certain weather zones.

Some disasters can be prevented. However, few can be prevented by individual action. Most need a community to prevent them. This could be a community of people living together, a working or business community, or a political community. Some, including earthquakes and tornadoes, cannot be prevented, but preparation can make the consequences less severe.

Some preparation is practical, like storing extra drinking water, or having a way to purify water. Some preparation is mental, like having learning first aid, and having a plan for what to do and how to contact people to warn them or meet after a disaster.

Student Activity:

Does your community have a plan for disasters? What kinds of disasters are covered? What should each individual do to prepare? What should each household do? What should the community do? Apply your knowledge from previous chapters to a disaster situation. Consider sanitation, clean water, prevention of infection, prevention of resistance, protection of child health, and support for mental health.

12.2. Clean Water and Sanitation in Disasters

What parts of what you learned about water and sanitation are most important in a disaster? In many disasters that affect a whole community, clean water and sanitation are needed within hours, and community members should start working on these issues immediately.

The cleanest water in an emergency may be rainwater. Rainwater as it falls is usually very clean, but it can easily become contaminated during collection, storage, and distribution.

Student Activity:

Use your knowledge of infection control to design safe rainwater collection and storage. Explain at what points contamination might happen, and how to prevent it.

If there is no rain, there may be a choice of sources for water. Generally, uncontaminated well water (wells that have not had any external water or objects enter them) is cleaner than running water (from a stream or river), which is cleaner than standing water (from an open reservoir, outdoor storage tank or pond). Start with the cleanest water, and try to purify it further if you think it is necessary. Before purification, the water must be clear. You can wait for it to settle, or make a filter out of layers of clean cloth as explained in Chapter 2.

Box 17: The Dead

After a major disaster such as earthquake or flooding, there may be many bodies of dead people. Survivors naturally have two concerns about them: a fear of disease, and the need to identify the dead.

One of these concerns is misplaced. Contrary to fears, dead bodies do not spread disease. Disease micro-organisms in the bodies die soon after the person does. There are a few exceptions: immediately after death, Hepatitis C or HIV in blood may be able to infect someone if there is blood-to-blood contact. The TB micro-organism in lungs may also survive for a time after death, and may come out with air that comes from lungs when a body is moved. Therefore faces of bodies should be covered before they are moved, and blood contact, as always, should be avoided. Sprinkling lime on or around bodies is not recommended. Lime can blind or injure the people handling it, and it does not prevent infection.

In general, it is the survivors who will spread diseases after a disaster, if there is no clean water, good sanitation, immunisation, and infection control. After a disaster, saving the survivors must be a priority. Time, effort, and money spent on burying or burning the dead is not available to the survivors.

Identifying the dead is also important. Not knowing whether someone is alive or dead is much more difficult for people who loved them than knowing for certain. If bodies are buried together or burned, it may be impossible to identify them later. The best way to deal with the bodies will depend on local circumstances. Normally bodies are collected in one place away from the survivors. For bodies which cannot immediately be identified, notes should be kept, including clothing and items they had with them that may help with identification.

Diarrhoeal diseases can spread quickly after community disasters which destroy infrastructure, especially if sanitation and disposal of human and animal waste is not quickly arranged. If toilets are not usable, it may be possible to use plastic bags, arranged on a frame or bucket. Dispose of them where they will not contaminate water. If there is dry land and many people, the quickest way to deal with sanitation is to mark of an area that people can use for their waste. It is important that it be away from any water, and that rainwater from the field will not carry waste anywhere that people will come in contact with it. As soon as possible, trenches should be dug. Pieces of wood can be placed across the trench, so people can use them like a latrine. Start with the wood placed at one end of the trench. Earth dug out from the trench can be used to cover the waste, to prevent flies.

It may be hard to keep clean after an emergency. Where there is no soap available, ash can be used to clean hands. Sunlight also kills many micro-organisms. Mats, clothing, blankets, and dishes can be set out in the sun to reduce the micro-organisms on them.

Student Activity:

1. Review the three main sources of water contamination that you learned in Chapter 9.

2. How can these be prevented from contaminating the water in the disasters that may happen in your community? What materials would you need? Explain the potential problems and solutions in your plan.

12.3. Gender in Disasters

Disasters are so varied that it is impossible to predict all the gender issues for each disaster. When people stay in camps after some disasters, there can be a danger of sexual harassment and rape. Planning of temporary housing needs to include the safety from harassment. In some camp situations, women have been attacked while getting water, gathering wood, or going to latrines at night. Where there is corruption in aid distribution, some of the corruption may take the form of harassing young people or demanding sex. The aid distribution process should be public and transparent. Human traffickers have been known to exploit the opportunity to sell

young women into marriage, sex work, or labour exploitation, and young men into the military and labour exploitation. Thinking about the special issues for each gender from the beginning of disaster response can prevent further harm.

12.4. Conclusion

There are many kinds of disasters and many kinds of communities, so the steps taken to prepare for and respond to disaster will be quite different. However, the basic concerns for health protection are the same as in normal times. This chapter looked more closely at clean water and good sanitation in a community disaster. Mental health, child health, treatment for diseases, and food safety also are issues that you can think about in a post-disaster situation, and find special concerns and ways of helping. The more community members have thought about and discussed the possible dangers to the community, the less injury and loss of life there will be if a disaster does happen.

Case Study: Tsunami Disaster

On December 26, 2004, the Indian Ocean earthquake off the coast of Sumatra caused a tsunami that killed over 200,000 people. It was recorded as the deadliest tsunami in known history. Five to ten tsunamis happen in an average year, and usually only one of them causes much damage. Only once every 10 years on average does a tsunami cause major damage in more than one country. About 85 per cent of tsunamis are in the Pacific Ocean, because it is the largest ocean, and because it has earthquake faults. However, they can happen in any ocean. Because the last major tsunami in the Indian Ocean had been more than 100 years earlier, people living near the Indian Ocean coast were not prepared for a tsunami to happen. Here is a story about a family's experience in Sri Lanka.

"Miss Marikkar" tells about the tsunami

It is the morning of Dec 26, 2004, 9am. I could hear the sound of voices, which sounded like fighting. Quickly I realised that people were screaming in fear. I looked out of my window and saw the ocean crawling towards my family's home. The ocean was like fingers taking the land. Nothing was stopping it. It was scary. Houses were filling with water, people were running, screaming, trying to get away.

My brother and I grabbed our father who is old and unable to walk. We carried him up the way a bit to my auntie's house and try to put him on the roof. There were over 30 of us there. We saw the neighbour's house collapse. We knew that the wave would come again. We decided to climb down off the roof, and run towards the jungle. After we crossed a bridge we saw the next wave destroy the bridge. A third wave would come, but we did not turn and look, we just ran to safety into the jungle.

When we return to our village, all was destroyed. The sea has taken everything but a few bricks. Our family was relocated to the refugee camp where we are living in a tent. It will take years to restore what the ocean has swept away.

"Mr. Marikkar" tells about the tsunami

As I was sitting in my chair, I heard screams of terror and absolute fright. All of a sudden, my two children came running into the house. I could tell by the looks on their faces that something horrible was happening. They picked me up, because I am unable to walk.

As we stepped out of our house, I could see a flood of people fleeing for their lives. My son and daughter began running, with me in their arms, towards my sister's house. As they were trying to put me on the roof for safety I hit my head. My head was spinning and blood was spilling down my face. My son picked me up and began to run to the doctor. As we were running, I could see the water devouring everything it touched. Houses were crumbling; trees were snapping in two, the once-calm sea was now swallowing people alive. I feared we would be next.

We could not get to the doctor. It was impossible to move. People were everywhere, running as fast as they could for higher ground. We had no choice but to stop, we could not go any further. We found safe shelter in one of few buildings left standing in this area after the tsunami.

A couple of days later, we found out that everyone who was near the doctor's office had been killed by the waves. If we had not stopped, we would have been amongst the thousands of people that the tsunami took that day.

“Arafath Marikkar” tells about the tsunami

I was working in the garden when I heard people shouting and screaming. I looked up to see that the sea, which is usually across the road from our house, was coming toward our house, and it was full of trees, doors, furniture, everything. I ran inside to save my father, who cannot walk. We carried him to my aunt’s house, which is a little higher than ours. But there were so many people trying to climb on the roof so quickly, that we could not carry him safely and his head was cut, and bleeding.

I left my sister there, and tried to carry my father to the doctor’s clinic with the help of a friend, but we could not make it. We went to a brick building on a hill and waited there for the water to go back down. I used my shirt to stop the bleeding on my father’s head. We had no bandages, no antiseptic, no painkillers, nothing. My shirt was not very clean, so I was worried.

We heard there were more waves, and wondered about my sister. Was she safe? By night, my father’s cut was treated by a medic, but it took us two days to find my sister. Now we are in a tent in a camp, lucky to be alive.

Student Activity:

1. Could the tsunami have been prevented or reduced?

2. What damage did the Marikkar family see?

3. What damage could have been prevented or reduced? How?

4. The Marikkar family lost their home in the tsunami, but the people survived. None of them had seen a tsunami before, so they were not prepared. However, there are also tropical storms in their area that destroy some houses, flood some areas, and knock down some trees about once every ten years. How would you recommend that they prepare for disasters?

5. There are 3000 people of all ages in a camp for tsunami survivors, and you are in contact with local business and religious groups that want to help. What are your priorities for the health of the survivors?

6. The tsunami in Sri Lanka caused great damage in a narrow coastal area, but just beyond that area, the society and infrastructure were untouched. What about an earthquake or war, how would these affect the likely problems and solutions?

Extra reading: Three years later: Corruption and slow response

25 Dec, 2007 08:43:03

Edited from an article by Mel Gunasekera

Some 31,000 people died and one million were left homeless after the 2004 tsunami. Sri Lanka said it got 3.2 billion dollars in foreign aid pledges to rebuild the coastlines. But out of the promised money only 1.2 billion dollars was actually received, the government says.

From that, only 634 million dollars — less than 20 percent of the original amount pledged — was spent by the end of November, according to Transparency International, an international watchdog on corruption.

It has been almost impossible to find out what happened to the cash, said Rukshana Nanayakkara, Sri Lanka's deputy executive director of Transparency International.

A government audit in the first year of reconstruction found that less than 13 percent of the aid had been spent. There has been no formal examination of accounts in the two years since.

More than 350 tsunami survivors have complained to Transparency International this year. Accusations have been made against local and international aid agencies.

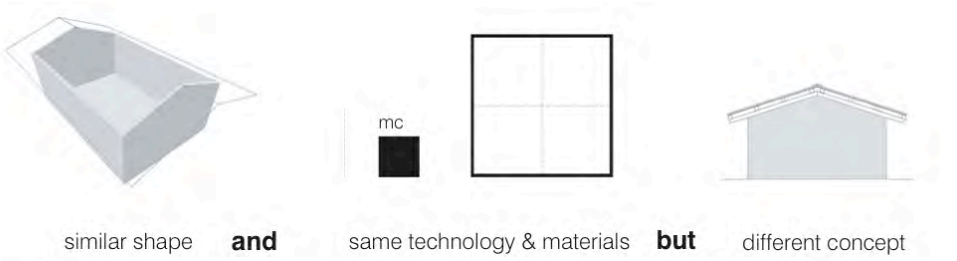
"There has been no proper accounts kept on the money and we believe only a fraction of aid trickled down to the real victims," said Nanayakkara.

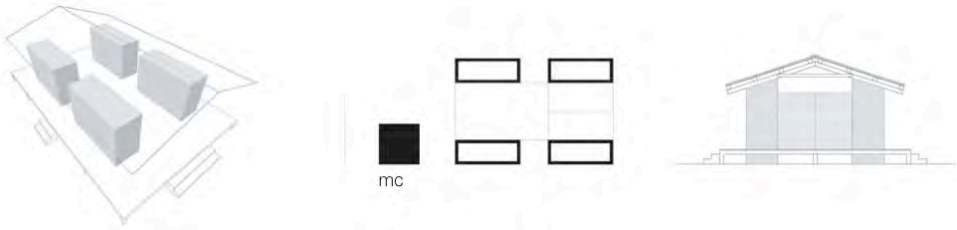
While 8,865 people still remain in temporary shelters, official figures show that 119,092 houses had been built. In theory, that number is 20,000 more houses than needed.

While there is an excess of houses built in the island's Sinhalese-majority south, people in the conflict-hit north and east, where more by minority Tamils and Muslims live, tsunami survivors remain in makeshift shelters.

Extra reading: A stronger house from the same local materials

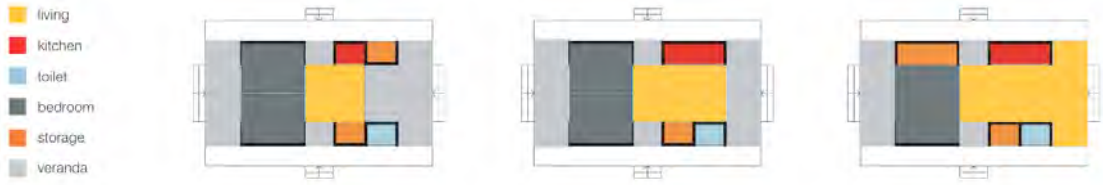
After the tsunami, an architect wondered if there was a better way to build a house with the same materials. He found that most Sri Lankans in the area built their houses out of cement blocks. The houses were a rectangle, like a box with doors and windows.





The architect and his team tested different ways to use the same materials. They found that if the same number of cement blocks were used to make four S-shaped pillars at the corners of the house, instead of flat walls, the house was stronger. When water pushed against a flat wall, it pushed the wall down. But when there were four strong areas at the corners of the house, with gaps between them, the water could flow through and would not be as likely to destroy the house.

Sri Lankans usually build their houses right on the ground. Building the house just off the ground allows water to flow under the house, and reduces the pressure on the walls as well, making the house safer. However, most Sri Lankans were not comfortable with houses off the ground, so the team changed the design.



The new design of house could resist five times the pressure of the box-design house. The house would not be strong enough for people to stay in it during a tsunami, but more people could come back to a house that would need only slight repairs. Also, if there were people on the roof, this house would be much less likely to collapse

Review for Section 2

Communities are groups of people who spend time together in the same place. It is important for each person to have knowledge to protect personal and family health, but some issues are best dealt with by the community. Some health issues, like stigma, are social issues in themselves. Others, like vaccination, sanitation in public areas, access to health information and health care, and safe spaces for children are also matters that must involve the whole community.

Diseases happen to individual people, but epidemics happen to a community. There is much a community can do to prevent an epidemic, or to deal with one that is happening. The community can organise to improve sanitation and hygiene. The community can help people with TB and HIV and other infections to get access to health care.

Everyone in a community is important, but children have a special place, because if children are not mentally, physically, and socially healthy, the community will not be healthy in the future. Children's health needs more care than adult's health, because a serious problem while they are growing might affect them for their whole lives. A loving family which protects a child from violence is important for the child's future mental and social health, and is the first protection for a child's physical health. Communities can provide access to safe spaces, health care, and education for children, and defend their rights. When communities treat all children equally, the next generation will be closer to equality.

Accidents, emergencies, and disasters can happen any time, anywhere. Many of the 'accidents' in fact are not so accidental — they could have been prevented. Many road accidents can be prevented by better driving habits. Many drowning accidents can be prevented by teaching people to float instead of panic in the water, and by making water edges safer so people do not fall in. Disasters can be harder or impossible to prevent, even when a community can see them coming. In many cases, all the community can do is be prepared, and try to help as many people as possible after a disaster.

The knowledge of micro-organism infection, prevention, sanitation, and stress can be applied to a great variety of community projects which affect health. In some health matters, the community working together is more effective than individual households working separately, but the basics of health remain the same.

Chapter 9 Review

1. Find five health-related projects that have taken place in your community. They might be for the whole community, or only part. Choose two of these projects and interview people who know about the projects. How much was the community involved? Were the campaigns successful? Why or why not?

Chapter 10 Review

1. What infectious diseases are most common in your community now? What were the most common disease a generation ago? Are they different? Why or why not?

2. Find out from clinic, hospital, Red Cross, or other source what accidents are most common. How could these accidents be prevented, or how could the effect of the accidents be lessened?

3. As a class, brainstorm different ways to deal with the most common kinds of accidents or emergencies in your community. Then split into small groups, and work on a plan to deal with them in different ways.

Chapter 11 Review

1. Make a mind map of all the issues that relate to children's health.

2. Use the concepts and vocabulary from the mind map to explain how children's social and physical health are interrelated.

Chapter 12 Review

1. What disasters have you experienced or read about? Use the disaster you know most about to explain how gender affected the disaster response and health during or after the disaster.

Further Reading for Section 2

Chapter 10

Water supply:

http://www.lboro.ac.uk/well/resources/technical-briefs/49-choosing-an-appropriate-technology.pdf

Hygiene:

http://rehydrate.org/hygiene/index.html

Latrine design:

http://www.appropedia.org/Ventilated_Improved_Pit_Latrine_(Practical_Action_Technical_Brief)

http://www.korsangkhmer.org/

Chapter 11

Statistics for Myanmar: http://www.searo.who.int/LinkFiles/SDE_trends-mmr.pdf

Statistics for Thailand: http://www.searo.who.int/LinkFiles/SDE_trends-tha.pdf

http://www.factsforlifeglobal.org/04/

http://www.factsforlifeglobal.org/09/

Chapter 12

http://www.factsforlifeglobal.org/14/messages.html

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SECTION 3: Global Health

Chapter 13: Measuring Health in Society

Objectives

By the end of this chapter, learners will:

1. Understand basic data analysis
2. Be able to understand trends in health at a regional and national level

Keywords

analyse	expectancy	prevalence
comparison	fertility	rate
enrolment	indicate, indicator	ratio
evaluate	mortality	statistics

13.1. Health indicators, Data and Statistics

When we want to look at the health of a large number of people generally, we look at indicators. To 'indicate' means to show something. 'Indicators' are data, usually in the form of statistics, combining information from many people to show the situation of a kind of person, society, country, or other group. What data you would collect to understand the present and future health of a community, country, or region?

Health-related indicators measure more than the number of people with a certain disease, the number of doctors, nurses, hospitals, how long people live, and so on. The length of education, average family size, and income, and equality are also important in health. Each indicator provides a way to analyse part of the situation. Taken together, indicators can help us understand the life of people in a particular place, time, or people in a particular category. This allows researchers, government officials, civil society organizations and others to evaluate the basic situation. Only then can they make good policies and programmes.

Indicators are usually analysed as ratios, percentages, and rates, not as absolute numbers. Absolute numbers tell you how many of something there is, e.g., in 2005, there were 19,922 nurses working in Myanmar, and in 2002 there were 84,683 nurses working in Thailand. But the population of Thailand is higher than Myanmar, so more nurses are expected. Knowing the number of nurses compared to the population is more interesting for analysis. Giving the data as ratios tells you that. The ratio of nurses to population in Thailand was 1:739, or one nurse working for every 739 people in the country in that year. In Myanmar, it was 1:2781. The Thai ratio in 2002 was higher than the Myanmar ratio in 2005.

Using ratios, percentages, and rates allows comparisons of the situation in different times, places, and populations. With ratios, percentages, and rates, quality of life can be compared, for example between areas of a country, between men and women, between ethnic groups, between the wealthiest and the poorest, and

between the present and the past. We can use them to see where a situation is good, so we can learn from it. We can use them to see where the situation is poor, and greater efforts are needed to improve lives.

13.2. Some Health-Related Indicators

Below is a list of some indicators relevant to health. These are just a few examples out of many possible indicators. Why they are important for health? While reading about them, think of other data you would need to know about a population in order to understand enough to make good health policy. Following the description of indicators are real data from countries around the world, including most of these indicators and others as well. Finally there are more detailed indicators from Myanmar.

Terms in context:

A **ratio** shows relationship between two amounts, e.g., if there are 104 boys born for every 100 girls, *the ratio of boys to girls is 104:100*. The type of item on each side is different.

A **percentage** shows the amount per hundred, so the type of item in the percentage is a part of the whole. *51% of babies are boys* (104 boys out of a total of 204 babies)

A **rate** is the amount of something over time. The time can be a year, a lifetime any length of time. The time must be part of the definition of the rate. *The total fertility rate is 2.0*. The average number of children per woman in her life is 2.0.

Total fertility rate – The average number of children born to each woman in a lifetime, measured in children per woman. A rate of 2.2 children per women will result in an unchanging population, if child mortality is low.

Infant and under-five mortality rates – The number of children born alive, who die before their first (infant) or fifth birthdays. This rate is usually shown per 1,000 live births. The under-five mortality rate includes the deaths in the first year of life. It is the total deaths before the age of five not only the deaths after the first year. 'Under five' is often abbreviated <5.

Population annual growth rate – The percentage increase in a population in one year. A few countries have a negative growth rate. With an annual growth rate of 1 per cent, a population will double in about 70 years. With 2 per cent growth, it will double in 35 years.

Life expectancy at birth – The average life expectancy in a country. This number represents the average age at death for all the recorded deaths. In most countries, life expectancy is longer than in the past, but this average can only represent the past average.

Underweight – Underweight is a measure of short-term undernutrition. Underweight shows when the weight is unusually low for the height. Underweight at birth and in early life usually means that the mother's health or nutrition was poor.

Stunting – Stunting shows long-term undernutrition. Stunting is a measure that compares actual height and weight against expected height and weight. When people do not eat enough, they do not grow as tall as expected, and are also thinner, in proportion.

Maternal mortality ratio – The number of women who die either during a pregnancy or within seven weeks of a birth. This is usually given per 100,000 births, and is the risk for each birth. The total risk for a woman's life depends on how many children she has.

Access to health care – Percentage of the population living within a reasonable distance of a health facility that provides adequate service. The reasonable distance may be different from one country to another, and is usually measured in time it takes to reach health care service, rather than distance.

Access to safe water and adequate sanitation – Percentage of households with a direct or nearby connection to an improved water supply and to improved washing, waste, and toilet facilities. Clean water is important for health, especially for young children. Good sanitation is the most effective way to reduce diarrhoea in children.

Adult literacy – Percentage of persons aged 15 and over who can read and write. Literacy is measured differently in different countries, and so cannot be compared exactly. Male and female literacy is often recorded separately. Women's literacy has a greater influence on family health than male literacy.

Primary and secondary school enrolment – Percentage of all children who attend school. Separate numbers are often given for boys and girls. Education is important for people's ability to use new information about how to protect family health. The education of the mother has a great effect on the health of a family's children.

GNP per capita – Gross national product is the entire amount of money earned by citizens, divided by the number of citizens. It is an approximate measure of the amount of money in the economy. It does not show average earnings.

Adult HIV prevalence – Percentage of adult population who are carrying HIV. These are people who are most likely to infect others with HIV. Child HIV prevalence is important for planning health services. However, children are not likely to infect others with HIV, so for predicting HIV transmission, adult HIV is a better indicator.

Student Activity:

Discuss other indicators you think should be measured to understand the health of a population. Explain to class what your group thinks should be measured and why.

Population growth

Table 6: Annual population growth rate, per cent: 1975 - 2005

France	0.5	**Armenia**	0.2
United Kingdom	0.2	**Sri Lanka**	1.1
Singapore	2.2	**Indonesia**	1.7
Brunei	2.8	**Gabon**	2.6
Czech Republic	0.1	**India**	2.0
Argentina	1.3	**Cambodia**	2.3
Cuba	0.6	**Myanmar**	1.6
Thailand	1.3	**Timor-Leste**	1.5
China	1.2	**Niger**	3.3

Student Activity:

1. In which country is the population increasing most quickly?
2. In which is population growth slowest?

Population under 15 years of age

Table 7: Per cent of population under age 15 in 2005

France	18 (21%)	**Armenia**	21
United Kingdom	18 (21)	**Sri Lanka**	24
Singapore	20 (21)	**Indonesia**	28
Brunei	30 (22)	**Gabon**	36
Czech Republic	15 (21)	**India**	33
Argentina	26	**Cambodia**	38
Cuba	19	**Myanmar**	27
Thailand	22	**Timor-Leste**	45
China	22	**Niger**	48

Student Activity:

1. In which country is nearly half the population children?
2. Which country has the smallest percentage of children?
3. When you compare this table with the population growth table, what do you notice?
4. Look at table 4 to see life expectancy, and calculate the percentage of life 15 years represents. (Write this number for the different countries in the table of life expectancy from 1970-75. The first five have been done for you. Fifteen years is 21 per cent of 72 years.)
5. Why is the percentage of the population under 15 different from this number?
6. What would it mean if they were the same?
7. For which countries is the percentage of life span and this percentage of population most similar? Why?
8. Bonus question: What would you expect from China? Why is China different from other countries?

Under-five mortality

Table 8: <5 mortality per 1000 births, 1970 and 2005

Country	1970	2005	Country	1970	2005
France	24	5	**Armenia**	- -	29
United Kingdom	23	6	**Sri Lanka**	100	14
Singapore	27	3	**Indonesia**	172	36
Brunei	78	9	**Gabon**	- -	91
Czech Republic	24	4	**India**	202	74
Argentina	71	18	**Cambodia**	- -	94

Cuba	43	7	**Myanmar**	179	105
Thailand	102	21	**Timor-Leste**	- -	61
China	120	27	**Niger**	330	185

Under-five mortality – economic comparison

Table 9: <5 mortality per 1000 live births - poorest and wealthiest 20 per cent of population

Country	poorest 20 %	wealthiest 20 %	
Armenia	52	23	44%
Indonesia	109	29	
Gabon	93	55	
India	141	45	
Cambodia	127	43	
Niger	206	157	

Student Activity:

1. Which seven countries had the highest <5 mortality rate in 1970? Circle them. Do they also have the highest rates in 2005?
2. What reasons can you think of for differences in rates between countries?
3. All rates are lower in 2005; can you think of reasons for this?
4. Bonus question: Why are no statistics available for some countries in 1970?
5. How different are the under-five mortality rates for the poorest and wealthiest families? Write the percentage of difference in the 'wealthiest' column. Round to the nearest whole percentage. The first one has been done for you: The mortality rate of the wealthiest 20 per cent of the population is 44 per cent of the mortality rate of the poorest 20 per cent. In which countries does wealth give the greatest health advantage in under-five mortality?
6. Compare these rates to the under-five mortality rate for each country as a whole in 2007. Are the proportions the same? Can you think of reasons for what you see?

7. Discussion: The lowest infant mortality rate in the world is 2/1000 live births. This is the rate in Iceland. Researchers think it may not be possible to lower the rate any more than that. Can you think of why? Is it possible for every baby born to survive?
8. To calculate life expectancy, the ages of all deaths are averaged. To practice, look at a simple population: If out of 100 people, 50 died at age 80, and 50 died at age 20, the average life expectancy would be 50:

50 x 80 = 4000, 50 x 20 = 1000
Add the results together: 4000 + 1000 = 5000
Then divide for the average: 5000/100 = 50 years average life expectancy

What if it were 30 at age 80, 40 at age 50, and 30 at age 20?

30 x 80 = 2400
40 x 50 = 2000
30 x 20 = 600

Add the results: 2400 + 2000 + 600 = 5000

Divide by the 100 people: 5000/100 = 50 years average life expectancy

Now calculate in the same way for this population:

If 20 died at age 80, 10 at age 70, 10 at age 60, 10 at age 50, 10 at age 40, 10 at age 30, 10 at age 20, and 20 at age 5, what would the result be?

Life Expectancy

Table 10: Life expectancy at birth for those born in 1970-75

Country	Years	Country	Years
France	72	**Armenia**	71
United Kingdom	72	**Sri Lanka**	65
Singapore	70	**Indonesia**	49
Brunei	68	**Gabon**	49
Czech Republic	70	**India**	51
Argentina	67	**Cambodia**	40
Cuba	71	**Myanmar**	53
Thailand	60	**Timor-Leste**	40
China	63	**Niger**	41

Table 11: Life expectancy at birth for those born in 2005, female and male

Country	Total	female	male	Country	Total	female	male
France	80	84	77	**Armenia**	71	75	68
United Kingdom	79	81	77	**Sri Lanka**	72	76	68
Singapore	79	81	78	**Indonesia**	70	72	68
Brunei	77	79	75	**Gabon**	56	57	56
Czech Republic	76	79	73	**India**	63	65	62
Argentina	75	79	71	**Cambodia**	57	61	55
Cuba	78	80	76	**Myanmar**	61	64	58
Thailand	70	75	65	**Timor-Leste**	60	61	59
China	72	74	71	**Niger**	56	55	57

Student Activity:

1. Has life expectancy improved everywhere?

2. Where did it change the most and the least (in number of years)?

3. Can you think of reasons why life expectancy might change or not?

4. What reasons can you think of to explain different life expectancy in different countries?

5. Calculate life expectancy, and show the steps:

What if 800 people live to be 70, and 200 die at age 2? Round to the nearest year.

What if 950 lived to be 70, and only 50 children died at the age of 2? Round to the nearest year.

6. What can you say about the life expectancy of men and women?

Assistance with birth

Not all difficult births can be predicted, so one way to reduce maternal mortality is to have births attended by a skilled health worker. A higher percentage of births attended by skilled health personnel should result in lower maternal mortality. Here are maternal health data for the six countries we have been looking at.

Table 12: Percentage of births attended by skilled health personnel: total, poorest and richest 20 per cent of population, maternal mortality ratio (MMR), and lifetime risk of maternal death

Country	Poorest 20 %	Wealthiest 20%	Total	MMR	Lifetime risk
Armenia	93	100	98	29	1:1900
Indonesia	44	96	73	240	1:190
Gabon	67	97	87	260	1:110
India	19	89	57	230	1:140
Cambodia	21	90	44	290	1:110
Niger	21	71	33	820	1:16

Student Activity:

1. Which countries have a general level of attended births that is closer to the level of the wealthy than the poor? What does it mean?

2. The MMR is the number of deaths of mothers per 100,000 pregnancies. How does this relate to the lifetime risk per woman? How can the lifetime risk be the same in countries where the MMR is different?

Health-related indicators for Myanmar		
Indicator	**Amount**	**Year**
Population	48,000,000	2001
Life expectancy at birth (years)	51	1970
	58	1990
	61	2000
	64	2009
Under-five mortality (per 1000 births)	252	1960
	179	1970
	134	1980
	130	1990
	110	2000
	71	2009
Infant mortality (per 1000 births)	169	1960
	122	1970
	94	1980
	91	1990
	78	2000
	54	2009
Infants with low birthweight (%)	15	2009
Infants excl. breastfed for 6 months (% in Myanmar)	15	2009
(% Myanmar in Thailand)	34	2003
Children <5 who are underweight (% in Myanmar)	32	2003
(% Myanmar in Thailand)	6	2003
Children <5 who are stunted (% in Myanmar)	41	2009
(% Myanmar in Thailand)	46	2003
Children <5 with anaemia (% Myanmar)	55	2003
(% Myanmar in Thailand)	72	2003
Population with access to improved water source (%)		
Total	71	2008
Urban	75	2008
Rural	69	2008
Population with access to adequate sanitation (%)		
Total	81	2008
Urban	86	2008
Rural	79	2008
Primary school attendance (%)		
Total	68	2000
Male	68	2000
Female	69	2000
Adult literacy (%)		
Total	85	2000
Male	89	2000
Female	81	2000
Births attended by skilled health personnel	37	2010
Maternal mortality ratio (per 100,000)	255	2000
Lifetime risk of maternal death	1:180	2000

Compare Myanmar data and data of other countries. What do you notice?

Additional group exercise: The limits of health.

In a small group, imagine you are responsible for health in an area you are familiar with. What would you set as your objectives?

The objectives of the Myanmar Ministry of Heath are:

1. To enable every citizen to attain full life expectancy and enjoy longevity of life.

2. To ensure that every citizen is free from diseases.

The objectives of the Thai Ministry of Public Health's Tenth Health Development Plan are to establish a sufficiency health system for social wellness by creating health culture, a medical and health service system satisfactory to clients, happy healthcare providers, and an immunity system for minimizing the impact of illness and health threats.

Is it possible to achieve these objectives? Why or why not?

Chapter 14: International Health Agencies

Objective

1. Students should have a better understanding of the kinds of large organisations working in health in their communities and what their mandates are.

2. Students should know about the history of organisations that are making health policy.

3. Students should be able to articulate what their own goals for their community are.

Keywords

aspect
initiative
neglect
norm
party

Many aspects of health, like eating well, not smoking, getting exercise, and supporting friends, family, and neighbours are in the hands of the family and individual. Others, like sanitation, clean water, vaccination, and health care are best done with the assistance of larger organisations like communities, cities, or countries. Many of the organisations that do excellent work in health are small organisations created by the communities they work in. There are free hospitals and clinics, volunteer medics, health visitors and many other small local health organisations that you might find in your own neighbourhood. There are people who build a clean water system and let the whole community use it. Some community members take the initiative to learn about a health issue and educate others around them about it. But there are also many large organisations dedicated to improving health by doing research, influencing policy, and funding projects. In this chapter, we will look at some of these large organisations, and what they do.

14.1. United Nations Organisations

World Health Organization (WHO)

The WHO is the United Nations specialised agency for health. It was established in 1948. The WHO's objective is the for all peoples to have the highest possible level of health. Health is defined in WHO as a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity. According to the WHO, “achieving health for all people is important for the world to have peace and security.” Do you agree with this statement? Why or why not?

The WHO gives health policy recommendations based on research, develops norms and standards for health and treatment, coordinates efforts to control epidemics, and supports research and action on diseases that are important for public health. The WHO usually works with government health departments to collect and analyse data, develop policies, and support health activities.

United Nations Children’s Fund (UNICEF)

UNICEF is concerned with health issues that are most important for children, including providing vaccinations and vitamin A, improving sanitation and clean water supply, and ensuring access to treatment for childhood diseases. UNICEF also contributes to relief for children in emergencies, and promotes child nutrition through both education and assistance. Like most UN agencies, it works mainly with governments and very large organisations, but provides funding for some smaller organisations.

The International Labour Organization (ILO)

The ILO is concerned with health as it relates to work. This includes safety from accidents, exposure to harmful chemicals and environments, and diseases caused by working conditions. The education of employers as well

as workers is an important part of the ILO's health strategy. They work with government to create and enforce regulations about the health of workers. The ILO works with employers and business associations to promote healthy working conditions in their businesses. The ILO works directly with workers groups and workers as well.

Food and Agriculture Organisation (FAO)

The FAO is involved in nutrition and food security, both important in the foundations of health. They work with many levels of food production and distribution, from farmers to governments. The FAO supports research about nutrition, agriculture and food. They share this knowledge and help put policies and practices based it into practice. They also provide food supplies in some emergencies, and help farmers recover after disasters.

14.2. International Organisations

International Organization for Migration (IOM)

This organisation started as an agency to help resettle refugees after World War II, but has expanded into dealing with humane and orderly migration, and protecting the dignity of migrants. This can involve health, especially health education. The IOM also helps host communities deal with public health needs that may come a large migrant population.

International Red Cross and Red Crescent Movement is a humanitarian network which protects people from disaster and conflict where it can, and assists those affected to reduce the number of deaths, injuries, and the overall harm. The International Federation of Red Cross and Red Crescent Societies (IFRC) is part of the movement.

The IFRC is an organisation that links national Red Cross and Red Crescent Societies. These societies are active in almost every country in the world. The Red Cross and Red Crescent societies help communities prepare for any disaster that could affect them. The local societies have large networks of volunteers who are knowledgeable and ready to help in emergencies. They might operate ambulances in conflict areas, rescue people in floods and fires, and teach first aid to the public. The IFRC helps the national societies become stronger, and helps with international assistance when there is a disaster.

The International Committee of the Red Cross (ICRC) works as a neutral party in conflict areas. They help to protect civilians from the effects of armed conflict. This help may include relief for people who have to leave their homes because of conflict, and support for people who are injured in conflict. It also includes negotiating with authorities for better treatment and conditions for people affected by conflict. The ICRC also promotes respect for international law, which limits acts of war.

Global Fund to fight AIDS, Tuberculosis and Malaria (Global Fund)

HIV/AIDS, malaria, and tuberculosis are diseases which cause many deaths. The Global Fund was created to raise extra money just to deal with these three major diseases. Many of the other organisations which deal with health also have these three diseases as part of their work. However, there was a movement to give these three special attention because HIV, TB and malaria are all preventable infectious diseases which can kill people quickly. When the Global Fund started in 2002, the HIV epidemic was expanding, and contributing to the spread of TB. Medications for HIV were not widely available. The people who started the Global Fund thought that more money spent quickly could make a difference in the epidemics. They wanted to change policy to concentrate more on these diseases.

Student Activity:

1. Form small groups, and discuss your own community. Which three diseases would you give special attention to? Why?

2. How many NGOs can you name that work in health? How many have you seen? Have they done anything for your community? What would you like them to do? Is there a way for you to have a voice in what they do?

14.3. International Non-Governmental Organisations

There are many thousands of non-governmental organisations (NGOs), and many of them work in the field of health. They do a great variety of health-related work. Some provide health care by opening clinics or hospitals, training medics, health assistants, or other health professionals. Some provide health education, vaccinations, help with clean water and good sanitation, or provide mosquito nets.. Some develop and give new treatments for diseases. There are many, many NGOs of every different size. Most of the small ones are closely connected to the community they started in. Most of the larger ones work directly with communities.

Many of the international NGOs working in health started with a small group of people responding to a particular problem. They organised among people they knew, took action, and gradually grew. Each has encountered many problems in its growth. Although they were started with good intentions, they have all made mistakes, used theories that turned out to be wrong, and had internal disagreements. Like any organisation, health NGOs need to constantly learn and adapt. Here are very short histories of a few international health organisations that you may have encountered.

Médecins sans Frontières (MSF)

'Médecins sans Frontières' means 'doctors without borders'. It is an NGO created by health professionals and journalists in 1971. They were concerned that the suffering of refugees from the civil war in Nigeria was worsened by the policy of international respect for the official Nigerian borders.

The organisation has grown very large since that time, but remains concerned with the right to health in conflict situations. MSF now provides health care and medical training in about 70 areas of conflict at any time. MSF also brings attention to the injustices and problems of the people they are helping where it will bring pressure for improvement. They also try to raise awareness before a humanitarian disaster happens, when it may be prevented.

Oxfam

Oxfam began as a response to a famine in Greece in 1942. During World War II, Greece was occupied by the enemies of the Allies. The Allies prevented anything from reaching Greece. This caused a famine, as there was not enough food in the country. People in Oxford formed a committee called the Oxford Committee for Famine Relief to both try to convince their government to allow food to go to Greece, and to collect food to send.

Now the organisation that grew out of that committee is very large. Oxfam works in about 100 countries in the world. Their main focus is no longer only on famine relief, but preventing the causes of famine and other disasters. They provide food and medical care in emergencies, but even more provide water, sanitation, income opportunities and education to communities affected by conflict or other disasters.

CARE

CARE started at the end of World War II with the idea of some Americans to bring together individuals and organisations to send food to Europe, where there was a poor food supply after the war. It has since expanded into a very large organisation working in disaster relief, health, and development in many countries of the world.

Student activity:

1. What differences do you see between intergovernmental organisations, international organisations, and NGOs?
2. Find out more about a health NGO in your community. It might be a branch of a large NGO, or a small community organisation, or even just a single person who has created an organisation to accomplish some health-related goal.

3. If you were going to start an NGO, what issues would you address? Do they relate to health? Explain who you would join with, how you would make decisions, what you would do, and what problems could make your projects more difficult.

Further reading for Chapter 14

International organisations with health interests: www.un.org/issues/m-health.html

Histories of major health NGOs can be found at their offices, on Wikipedia and on their websites.

Optional reading: Millennium Development Goals

Development around the world means that there have been improvements in many areas relating to health. However, for millions of people, particularly the poor, the situation has not improved much, if at all. In 2000, the United Nations held a Millennium Summit to make decisions on what to do about this situation. At this summit, The Millennium Declaration was accepted by the UN General Assembly. It identified eight goals, should be reached by 2015, using 1990 as a starting point:

Goal 1 - Eradicate extreme poverty and hunger

To halve, by the year 2015, the proportion of the world's people whose income is less than one US dollar a day and the proportion of people who suffer from hunger and, by the same date, to halve the proportion of people who are unable to reach or to afford safe drinking water.

The first of the MDGs addresses issues that affect many people directly. People who do not have enough food, or who have trouble getting safe drinking water have to deal with these issues every day. Greater income is one solution to these problems. But access to nutritious food and safe water might also need a separate solution.

Goal 2 - Achieve universal primary education

To ensure that, by the same date, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling and that girls and boys will have equal access to all levels of education.

Primary education is the basis for literacy and numeracy, which is the foundation for further development. People with more education can make better decisions in their own lives, and can more easily learn about any subject which interests them. They can better contribute to the future of their country by well-informed voting. Health of the whole family is also improved by education, as people can collect and refer to health information easily.

Goal 3 - Promote gender equality and empower women

To promote gender equality and the empowerment of women as effective ways to combat poverty, hunger and disease and to stimulate development that is truly sustainable.

Gender plays a key role in health for men and women in all societies. Consider the following scenarios:

1. A teenage boy dies in an accident because of trying to live up to peers' expectations that young men should be 'bold' risk-takers.
2. A woman cannot receive needed health services because cultural norms prevent her from travelling alone to a clinic.
3. A married woman contracts HIV because cultural norms encourage her husband to be promiscuous while preventing her from insisting on condom use.
4. A country's lung cancer mortality rate is much higher form men than for women because smoking is considered attractive in men, while it is considered as unfeminine in women.
5. A woman cannot escape domestic violence because cultural norms prevent her from reporting the abuse, or divorcing her husband.
6. Cultural norms place less value on girl children so that they are denied equal access to nutrition and education.

Across continents and cultures, established gender norms mean that women often control less power and fewer resources than men. Not surprisingly, this often gives men an advantage — in the economic, political, and

educational arenas, but also with regard to health and health care. Many health professionals believe that gender inequalities have led to a systematic neglect of women's health.

Goal 4 - Reduce child mortality

Reduce under-five mortality by two-thirds of the 1990 rate by 2015.

Many of the other MDGs will work together to reduce under-five mortality. Poor families with inadequate nutrition have higher child mortality. Safe drinking water reduces diarrhoea, which is one of the three main causes of child mortality. Women with at least primary education have greater survival among their children. Countries are motivated by this MDG to seek out causes of child mortality that are not yet addressed in other MDGs.

Goal 5 - Improve maternal health

Reduce maternal mortality by three quarters of the 1990 rate by 2015.

Maternal mortality is the end effect of poor maternal health that can affect small children and their mothers, and through them the whole family. To reduce maternal mortality can take policy changes (such as legalising abortions), some infrastructure improvements (such as greater access to trained birth assistants), and greater knowledge (such as knowing what foods are more nutritious). Reducing maternal mortality will end up improving health for all.

Goal 6 - Combat HIV/AIDS, malaria and other diseases

Halt, and begin to reverse, the spread of HIV/AIDS, malaria and other major diseases by 2015.

Major diseases are the diseases that cause the most sickness and death. The other MDGs are to reduce the underlying causes of disease, or the results of disease. This one addresses diseases directly. There is a special interest in epidemic diseases, as they can expand rapidly if neglected.

Goal 7 - Ensure environmental sustainability

Environment means both the natural environment and the physical environment where people are living. Exploitation of natural resources such as forests, land, water, and fisheries have caused changes in our natural world. Many of these changes harm the people with the least power, who depend on natural resources for their livelihood.

While many poor people live a simple life using little energy, high energy consumption by rich countries creates dangerous changes in the Earth's climate. Climate change is expected to affect the poorest regions of the world most. Changes in the global climate will change rainfall patterns and cause more frequent weather disaster like cyclones and tornadoes.

Goal 8 - Develop a global partnership for development

Create a global partnership for development, with targets for aid, trade, and debt relief.

Unfair and inadequate trade, aid and debt rules are creating and worsening global poverty. The poorest 49 countries make up 10% of the world's population but account for only 0.4% of world trade. Rich countries spend $100 billion a year to protect their markets, often from goods from developing countries. Many developing countries owe huge amounts of money to rich countries, and must pay interest on this debt. Many of these debts are for loans that were partly spent on corruption. Although the powerful profited from the loans, it is the whole country which has to pay the loan back. This money could be used to provide health services and meet the other MDGs. An estimated seven million children die each year from disease and malnutrition as a result of this debt crisis.

Review for Section 3

As a member of a community, a nation, a country, and the world, everyone has a say in health policy. But to make good choices, it is important to understand big issues in health. The major health issues in a country may be different from those in a particular community. It is also interesting to know what the major issues in the whole world are, and think about whether these affect your community, or if they might in the future.

Sometimes it takes very large organisations to start dealing effectively with a problem. For example, when diseases are prevented or treated before they are transmitted to others, those diseases can disappear, at least from an area. Polio and leprosy are two serious diseases that were common a generation ago, but are rare now, because of a great effort to identify and treat every case. There are also very large international efforts to reverse the epidemics of malaria, TB, and HIV/AIDS.

However, those large organisations cannot do the work directly themselves. They can encourage research, apply the research to problems, influence policy, and fund projects. But in the end, the work of disease prevention, treatment, and health promotion is done in communities, by individuals. And those individuals do not need to wait for the large organisations. Anyone can start doing something for better health. Better health starts with good habits, knowledge, and community spirit. In fact, it starts with you.

Chapter 13

In a small group, imagine you are responsible for health in an area you are familiar with. What would you set as your objectives?

The objectives of the Myanmar Ministry of Heath are:

1. To enable every citizen to attain full life expectancy and enjoy longevity of life.

2. To ensure that every citizen is free from diseases.

The objectives of the Thai Ministry of Public Health's Tenth Health Development Plan are to establish a sufficiency health system for social wellness by creating health culture, a medical and health service system satisfactory to clients, happy healthcare providers, and an immunity system for minimizing the impact of illness and health threats.

Is it possible to achieve these objectives? Why or why not?

Chapter 14

If you were going to start an NGO, what issues would you address? Do they relate to health? Explain who you would join with, how you would make decisions, what you would do, and what problems could make your projects more difficult.

Further reading for Section 3

Chapter 13

Indicators by country:

http://data.worldbank.org/country

http://www.who.int/gho/countries/en/

http://hdr.undp.org/en/statistics/data/

Health data for Thailand:

http://eng.moph.go.th/TechResearch/hsri/hsri_web.htm

http://www.who.int/countries/tha/en/index.html

www.moph.go.th/ops/thp/images/stories/Report_pics/Thai_Report/Year_Reports/2548_50/Eng/A_3_ENG.

Health data for Myanmar:

http://www.whomyanmar.org/EN/Section6_168.htm

http://www.moh.gov.mm/file/Health%20Statistics.pdf

Indicators for Myanmar:

http://www.tradingeconomics.com/myanmar/indicators

http://www.unicef.org/infobycountry/myanmar_statistics.html

Global issues:

http://www.hesperian.org/publications_download_ghw2.php

Chapter 14

International organisations with health interests: www.un.org/issues/m-health.html

http://www.redcross.int/en/default.asp

http://www.myanmarredcross.org.mm/

http://www.redcross.or.th/

http://www.msf.org/msf/about-msf/about-msf_home.cfm

http://www.oxfam.org/en/about/what

http://www.care.org/careswork/whatwedo/index.asp

Conclusion

This book is only an introduction to health. There is much more to learn for those who are interested. With greater familiarity with the basic concepts of different kinds of health, different kinds of diseases, and different responses of individuals and society to disease, it will be easier to learn more. Health is a subject that nearly everybody has an interest in.

Many people like to discuss health topics. When you hear new information about health, you can think about it from different perspectives. You know about the ways the body works. You know about the basis of many diseases. You know about mental and social sides of health and disease, as well as physical and individual sides. You can think about new information from all these perspectives, and decide whether new information is complete and correct, or how to find out more about it.

Turn back to the beginning of the book and look at your answers for the questions about the meaning of health. Have you changed your idea of what health is? What are the most important things you have learned about health? Did anything in this book surprise you? Have you changed any of your habits since you started learning with this book? What have you done for health in your family and community?

Student activity:

In small groups, think about the health of your community. What are the main issues, and can they be affected? If you were a group of community leaders, what health objectives would you have for your community? What are the steps to those objectives?