Health and Society

Teacher Guide

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Introduction to the Text Book

The goal of this book is to provide the students with an opportunity to gain a basic understanding of health issues by exploring the relationship between individual, community, and global health. The learner will be exposed to health-related concepts and processes that will enable them to understand how to prevent and/or treat common diseases and improve their personal and community health. Health-related concepts and processes will be presented by focusing on the development of key public health skills including: data collection, data analysis, drawing conclusions, and identifying relationships.

Individuals, families and communities work to become and stay healthy. National governments, the United Nations, and humanitarian organisations work to improve the health of communities. Because of these efforts, more people are living longer than they did in the past.

However, there are still millions of people around the world who suffer from poor health, and who have little access to health care or healthy living conditions. Too many people die from diseases that can be prevented or treated. Reasons for these deaths include: they cannot afford treatment, they do not have a useful understanding of their condition, they treat themselves without a good effect, they cannot get or do not seek treatment from a reliable source, or they seek treatment only when it is too late to be effective.

Each society around the world and in history has had different understandings of illness and health, and the same illness can be understood in different ways. These beliefs have developed over the course of thousands of years of observation and theory. Some of these beliefs have been combined with religious beliefs, so people think sickness can be caused or cured though religious acts, spirits, fortune-tellers, or witches. Some people looked at the environment, and thought sicknesses were caused by weather, smells, bad air, bad water, or the actions of animals. Others explain sickness and health by an imbalance of heat and cold, or energies or bad blood inside the body.

This book focuses on prevention and treatment which can be proven scientifically. In this book we base our explanation of health and disease on understandings that were developed recently, and are still developing. These understandings were developed through observation, theory, testing, and practice.

Near the end of the nineteenth century, microscopes were improved, and this caused a great change in the understanding of infectious diseases in Europe. With better microscopes, people could see many cells and micro-organisms clearly for the first time. They saw that certain micro-organisms were not found in people without a certain disease, and were found in people who did have the disease, and were not found in people who had recovered from the disease. Micro-organisms could also be seen in food and water, and all throughout nature. Once micro-organisms and diseased cells could be seen, it became clear that micro-organisms which could infect people and animals were the best explanation for many common diseases. Other diseases could be identified as changes in the body. Some diseases remained a mystery for a long time, and some are still not well understood today.

Not every question about health can be answered using these scientific and experimental methods. However, they have been the basis for the development of very effective medicines and methods of protection. In this book you can learn about this understanding of disease and health, and some of these methods to improve health.

Appendix A and B contain optional activities

The key words are all defined in the reading. Ask students to write down definitions as they come across them in the text.

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? 3
2. Name the tissues that work together to form the stomach. **Smooth muscle, loose connective, nervous, blood, columnar epithelium**
3. The stomach is an organ in the body. Name two other organs. **Brain, heart, lungs, liver, kidney, pancreas, spleen, intestines, skin…**

To reduce vocabulary, 'disease' is used to signify both diseases and conditions. The words 'illness' and 'sickness' mean almost the same as 'disease'.

Student Activity:

1. Review the paragraphs about causes of disease. Where in the body do all diseases start? **In or on the cell.**

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

3. What causes of disease can be controlled? How would you control them? **Nutrition, some micro-organisms—eat healthily and have healthy habits to reduce the amount of micro-organisms that get into the body.**

4. What causes of disease cannot be completely controlled? What can you do to stay healthy? **Genetics, environment. Have healthy habits that will help your body stop the causes of disease from making you sick.**

This is a simplified version of what actually happens in the immune system, which is actually quite complicated and interesting. For more information, look in a biology book, or a website such as these:
http://nobelprize.org/educational/medicine/immunity/immune-overview.html
http://www.biologycorner.com/APbiology/pathology/immunology.html

What is the difference between 'to treat' and 'to cure'? **To treat a disease is to apply care and medicine to someone who is suffering a disease. There are often treatments to address symptoms, as it is the symptoms that make people feel bad. To cure a disease is to remove the disease and its symptoms from the body.**

The word 'treatment' is a noun. It is the care and medicine applied to the patient. The word 'to treat' is a verb, and is the application of this care and medicine. We use the phrases 'treat the patient', 'treat the symptoms' and 'treat the disease'.

The word 'cure' is both a noun and a verb. As a noun, a 'cure' is a treatment that is known to work. As a verb, 'to cure' means to rid the body of disease or symptoms. We use the phrases 'cure the patient', 'cure the symptoms' and 'cure the disease'

Examples: *She was treated for cancer for six months, but they could not cure her so she died.*

TB treatment was not easy, but it cured the disease and now she is healthy again.

Can we treat his malaria? We can cure him if he comes for treatment soon enough.

Give him some paracetamol to treat his headache.

In Burmese, one word is used for both 'to treat' and 'to cure', but that there are two words with slightly different meanings in English.

Student Activity:

1. Which symptoms do Disease A and B have in common? **From the diagram, disease 1 and disease 2 are both associated with symptoms 1 and 3.**

2. Copy the table onto the board while the students are copying their tables. Have the students work in pairs to connect the diseases with the symptoms, then go through the answers on the board. **Different people can have different symptoms for the same disease; different diseases can have the same symptoms.**

3. Explain why symptoms alone are not the best way to diagnose a disease. **Symptoms alone are not the best way because some symptoms are caused by more than one disease.**

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

Diseases	**Symptoms**
Malaria **(a,b,c,d,e,i)** TB **(a,b,e,g)** Cholera **(b, e, f,i,j)** Flu **(a,c,d,e,f)** Heat stroke **(c,d e,h,j)** Typhoid **(a,c, e,f,j)** HIV **(variable)** Diabetes **(e,j)**	a. Fever b. Sweating c. Headache d. Muscle ache e. Tiredness/fatigue f. Diarrhoea g. Coughing h. Dizziness i. Vomiting j. Thirst

Draw the inference tool from Appendix A on the board and fill in the 'Language in Text' box.

Ask students to copy the inference tool. Point out where the 'language in text' comes from. As a class, explain the process of deciding what is 'known' knowledge and what is 'hidden knowledge', and what is the 'inferred meaning'? Explain that inference is an important skill and that they will work on this skill throughout the book.

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? **When caring for a person with an infectious disease, it is important that the care-giver protects himself from the disease. Sometimes you will see the care-giver wear a mask or gloves to ensure that the disease micro-organisms do not get into his body. When caring for a person with a non-infectious disease, there is no need to take special precautions. This topic will be covered in more detail in Chapter 12.**

2. What are some other characteristics of a disease that might be useful for categorising them? **Have a discussion about this topic. There is an activity in Appendix B that might be useful for categorising diseases now or later. Possible answers include:**
Acute – chronic
Infectious – non-infectious
Mental – physical
Environmental causes – micro-organism causes
External cause – internal cause
Asymptomatic- – symptomatic
Serious (potentially fatal) – mild (annoying but not fatal)
Curable – Incurable
Old age – young children
Preventable – not preventable

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 micro-organisms in the body of a person who stopped taking the medicine early? **Red, straight line**

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

3. What happens at the blue dot (after 3 days)? **The patient stops taking the medication; the symptoms disappear and the patient feels better**

4. What happens on day 4? **The micro-organisms are the most active and there is the largest number of them in the body**

5. What happens on day 6? **The patient who stopped taking medicine starts to get sick again and the patient who took all of the medicine is almost cured**

6. Draw a cartoon to teach someone in your community about the proper use of antibiotics. Include the following words:

Antibiotic, resistant, micro-organism

Discuss the possibility of receiving fake drugs if they are purchased from a person who is not a pharmacist. Discuss the importance of knowing where your medicines come from. For more information, contact the Shoklo Malaria Research Unit, in Tak Province. http://www.shoklo-unit.com/

More effective filters can be made out of pottery, or layers of sand. But these can be difficult to build correctly. They might also require equipment that is not easy to get. If you have experts that you can contact in your community, you could get more information about pottery and sand filters and explain how to make them to your students.

Student Activity

1. Which is better to store drinking water in: a container with a wide mouth, or a narrow mouth? Why? **A container with a narrow mouth is better for storage because a narrow mouth is easier to cover tightly, because less dust can get in, because people are not able to dip their hands in it which could contaminate the water. Also, if water is stored in a bucket, people are likely to scoop it out with a cup. The cup may be set on something that is not clean, and not everyone will wash their hands with soap before using the cup, so it is not likely to be clean. The cup can contaminate the water.**

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? **Water which has not been boiled or filtered may have micro-organisms in it. Even a few of those micro-organisms in drops of water left inside the containers can reproduce and make all the water unsafe to drink. So water which has been boiled or filtered needs to be stored in a very clean place. Water being put in a bottle to be treated with sunlight or iodine is not yet clean, so these bottles can be rinsed out with the same water that is to be cleaned. However, if that water is poured into a new container, that container needs to be rinsed only with the clean water.**

3. Why is it important that the cover not touch the water? **The cover is handled by people who may not have washed their hands recently. Some people will set the cover down somewhere that might not be completely clean. If the water touches the cover, the micro-organisms on the cover will get into the water and reproduce.**

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 from? How will you store it close to the toilet?

3. If your school decides to use soap, where will you get the soap from? How will you store it close to the toilet?

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

Towels or cloths which are used by many people to dry their hands get wet. Many people do not wash their hands with soap, but only rinse them with water. When they dry their hands, they leave many micro-organisms on the cloth. Micro-organisms in the air will also be land the cloth. As it is wet, it is a good environment for most of them to grow. If you dry your clean hands on such a cloth, your hands will pick up micro-organisms. It is best to just shake the water off your hands and let them dry in the air.

Teacher Note:

You may want to suggest to the students that they try out their ideas to see if the amount of hand washing in the school increases. In section 2, we will discuss the importance of educating others and methods that we can use. By setting up a hand washing station at the school now, students can see the effects of their work before and after educating their friends about the importance of hand washing.

Student Activity

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

Discuss the facilities available for washing vegetables in your local area. The students should understand that this is a healthy habit for them to work on.

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? **Mix the salt and sugar together and store it in a safe, dry place. When needed, just add water.**

Student Activity

1. Can you get malaria from drinking or bathing in dirty water? **No, malaria parasites do not live freely in water. Without malaria parasites you cannot get malaria.**

2. Can you get it directly from contact with other people with malaria? **No, malaria is usually spread by a mosquito biting a person with malaria, and then after a week or more, biting a second person and passing the malaria parasite to them.**

3. Are you more likely to get malaria if you spend time in the forest? **Yes, if people in villages, towns, and cities get treatment for malaria as soon as they can, then the mosquitoes which bite them cannot get malaria parasites or pass them on. Forest mosquitoes also bite animals, which may also have malaria parasites, or people living in remote areas without access to treatment.**

4. Can you get malaria from eating too many bananas? **No, malaria parasites do not live in bananas. Without malaria parasites you cannot get malaria.**

5. Are you more likely to get malaria if you eat cooling foods like watermelon on a hot day? **No, malaria parasites do not live in watermelons. Without malaria parasites you cannot get malaria.**

6. Can you get malaria from stream water? **No, malaria parasites do not live freely in water. Without malaria parasites you cannot get malaria.**

7. Can you get malaria from a blood transfusion? **Yes, if someone who has malaria parasites donates blood, the malaria parasites will be in the blood, and will infect anyone who gets that blood. Donated blood must be tested for malaria.**

8. Can you cure malaria by using paracetamol or aspirin to lower the fever? **No. You must use the correct treatment for killing the malaria parasite. Treating the symptoms, fever and chills, will not cure malaria.**

This information is only for the interest and wider understanding of the student. There is no need to have students memorise the names and dates.

Student Activity

Think about your own house. How could you help to make it a healthy habit to sleep under a mosquito net every night? Remember: to make a habit, it needs to be easy, convenient, and it works best when friends and family help each other remember. **Possible answers: Do not take the bed net down during the day so that it is already hanging when you want to go to sleep. Remind each other to use a bed net before you go to sleep.**

Student Activity

Where in your community can you go for a malaria test? How much does it cost? Where can you go to buy the medicines? How much do they cost?

Student Activity

1. What causes malaria? **A parasite that lives part of its life in mosquitoes**

2. How can you get malaria? **By being bitten by a mosquito that has the parasite**

3. How can you avoid getting malaria? **Do not get bitten by mosquitoes. That means covering your skin with clothing, especially in the evenings, wearing mosquito repellent and/or using bed nets.**

4. How do you know if you have malaria? **You have the symptoms: Fever, shivering, pain in the joints, headache, and maybe vomiting, and go to the doctor for a diagnosis.**

5. What other diseases have symptoms similar to malaria? Dengue fever, flu,

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?

Because the parasites are becoming resistant to the medicines, because not everyone gets treated, and because for some people the medicines are too expensive or not available.

7. Can you cure malaria by using aspirin to lower the fever? Explain your answer. **Answer: No. You must use the correct treatment for killing the malaria parasite. Treating the symptoms, fever and chills will not cure malaria.**

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.

Students may fill out their fact sheet with any information they find interesting and important. One example follows:

Fact Sheet: Malaria

Cause: Malaria is caused by a parasite that lives part of its life in a mosquito and part of its life in a person. There are different types of parasites, and each needs a specific medicine to kill it. This is why it is important to go to the doctor for a diagnosis before taking medicine.

Symptoms: Fever, shivering, pain in the joints, headache, and maybe vomiting

Transmission: Malaria parasites are transmitted from one person or animal to another by mosquitoes. The malaria parasite can live in only one species of mosquito. That kind of mosquito bites mostly in the early evening and in the morning. If the person or animal that the mosquito bites has malaria parasites in the blood, some malaria parasites can enter the mosquito when she drinks. Later, when the same mosquito then bites another person, some of the malaria parasites will enter the blood, transmitting malaria. Even one parasite can cause malaria. The mosquito itself does not cause malaria; it only carries the parasite that causes malaria.

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Diagnosis: Malaria is diagnosed by examining the blood under a microscope. Through the microscope, health professionals can see if there are parasites in the blood, and if so, what kind they are.

Treatment: Malaria can normally be cured using anti-malarial drugs. The symptoms, fever, shivering, pain, and headache, quickly disappear once the parasites die. Unfortunately malaria parasites in Southeast Asia are becoming resistant to some of the common anti-malaria drugs. This means these drugs are no longer very effective. Patients taking the wrong medicine, or taking too little of it, can increase resistance. Patients with resistant malaria have to take more expensive drugs.

Student Activity

What do you know about TB? Think about symptoms, transmission and treatment.

Encourage students to bring up information that they are not sure is true, and beliefs they have heard that they think are not accurate as well as anything they have learned or experienced. Also, they should talk about any difficulties they have heard of in diagnosing, preventing, and treating TB, and think of possible solutions.

Extra information for teachers:

There is a vaccine for TB, called BCG. It is not as effective as most vaccines, but it gives some protection to children, especially against TB outside of the lungs. It is not effective for adults, and does not provide full protection for children.

TB outside the lungs is also an important disease, and needs treatment. However, it is difficult to diagnose, and there is not much an individual can do to prevent it, and it does not spread from one person to another. Therefore it is not covered in this book. If someone wants to learn more about it, they can search for information on miliary tuberculosis.

There are other tests for TB, including a skin test called a Mantoux test, and a blood test. However, these test past exposure to TB. Tests cannot reveal clearly whether someone cleared TB from their system, has latent TB, or active TB. People with active TB may have a depressed immune system and therefore a negative result on a skin test.

Latent TB is not usually visible in chest X-rays, but if there are larger colonies of TB in the lungs they may be visible. Normally someone with latent TB would not need any treatment. However, if someone is known to have latent TB and weakened health, for example by cancer, HIV, or other issues, treatment to prevent TB from becoming active can be useful.

Strategies for dealing with tuberculosis are different where there is a high number of tuberculosis cases (high-prevalence areas), like South and Southeast Asia, and a low number of cases (low-prevalence areas). Information about detection, treatment, and vaccination from low-prevalence areas cannot be applied to high-prevalence areas.

TB is especially dangerous for people with HIV. If you combine the people who are recorded as dying of TB with those who are HIV-positive and have advanced TB when they die, TB is the most common recorded cause of death in Myanmar. The best way to prevent TB infection on vulnerable children and HIV-positive populations is to quickly diagnose and treat all cases of TB in the lungs. This is why there are national TB programmes in Myanmar and Thailand which provide and monitor treatment for all infective TB patients.

Student Activity:

1. If someone has latent TB, are the TB micro-organisms alive inside their body? **Yes**

2. If someone has active TB, are the TB micro-organisms alive inside their body? **Yes**

3. How are latent and active TB different**? In latent TB, the immune system stops the micro-organisms from multiplying. There is never a large enough population of micro-organisms inside the body to make the patient sick and the patient cannot spread the disease to other people.**

With active TB, the number of micro-organisms increases faster than the immune system can kill them. When there are a lot of micro-organisms in the body, the patient begins to feel sick and can spread the disease to other people.

Latent TB cannot be easily diagnosed.
Active TB can be diagnosed by sputum test and chest X-ray.

There is no present danger to the person's health while TB is latent.
Active TB kills half the people it infects if untreated.

Student Activity:

What are two ways you can prevent the spread of TB micro-organisms? **1. Cough into your elbow, 2. Don't spit on the ground.**

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 looking at the symptoms, like coughing, fever, sweating, and chest pain. **False, a test of the patient's sputum or a chest X-ray is required to confirm a diagnosis.**

b. Cyclone Nargis would not affect any TB patients. **False, the destruction of the cyclone destroyed local stocks of medicine, and made it impossible to get medicines to people who had been taking them. Interruption of their treatment created a serious risk of resistance.**

c. Most people who breathe in TB micro-organisms do not need TB treatment. **True, nine people out of ten who breathe in TB micro-organisms have a very limited infection and do not need treatment.**

d. TB micro-organisms cannot develop resistance to TB medicines. **False, TB micro-organisms can develop resistance to TB medicines when the full strength and full course of medicine is not taken, just like any other micro-organism.**

e. One percent of people in Myanmar die of TB every year. **False, about one percent of people in Myanmar develop active 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?

1 infects 2 = 3; year 2: 3 infect 6 + original 3 = 9; year 3: 9 infect 18, + original 9 = 27; year 4: 27 infect 54, + original 27 = 81; year 5: 81 infect 162 + the 81 = 243; year 6: 243 infect 486 + original 243 = 729; year 7: 729 infect 1458 + original 729 = 2187.
In fact, in addition to the 10% who develop active TB, about 2% develop the more dangerous form of TB which is not in the lungs.

Fact Sheet: Tuberculosis (TB)

Cause: TB is caused by a bacterium called *Mycobacterium tuberculosis*

Symptoms: There are no symptoms when someone is first infected. Later the patient will cough (often with blood), have chest pain, fever and sweat, be short of breath, lose appetite, and lose weight.

Transmission: TB bacteria are spread when an infectious person coughs or sneezes, especially if they do not cover their mouth or nose. If they spit, when the spit dries the bacteria can be picked up by the wind and breathed in by others, too. When a person breathes in TB bacteria, the bacteria can settle in the lungs and begin to grow. From there they can move through the blood to other parts of the body, such as the kidney, spine, and brain. TB in the lungs or throat can be infectious.

Diagnosis: The only way to be certain about whether someone has TB is by taking a sample of their sputum (spit or mucous that they cough up) and growing the bacteria in a laboratory. Chest X-rays can also be done. Latent TB is very difficult to diagnose. So is TB which is not in the lungs, but might have spread anywhere in the body.

Treatment: There are effective medicines for TB, and treatment usually takes six months. With no treatment, about half of TB patients die of the disease. If the bacteria are not resistant, and drugs are taken correctly, almost all patients recover and are healthy again.

Student Activity:

How many ways can you think of that someone else's blood could come in contact with your blood? Have you ever come in contact with someone's blood that way before? **Students might come up with all sorts of creative ways, but the real ways that people get HIV by blood is usually the reuse of needles or syringes with a tiny amount of blood still in them, blood transfusion, and sharing shaving equipment.**

Student Activity

Can you find condoms in your community? Have you ever bought one? Do you ever buy condoms for other people? **Let students discuss their access to condoms and advise them about where they can access them if they don't know.**

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

There are many ways to prevent sexual transmission. Here are some ideas:

The only 100% effective way of preventing transmission of HIV/AIDS through sexual intercourse is not to have sex. However, there will always be some people who act against advice and pressure, and have sex.

Condoms – the correct use of the male and female condom greatly reduces the risk of HIV/AIDS transmission (although no sex is 100% safe).

HIV and sex education – the more people know about the risks of HIV transmission through sexual intercourse, the better they will be able to protect themselves against infection.

Being faithful to your partner – people with many sexual partners at the same time have a higher risk of being infected with HIV/AIDS, and infecting other people, particularly if they are having sex without using condoms. (Although confidence is your partner is not 100% safe.)

Regular HIV testing – if people regularly get tested for HIV they can make sure that they reduce the risk of infecting other people if they should become HIV positive. However, HIV tests are not 100% correct. Also, an HIV test does not show positive until a few months after infection, so there is no way for people to know when they are first infected.

Delay sexual activity –Young people delaying sexual activity until they are older can reduce exposure to HIV, as they are more able to make informed, mature choices. However, elders have been persuading young people to delay sexual activity for many generations, and yet pregnancies and sexually transmitted infections reveal that these efforts have not been very effective.

Match ages of couples – Older, more sexually experienced people are more likely to have HIV. When both partners in a couple have a similar level of experience, they also have a similar chance of having HIV. It is sadly common for a sexually experienced older man to look for a sexually inexperienced younger woman, and to give her HIV.

One partner at a time – When people have more than one partner at a time, **all** the partners share additional risks.

How the HIV/AIDS virus works

Viruses are micro-organisms that cannot stay alive by themselves. To survive and reproduce, they need a 'host' cell to live in. The HIV virus infects cells in the immune system called CD4 T-cells. Once the virus has infected the T-cell it makes the cell produce copies of the virus particle, which are then passed on to other T-cells. The host T-cell is destroyed in this process.

Between 2 and 16 billion viruses are copied in the body of an infected person every day. Each virus particle has a life span of a few hours. Therefore, in a person with HIV, billions of T-cells are destroyed every day. Their bodies produce many more, but eventually the number of T-cells killed by the virus is greater than the number that their bodies can produce. Therefore, the total number of T-cells begins to fall, and the immune system of the infected person becomes weaker and weaker.

Review the answers to the questions in Box 6, about Stigma.

Fact Sheet: HIV/AIDS

Name: Acquired Immune Deficiency Syndrome (AIDS)

Cause: Human Immunodeficiency Virus (HIV). HIV infects cells of the immune system and damages or destroys them. HIV infection harms the immune system, so the body cannot fight disease. People don't actually die of HIV/AIDS, but of infections that their weakened immune system cannot fight.

Transmission: The HIV virus *CAN* be transmitted through:

- sexual intercourse
- sharing contaminated needles (e.g. by drug users)
- blood transfusions
- breastfeeding (mother to baby)
- infection passing from mother to baby during pregnancy and childbirth

The HIV virus *CANNOT* be transmitted through:

- saliva, tears or sweat
- insects (mosquitoes cannot transmit HIV/AIDS)
- using the same toilet (seat)
- air or water (i.e. coughing or swimming)
- through urine, vomit or faeces
- touching, hugging or shaking hands
- sharing food
- sitting next to someone

The most common mode of transmission of HIV is sexual. The virus tends to be more easily transmitted from males to females during sexual intercourse than vice versa.

Treatment: There is currently no cure for HIV/AIDS. However, there are drugs called 'antiretrovirals' (ARV's), which slow down the effect of the HIV virus, and increase the time between HIV infection and the development of AIDS. All attempts to develop an 'AIDS vaccine' have so far failed.

Teacher Note:
This is a simplified explanation of the role of carbohydrates, fats, and proteins. For more information see http://www.mckinley.illinois.edu/handouts/macronutrients.htm and http://www.mayoclinic.com/health/healthy-diet/NU00200

Ask the students to define ‘deficient’ (not enough, lack of). If a diet does not have enough of something it is deficient. If a food is rich in a nutrient, then it has a lot of that nutrient in it. If a food is poor in a nutrient, then it has little of that nutrient in it and you must eat a lot of it to get enough of that specific nutrient. To explore these concepts further, have the students do the activities listed at the end of the chapter after Table 3.

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. **Suggested answers: Protein - shrimp, chickpeas Iron - dried shrimp, fried egg Vitamin A - tomato, pennywort Vitamin B - peanuts, chickpeas Vitamin B - chicken, black rice**

Student activity

1. How much protein does someone who weighs 60kg need in a day? **60 x 0.8 = 48g**

2. Do children need to eat more or less total protein than adults? Why or why not? **They need less because their body mass is less.**

3. Do children need to eat more or less protein per kilo of body weight than adults? Why or why not? **The recommended amounts of protein per kilo are the same for children, but it is more important that children get this recommended amount, because it can affect their development.**

4. Do pregnant women need to eat the same amount of protein as others? **Doctors usually recommend that pregnant women eat more protein – around 30g more per day. Have students work out why this would be.**

Teacher Note:

Nutritious inexpensive foods:

[illegible]

Nutritious snacks: any fruit or nut; [illegible]၊ ဒိန်ချဉ်

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 with Burmese translations:

	Food	protein g	iron mg	calcium mg	vit A μg	vit B1 mg	vit B3 mg	vit C
□□□□□□□□□□□□	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	12	0.77	1.1	-
□□□□□□□□□□	chicken egg, raw	13	2.1	84	540	0.24	0.07	-
□□□□□□□□□□	chicken egg, fried	12	4.3	227	787	0.14	0.08	-
□□□□□□	white tofu	13.5	3	136	3	0.06	-	-
□□□□□□□□□□□	Shan tofu	10.5	4.5	310	-	0.04	0.4	-
□□□□□	peanuts	27	2.5	48	7	0.53	15.3	5
□□□□□□□	lentils	19	1.4	126	0	0.26	2.6	0
□□□□□□□□□□□□	Tomato	1.4	1.4	5	3850	0.06	1.6	23
□□□□□□□□□□	amaranth leaf	5.5	4	192	18,670	0.05	1.2	
□□□□□□□□□□□□□	roselle leaves	2	1.5	11	1257	0.02	1.8	34
□□□□□□□□□□□□	Indian pennywort	1.5	3	170	3,619	0.15	1.2	-
□□□□□□	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	
□□□□□□□□□□□□□	green chilli	6.5	3.5	86	3630	0.37	2.5	96
□□□□□□□□□□□□□□□□	ripe tamarind	2.5	1.5	81	5	0.22	1.1	3

Ask students why it is necessary to compare the same amount of each food in order to determine how nutritious it is. Point out that you have to eat 5500 g of tomatoes to get the same amount of protein you would get from 100 g of dried shrimp.

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 25g of protein?

5 eggs. 100 g of egg has 12.5g of protein, 200 g has 25g. One egg is about 40g, so 5 eggs make 200g.

2. How many peanuts do you have to eat in order to have 5 mg of iron?
200 peanuts. 100g has 2.5 mg of iron, 200g has 5 mg. Each peanut weighs about 1 g, so 200 peanuts make 200 g.

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

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

One egg is 40g; 100g of fried egg has 4.3 mg of iron. 4.3 x 0.4 = 1.72 mg of iron in one fried egg. Daily requirement is 12 mg. 1.72 ÷ 12 = 0.14 = 14%

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. About 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?

100g of black rice has 31 mg of B_1 ; white rice has 16 mg of B_1, about half. So it take 200g of white rice to get the B_1 found in 100g of black rice.

Before starting this chapter, students should have read the accompanying graphic booklet. .The two books (one for males and one for females) contain vocabulary which will be used here, a longer explanation of how pregnancy starts, and some questions and answers so that readers can check their understanding.

Teacher Guidance
Give students one minute to think about their position, and then ask those in favor of maintaining the marriage to go to one corner of the room and those who were in favor of ending the marriage (annulment, divorce, abandonment….) go to the opposite corner of the room. Give each side 10 minutes to prepare their argument.

Write ‘international’ and ‘interstellar’ and ‘interstate’. Define each (international = something between nations; interstellar = among or between stars; interstate = something between states).

Ask students to find the pattern and define ‘inter’ (among or between).

Ask students to define ‘dependent’ (reliant on someone/something).

Ask students to figure out the meaning of interdependent (dependent on each other; need each other to survive and thrive). Thus both partners benefit from the relationship because they need each other.

Teacher Guidance
Suggest that students talk to a variety of different people, including parents, religious leaders, community leaders, other students, males and females.

The next day, discuss the findings as a class by writing the questions on the board and then recording the answers that the students give.

You could also have the students work in small groups to answer the questions. Each group should record the answer to the questions on a piece of paper, then hang the paper on the classroom wall. When all papers are hanging, have the students walk around and read each paper.

Lead a discussion that examines the difference in answers given by different people-for example, are men and women’s answers the same? If not, how are they different? Why do you think that is? Are religious leaders and parents answers similar? Do the students agree with the all of the ideas of the people they talked with?

One purpose of this exercise is to introduce data analysis. Ask the students to determine which comparisons make sense. For example, comparing males and females makes sense, comparing males and teachers does not make sense.

Student Activity:

1. Name as many slang terms as you can for condom.

2. How many advantages can you think of to using condoms? **Possible answers include: It lets the man take responsibility. It is clear that it is being used. It doesn't need much planning. It is easy to use. It also prevents almost all infections spread by sex. It is cheap, depending on the brand of condom used. You can buy many condoms at once, and be prepared. You can give them to your friends if they need them. It is effective.**

Student Activity:

How many advantages can you think of to using pills for birth control? **Possible answers include: You take them in regularly, so you are prepared all the time. It lets the woman take responsibility. Pills are not hard to take. Pills can be cheap, depending on the brand. Pills can make a woman's period less painful. Pills can make a woman bleed less during her period.**

Extra activity:

'The social network'. Discuss the way STIs are spread. Act out the spread of an infection by having students writing their names on 1, 2 or 3 pieces of paper and passing them to other students. Imagine if just one person in this imaginary social network had an STI, and getting a note from them meant that you were also infected. How quickly would the disease spread around this community?

Teacher Notes:
Give half of the class story A and half story B. Ask the students to read the stories to each other and to think about the questions about the limits to allowable sexual activity. When students are finished reading and thinking, ask them to find another person who read the same story and discuss the answers to the questions. When the pairs of students are finished discussing, ask each pair of students to find another pair of students who read the same story. Have the groups of four discuss the questions.

Have each individual record in their notebook how their answers to each question changed as they discussed it with others. If their opinions did not change, have the student record how they answered the arguments that other students put forth. What was the most convincing argument? What made it convincing?

Teacher Note: Putting these causes, preventions, treatments, and symptoms into columns does not mean that there is never any cross-over. Sometimes mental illness affects physical health and vice-versa. Here is one possible answer:

	Physical Disease	SAME	Mental Disease
Cause	**Micro-organisms**	**Environment; genetics**	**Coping mechanisms**
Prevention	**Behaviors to prevent the spread of microbes**	**Behaviors**	**Behaviors to deal with stress**
Treatment/Cure	**Medicine**	**Behavior change**	**Medicine, talk therapy**
Symptoms	**Visible and understandable**	**Empathy depends on other people's ability to understand the symptoms.**	**Invisible and not understandable**

Student Activity

1. Is stress visible? **No, stress is the feeling someone has; you cannot see someone's feelings.**

2. Is a stress response visible? **Yes. The stress response is how someone reacts to stress. You can see the response in their face expression and their behaviour.**

3. Is a stressor visible? **Sometimes. Sometimes it is possible to see and understand what is causing someone to feel stress and sometimes it is not possible to see and understand what is causing someone to feel stress.**

4. Do people react to stress or to stressors? Explain your answer. **(People react to the feeling inside their bodies, or the stress, caused by the situation, or the stressor. (A stressor may cause different feelings of stress and different stress responses in different people.)**

Before class, write the following stressors on separate pieces of paper/cards.
1. Late for class
2. GED exam in 1 month,
3. Lost your phone,
4. District championship cane ball match in one week.
5. Want to go out with friends, but parents ask you to take care of little brother.
6. Community member is drunk and angry. He enters your house.
7. The price of rice increases by 200% over night.
8. Your baby sister is very sick and you don't have money for medicine.
9. You receive a scholarship to study abroad.
10. Someone you love asks you to marry him/her.

During class: make a large chart on the board like the one in the student book. Give one stressor card to each group. Have each group act out their stressor, ONE stress response and its matching consequence (either short OR long term). The rest of the class individually fills in the chart with what they think is the stressor, stress response, and consequence.

There are more mental illnesses than described here, but these are the most common and ones which people and societies can do something to cope with.
Epilepsy is not considered a mental illness, because it does not affect the way that people think.

Student Activity:

Here is a list of recreational drugs. Which do you think is the most addictive? Put them in order of addictiveness: **There are lots of different answers to this question, depending on the way the research has been done and the factors that are considered, but a commonly used order according to how hard it is to stop using the drug is: tobacco, heroin, alcohol, yaba, marijuana, caffeine**

Extra information: About 15% of people who drink are addicted to alcohol; about 30% of people who smoke are addicted to tobacco.

Other Suggested Discussion Topics

1. What effects of alcohol drinking have you seen? **Answers should include effects on the community as well as on the family and individual drinker.**

2. In your community, are there people who drink just one or two glasses of beer or have just one drink, or do most people usually keep drinking until they are drunk?

3. What makes young people want to start using tobacco? **Some reasons may be: Imitation of others, influence of advertising, ignorance of serious health effects, desire to try new things, offers from people who use, boredom, like the effect.**

4. How can the community reduce total tobacco use? **Some ideas are: Education about the effect of tobacco use; making cigarettes, cheroots, and betel more expensive; not allowing smoking or betel chewing in certain buildings or other places; not allowing smoking near children; having tobacco users contribute in some way to the community for each betel quid, cigarette, or cheroot they buy.**

In groups, have students make up questions about the section on ‘Recreational drugs’.

Some people and governments believe in punishing people to prevent or stop addiction. In many cases, drug addicts are sent to jail. However, others believe that addicts need help, not punishment. They argue that if the goal is to reduce drug taking, giving help is more effective than giving punishment. They say that threatening to punish people drives them away at a time when they need help and support from their community.

Have students discuss the best ways to deal with the problems of drug addiction? Think about it from the perspective of family, friends, community, government and society.

Chapter Review

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

2. Ko Tay has 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 (hint: refer back to the chart in your notes where you connected the symptoms and diseases)? **There are many diseases that have these symptoms, including flu, malaria, hepatitis, pneumonia, and typhoid**.

b. Was it a good idea for Ko Tay to stop taking the medicine after 3 days? Explain. **No. There may still be some harmful micro-organisms living in Ko Tay's body. If Ko Tay stops taking the medicine early, he might contribute to the formation of a resistant strain of micro-organism. If his immune system cannot kill all the micro-organisms, he may need a stronger medicine.**

c. Should Zaw Min Htut take the medicine that Ko Tay had left over? Why or why not? **No. Zaw Min Htut needs to have a diagnosis from a doctor before taking any medicine. The symptoms that he has could indicate many different diseases, some of which can be cured by some antibiotics, some of which cannot. Ko Tay's medicine will only work if Zaw Min Htut has the same disease as Ko Tay, and it may do him harm if he is sick with a different disease, or allergic to the medicine.**

3. Before class, make one set of the cards shown in **Appendix B** for each group of students. Ask each group to choose a characteristic by which they wish to categorise the diseases, and place the 3 characteristic cards in order across the table, leaving space between the 'most', 'somewhat', and 'least' cards. Then have the students place the disease cards alongside the correct characteristic according to the information on the card. Have students do a minimum of two rounds, noting the disease that is farthest to the 'most' side and the disease that is farthest to the 'least' side.

End the activity with a class discussion about the need to classify diseases according to different categories and when these categories change, the position of the disease along the continuum may change.

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

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? **'Re' means to return to a previous condition; to do something again. 'De' means away from, out, or out of. Hydrate comes from the word hydro which means water. Other examples: rebuild the house (build it again), refill the glass (fill again); deflate the balloon (take the air out, opposite of inflate), decolonise (make independent), deforestation (destruction of forest). Ask the students to think of other words they know that start with're' and 'de'. Write them on the board and determine if the meanings make sense. Words they might know: reproduce, redistribute, redirect, redial, declassify, deregulate, decriminalise, detoxify, decompose. Ask students to guess what 'hydrate' means. (to wet or fill with water). Using word-decoding strategies, ask students to use word decoding strategies to think about the words hydropower and hydro-electric. (Hydropower - power that comes from water; hydro-electric dam, a dam that generates electricity using water).**

2. The chapter says that diarrhoea is especially dangerous for young children. Why are young children more at risk than adults? Y**oung children are smaller than adults, so if they lose one cup of water, it has more of an effect than if an adult looses one cup of water.**

3. If an adult weighs 50kg and looses 1kg of water, what percentage of her body weight does she loose? **2%**

4. If a child weighs 10 kg and looses 1 kg of water, what percentage of her body weight does she loose? **10%**

5. How much water is one kg? **One litre**

6. 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? **3 Litres of solution: 1 x 3=3 litres water, 6 x 3=18 teaspoons sugar and 0.5 x 3=1.5 teaspoons of salt. 2 teaspoons of sugar: 6/3=2 teaspoons sugar, 0.5/3 = 0.17 teaspoons salt, 1/3=0.33 litre water.**

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.

The part of the community could be any group they can think of: drivers, teachers, bar owners, teenagers, old people, smokers, fathers, football players, musicians, people riding on busses, anyone. Materials can also be anything appropriate for their message: a poster, a pamphlet, a song, a radio broadcast, a skit, graffiti, a game, anything, as long as the information is correct, appropriate, and non-stigmatising.

You might want to discuss ideas for a public education campaign to promote a healthy community. Choose one of the topics from section one and have students discuss what would be the best way to communicate to and work with the community on the issue. They might perform a play or a skit, make a poster, give a presentation to a primary or secondary school class…etc.

Student Activity

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

Community members need to be closely involved in decisions about any health programme.

Community members need to know who to communicate with about any questions or issues related to the programme.

People need to know how to take action.

Any action recommended to improve the health of the community needs to make sense to community members and be easy to incorporate into daily life**.**

Community members need to know and have ways to influence health policy.

Community members should have ways to further educate themselves about health issues affecting their community.

Community access to clean water and proper sanitation, community participation in the maintenance of the water and sanitation systems, and advocacy at the local, state, and national level are important parts of improving a community's health by preventing diseases.

Student Activity

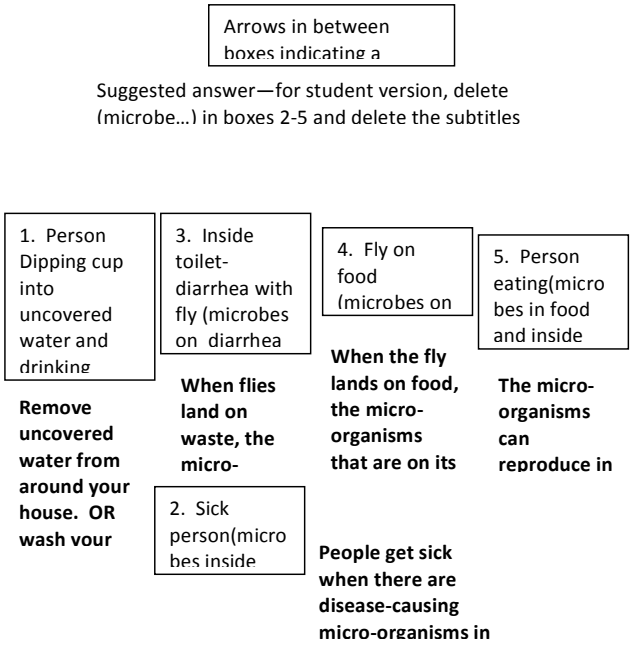
Name three types of waste that sanitation methods keep away from people. **Human waste, animal waste, household waste**

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.
The cow could have been cured of its infection. The cow could have been kept in a field which was not near a stream people drink out of. The boy could have brought clean water with him. The boy could have disinfected the water before drinking it. The boy could have used a latrine instead of going into the woods. The boy could have buried his diarrhoea so that flies could not land on it. The food could have been covered to prevent flies from landing on it.

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.

Teacher Note: An alternative to this exercise is to write the subtitles on the board in random order. Ask the students to put them in the correct order, and to draw a picture for each one, labelling the micro-organisms in each picture.



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. **Suggested answers: Use fly-proof toilets, get rid of all flies, get rid of uncovered standing water, keep waste in closed containers to protect food from flies, wash hands with soap after going to the toilet, wash hands with soap after being around animals, wash hands with soap before handling food, wash hands with soap before handling dishes, cover food to protect from flies, make sure water is clean, store clean water in clean containers, general cleaning of kitchen, toilet, house, garden, neighbourhood, streets, keeping pet animal waste cleaned up, keeping farm animals away from homes.**

Student Activity:

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

It disposes of human waste away from water sources. It disposes of human waste where flies cannot go from it to food. It disposes of human waste away from fields which grow food for animals or people. It makes it easy for people to wash their hands after using it.

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

When human waste is near a water supply, near animals, near crops, or in a place where flies will land on it, the micro-organisms can easily get into the community. The community is interdependent, so it is not only the ones who do not use the latrines who will be exposed to the micro-organisms. The whole community can be exposed.

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

Some people do not want to build a latrine. There may be many reasons for this, but some are that they do not see it as necessary; they are small households and no one has time to dig a pit and build a cover; their compound is too small to fit a latrine; their compound is too close to a water source. Nobody should be forced to build a latrine. It is better to convince people by example. If households see other households getting the benefit of using latrines, they may start using the public latrines, or may build one willingly when they get the chance.

Student Activity

Why do you think it is important for communities to answer questions about maintenance and funding before opening a new latrine or water system? **To avoid problems and conflict between neighbours after the system has been built. Also to make sure that everyone realises there will be costs that come with the new system and community members will need to pay their share, either in labor or in cash. If community members are not willing to pay their share of the maintenance costs, the project should not be started.**

Teacher Note: If there is a local government agency or an NGO/CBO in charge of the water supply in your town, invite a representative from the organisation to speak to the class. Ask them to speak specifically about what they do to ensure the water is clean, to ensure that everyone has access to it. Also ask them to discuss what community members can do to help maintain the water system. Before the guest speaker arrives, ask the students to brainstorm questions for the representative. Ask the class president to ask the questions after the speaker's talk. After the guest speaker leaves, review what was said and have each student write a thank you note to the speaker, naming at least one thing the student learned from the presentation. Either post or hand deliver the letters at your earliest convenience.

Student Activity

Look back at Chapter 1 and how diseases are spread. What is a cheap easy way that a community could treat their water to kill the micro-organisms that cause disease? Would this method be useful for removing heavy metals from the water? **The family could treat their water with sunlight – the SODIS method, by leaving water in plastic bottles in a sunny spot for 6 hours. If it is cloudy, they should be left in as much sunlight as possible for 2 days. No, this does not get rid of heavy metals. This method isn't really practical for a whole village because of the number of bottles required and the amount of space required to leave the bottles in the sun.**

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? **Have one bucket that was used to get water; keep that bucket clean; paint a no-hands sign on the water source; cover the water source**

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 problem. **Suggested answers: who will keep water in the water stations? Who will provide the soap or traditional soap for public spaces, who will clean a toilet that is shared by several households? Who will monitor the land around the community water supply and enforce the policy that there should be no animals there? How will the community collect money for a new tap if the current one breaks? How will the community organise an NGO to test their water for free?**

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?

Mental health begins in childhood. Mental health of adults is related to what they had access to in the communities where they grew up.

Children who grow up with good mental health have grown up in communities where they have access to child-friendly schools, nutritional support, development centres, safe and healthy housing. Women in these mentally healthy communities have access to work opportunities. Old people have access to social support. Everyone has access to violence prevention and support.

When some people do not have access to these things, they are at greater risk of having mental health problems which may prevent them from contributing fully to their community as an adult.

2. How mentally healthy is your community? 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.

Many of these factors strengthen social ties and reduce stress. Strong social ties promote mental health. Stress can contribute to mental illness, especially when coping mechanisms are poor.

Student Activity:

1. What are the most important parts of malaria prevention and treatment? **There are three main parts of malaria prevention: reducing the number of mosquitoes, reducing the number of mosquito bites, and treating malaria quickly so that fewer mosquitoes carry malaria.**

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?

Malaria was stopped in Europe and North America by reducing the number of mosquitoes through eliminating standing water in the environment, killing mosquitoes, and by consistently treating people who had it.

Background information for teachers: Malaria was common in the southern parts of Europe and North America until the 20th century. However, as the winters are too cold for mosquitoes, the pattern of disease was different, and most transmission of malaria was in a few months of the year. Once it was clear that malaria was transmitted through mosquitoes, there were campaigns to kill mosquito larvae and adult mosquitoes. This was done in a number of ways, but included draining swamps and widespread use of insecticide. Now it is understood that draining swamps can also have many negative effects. The heavy use of insecticide caused mosquitoes to develop resistance to it, and those pesticides are no longer effective against mosquitoes. They also had harmful effects on human and animal health. Those methods can no longer be used. However, the final element was treating people with malaria. At the time, chloroquine was the only treatment. Now there are many medicines which can be used to treat malaria. If they are used correctly, they are also part of the effort to stop malaria.

2. Can a community affect access to malaria testing? How?
If a community has many malaria cases, the community together can try to get a way to test in the community. Some possibilities are: arrange for sending someone from the community to get training in malaria testing; invite an organisation (from the health department, or an NGO) to open a testing lab, or visit regularly with testing equipment; arrange for easy transport of blood samples to the nearest testing lab.

Student activity:

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

Possible answers include:

If some people in a community have active TB, others can get it. The best way to prevent transmission in a community is for everyone to have access to quick and effective treatment for TB. If only some people have access to treatment, TB continues to spread in a community.

People in a community may already know about TB as a disease, but everyone cannot find out that they have access to treatment if the community is not involved to inform the members and support them in testing, referral, and treatment. The community must not stigmatise people with TB, or they will not want to be tested. DOTS can be based on community participation. Health workers are not needed to deliver medicines and observe people taking them if community members participate as independent observers. The inclusion of everyone — the old, the poor, the stigmatised, the difficult people — cannot happen without community participation.

It would be very difficult for many families and communities to afford TB medicines on their own, but one person's active TB affects the whole community when it spreads. A health policy of treatment for every person with active TB is a proven way to control the transmission of TB so the whole community and eventually the whole country benefits.

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?

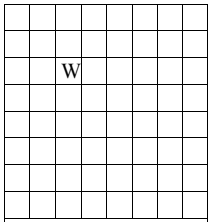
When the clinic did not respect the THPs and their position in the community, the clinic staff could not reach out as effectively to the people who went to THCs for treatment. When the clinic staff stigmatised young people for requesting condoms, fewer young people were willing to ask for them, and it is likely that some of them became infected with HIV as a result.

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

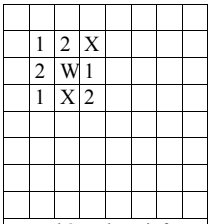
Exercise: Teacher preparation: make a 30 x 30 grid, and copy it if possible. Otherwise, students will make grids of their own.

Demonstrate how to fill out the epidemic grids. Round 1: put first infected person 'W' anywhere. Round 2: Start in the square to the upper left of W, and count the contacts clockwise 1, 2, and then mark the third square for the infected contact, X. Do not mark in the other squares. Continue around the squares surrounding the starting square. There are two new infected persons (X) (unless the starting contact was at the edge of the grid, in which case there is one). Round 3: The first person can no longer infect others, but the two new persons (Xs) can. So start to the upper left of the upper X, and count count 1, count 2, mark a Y, count 1, count 2, mark a Y, … Do not count the W and Xs.

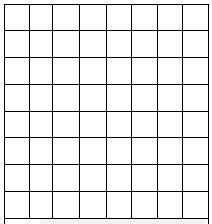
The grids will gradually fill in, but not every square will be filled. How many rounds the students go and how many squares are left uninfected depends on where the students put their first infected person.

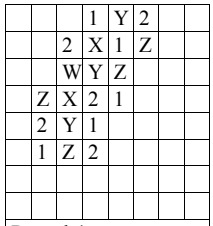


Round 1



Round 2: only X infects


Round 3: only Y



Round 4

Is breathing path blocked? Unblock nose, mouth, or throat if it is blocked.

Is the person breathing? Look, listen, and feel to see if the person can breathe.

Is there a heartbeat? Check for a pulse.

Is there bleeding? If there is any blood, find where it came from, and if there is still bleeding.

Student Activity

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

Answers may include: general undernutrition as a child will result in stunting, general undernutrition as an adult results in temporary, reversible weakness; iron or iodine deficiency can result in slowed physical and mental development in children, iron or iodine deficiency results in reversible anaemia and treatable goitre in adults; children exposed to violence and excess stress are more likely to have mental illness and addictions than others, adults who exposed to violence and excess stress have many ways of coping and usually recover well; many children with HIV do not live to be adults even with treatment, adults with good access to treatment for HIV can live for decades; TB infection in children is often outside of the lungs, and hard to diagnose and treat; TB in adults is usually in the lungs, and most can be cured; diarrhoea is a major cause of death among young children, diarrhoea in adults is usually just an inconvenience.

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.

Student Activity:

1. Why are children more at risk than adults for not getting the amount of healthy food they need? **They are smaller, so there is less room for error; they depend on adults, because they are growing and building their bodies, they need more nutrition**.

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? **Suggested answers: if students indicate they ate a lot of unhealthy snacks, campaign could be talking to adults about the importance of healthy snacks for themselves and their children. If students indicate they ate a lot of processed foods, the campaign could be about the benefits of natural foods for adults and 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 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?
The tables in this book do not cover every food children might eat, but if the students categorise the foods as leaves, beans, rice, fish, egg, meat, etc, they can get an approximate value for the nutrients the children get. As the amounts are also approximate, this approximate value is enough for the students to get a sense of whether the food for young children is close to being nutritious enough, or far from it.

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

Answers include: Wearing some kind of footwear outside, washing hands, good sanitation, careful food preparation, regular treatment with worm medicine (to keep from spreading to others).

Teacher Note: For more information about safe spaces during development, see http://www.ecdgroup.com/docs/lib_005060134.pdf and http://www.charity.org/news/Child-Friendly_Spaces_Provide_Crucial_Safe_Zones_for_Refugee_Kids

Earlier in the course, and hopefully before this chapter, the class should have had a first aid course by the local Red Cross or other group. This chapter will be a good opportunity for the learners to review their knowledge together and make sure they remember all the details. If the local Red Cross or other disaster-preparedness community organisations are active and willing, invite them back after the class have worked out their own disaster planning, and have the organisation and the class discuss what they have done, and let the learners know how they can contribute further.

Student Activity:

1. How many ways can you think of to classify disasters? Do all disasters fit exactly in one category or the other? **Examples of disasters that do not fit neatly into categories, but may be categorised for response or prevention: Forest fires started by burning fields can be prevented, but forest fires started by lightning strikes cannot. Floods and landslides can be caused by heavy rains, but the if forests are not cut down, the rain would not cause these disasters. You can predict that an earthquake will happen in earthquake zones, but you cannot predict when it will happen.**

2. Name seven kinds of disaster, and then think about different categories to put them in: Possible answers include: **famine, earthquake, tornado, flood, storm (including tropical storm, blizzard, etc), fire (forest fire, wildfire, crop fire, as well as fire in a city or village, coal-mine fire), drought, epidemic, building/bridge/construction collapse, war, pests eating crops or food, train crash, airplane crash, bus crash, ship sinking, terrorist attack, landslide (including collapse of river bank), soil erosion, dam failure, pipeline leak, animal attack (e.g., elephants), pollution from industry (or mining), poisoning from industrial accident, volcanic eruption, aridification, nuclear radiation leak, nuclear meltdown, tsunami, human stampede (people being crushed in crowd), gas explosion, mine explosion, mine collapse, contamination of food or water supply, oil spill, avalanche, riot, mass shooting**

3. Can these disasters be prevented? Student picks two, and explains. **Discuss different kinds of prevention, e.g., many bus crashes can be prevented by drivers driving more slowly and safely; many can be prevented by bus companies making sure busses are well maintained; many can be prevented by the design of the roads. Building collapse can be prevented by good building design, education of builders, government regulation and inspection during building, prevention of corruption, regular repair of roof and walls of building. Industrial pollution can be prevented by government regulation, good business practice, good employee practice, appropriate technology and design, and community action.**

4. What kind of assistance will affected people need after these two kinds of disaster? **These will be very different depending on the disaster, but at least first aid for injuries, medical assistance for injuries and ongoing medical supply for those undergoing treatment e.g., for TB or HIV or diabetes, social support for trauma, food and water where those supplies are interrupted or destroyed, reconstruction assistance, assistance in finding lost family members, legal support where there was a legal violation (e.g., industrial accident), technical support to change elements that contributed the disaster (e.g., new farming techniques and equipment to prevent aridification or soil erosion; new building techniques and materials to prevent or give early warning of bridge collapse.)**

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: for sanitation, clean water, prevention of infection, prevention of resistance, protection of child health, support for mental health.

Possible answers will be different according to the community's risks, but general ones include:

Individual: knowledge of first aid; participation in community planning; good knowledge of risks; knowledge, confidence, and ability to carry out one's own role; plan for action or fleeing danger

Household: plan for communication if people are separated; assignment of family members to take particular roles, including locating and assisting anyone who would need assistance; stock of basic medicine needed in the family and in disasters, nutritious food which does not need

cooking, water and/or water purifier (as mentioned in chapter 2), good containers for water and food etc; fire extinguishing equipment (sand if water is not easily available); radio with independent power supply (e.g., crank) or with extra batteries.

Community: community assessment of risks and plans for action for each of them; warning system; plan for communication if people are separated; supply of critical medicines for community members who are on regular medication, as well as emergency supplies (e.g., the local clinics should have a monitored stock of medicines which are either regularly distributed to community members (HIV and TB) or which they know are an issue (e.g., diabetes, emergency pregnancy prevention) in addition to medicines and first aid equipment needed in disasters), fire extinguishing equipment, repair and rehabilitation equipment for water supply (e.g., chlorine to purify wells, tools and other supplies to repair tube wells and pumps, etc), equipment necessary to provide emergency sanitation (this will be very different for different areas and kinds of disaster.

Student Activity:

1. Review the three main sources of water contamination that you learned in Chapter 9? **Human waste, animal waste, household waste.**

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.

Answers will vary widely according to situations, but potential problems include concern with keeping latrines or latrine substitutes away from drinking water supply, keeping animals away from drinking water, arranging hand washing facilities, making sure latrine facilities were also convenient for people assisting small children, injured people who can still move around, and old or weak people (e.g., there should not be a lot of steps, there should be railings on any steps or ramp, and some kind of handles inside so that weak people can hold on), household (e.g., food) waste disposal far from water supply, place for people to wash hands near the eating and drinking water handling areas.

Student Activity:

1. Could the tsunami have been prevented or reduced? **No, tsunamis are waves that come from earthquakes the water, underwater explosions, or underwater landslides. A natural tsunami cannot be prevented.**

2. What damage did the Marikkar family see? **Houses were flooded, houses collapsed, a bridge was destroyed, the father was injured, people were drowned, trees fell down.**

3. What damage could have been prevented or reduced? **If houses had been built better, they might not have collapsed. If the bridge was stronger, it might not have been destroyed.**

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? **The family should have a plan of where to go in an emergency, who will take their father if they are not both there, and where they will meet if they are separated. They should have a first aid kit in a waterproof container near the door, so they can take it as they leave the house. They could have a cloth sling to put their father in so it would be easier for them to carry him.**

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? **Priorities include: Medical care for injuries; latrines; clean drinking water supply; soap and hand-washing water; finding people with chronic diseases like TB, HIV, heart disease, diabetes, and making sure they get the medicines they need; identifying pregnant women and making sure they are in good contact with health services; finding children who need vaccinations; collecting information on missing people, present people, and information on contact; distributing food, blankets, clothing, etc fairly and transparently; setting up a system for giving and collecting information about health (especially about the start of any infectious disease), relatives, and other news.**

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? **In the tsunami situation, there will be public toilets, public water points, a working health system, a working telephone system, and a sympathetic society that can be drawn on to help. After an earthquake, the infrastructure damage means that medical care will be much more difficult, as will everything with water and sanitation. In a war situation, there may be infrastructure damage as well. In addition, the mistrust in society can make drawing on help from unaffected areas and fair distribution of assistance more difficult.**

Student Activity

1. In which country is the population increasing most quickly? **Niger**
2. In which is population growth slowest? **Czech Republic**

Student Activity

1. In which country is nearly half the population children? **Niger**
2. Which country has the smallest percentage of children? **Czech Republic**
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 which shows life expectancy from 1970-75. The first five have been done for you. Fifteen years is 21 per cent of 72 years.)

Calculation as follows:

France	**18 (21%)**	**Armenia**	**21 (21)**
United Kingdom	**18 (21)**	**Sri Lanka**	**24 (23)**
Singapore	**20 (21)**	**Indonesia**	**28 (31)**
Brunei	**30 (22)**	**Gabon**	**36 (31)**
Czech Republic	**15 (21)**	**India**	**33 (29)**
Argentina	**26 (22)**	**Cambodia**	**38 (39)**
Cuba	**19 (21)**	**Myanmar**	**27 (28)**
Thailand	**22 (25)**	**Timor-Leste**	**45 (39)**
China	**22 (24)**	**Niger**	**48 (37)**

5. Why is the percentage of the population under 15 different from this number? There are more young people now than there were in the past, so the percentage of people under 15 is greater than the percentage of a person's lifetime that is spent under 15.
6. What would it mean if they were the same? **If a population were not increasing or decreasing, with little infant mortality or migration, then the percentage of people under 15 in a country should be very close to the percentage of life 15 years represents.**
7. For which countries is the percentage of life span and this percentage of population most similar? Why? **Generally, countries with a high growth rate also have a high proportion of people <15. There are different reasons for different countries. Indicators only give you a question: you have to know the situation to find the answer. Armenia has the same percentage; they also have very low population growth, as we see in table 1. Singapore has very similar numbers; they have low population growth, and have extended the life span during this period. Myanmar's numbers are similar; there population growth has been falling and life span has been extended by about 15 per cent in the previous 20 years. In Thailand, population growth has recently slowed to a very low level. Because younger people are having fewer than two children on average, the proportion of children under 15 is low.**
8. Bonus question: What would you expect from China? **Because of China's one-child per family policy, and life span has increased by about 10 years, you would expect there to be a small proportion of people under 15, as the older population increased during this time. However, because the policy is not always enforced, and infant mortality has fallen, the number is quite similar to many others.**

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? **The highest rates are Thailand, China, Sri Lanka, Indonesia, India, Myanmar, and Niger.**

Sri Lanka, China, and Thailand are no longer among the highest. This is partly because they reduced the infant mortality rate a lot, and partly because more countries with high child mortality could provide data in 2005.

2. What reasons can you think of for differences in rates between countries? **There are many reasons for the differences between countries, including difference in resources, difference in access to health care (for example, in Singapore and Brunei, as very small countries, everyone is very close to a hospital in an emergency; in China or India one may be very far from help for a child who is seriously ill), difference in ability to afford care for children (all countries with the highest income also have very low child mortality rates), different beliefs and practices, difference in the health of mothers.**

3. All rates are lower in 2005; can you think of reasons for this? **Reasons for falling mortality rates include: advances in medical treatment, advance of knowledge about children's health, less armed conflict in some countries, a concentration of UN agencies on reducing child mortality, increased prosperity in some countries, greater access to health care in most countries (through government and UN efforts and increased NGO activity), increased public knowledge about how to improve health of children and mothers, more people with access to cleaner water and better sanitation.**

4. Bonus question: Why are no statistics available for some countries in 1970? **Gabon and Cambodia were not peaceful for much of the 1960s and later, so perhaps they were not able to produce statistics for 1970. Armenia was part of the Soviet Union in 1970. It became an independent state in 1991. Timor-Leste was still a Portuguese colony in 1970. It became an independent state only in 2002.**

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 percent. In which countries does wealth give the greatest health advantage in under-five mortality?

Under-five mortality per 1000 live births: poorest and wealthiest 20 percent of population

Country	poorest 20 %	wealthiest 20 %	
Armenia	52	23	(44%)
Indonesia	109	29	27
Gabon	93	55	59
India	141	45	32
Cambodia	127	43	34
Niger	206	157	76

In Indonesia, India, and Cambodia, the under-five mortality rates are most different among the poorest and wealthiest, with the mortality among the wealthiest 20 percent of the population only about a quarter to a third of the mortality of the poorest 20 percent.

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?

20 x 80 = 1600

10 x 70 = 700

10 x 60 = 600

10 x 50 = 500

10 x 40 = 400

10 x 30 = 300

10 x 20 = 200

20 x 5 = 100

1600 + 700 + 600 + 500 + 400 + 300 + 200 + 100 = 4400

4400 / 100 = 44 years

Student Activity

1. Has life expectancy improved everywhere? **All except Armenia have increased. However, some have increased a lot more than others. In general, those countries that started with low life expectancy increased much more than those where life expectancy was already high.**
2. Where did it change the most and the least (in number of years)? **The smallest increase was in Armenia, with no change. The largest increase was in Indonesia, an increase of 21 years**
3. Can you think of reasons why life expectancy might change or not? **There are many reasons for change in life expectancy. In many countries, better access to health care, improved quality of health care and nutrition were important for life expectancy. Decreased conflict was part of this, as was government, UN and other investment in health. Greater knowledge about diseases and health, advances in medical treatment and prevention contribute to increased life expectancy. The reasons for a lack of change, or for a smaller change include a not being able to enjoy the benefits of research and improved treatment and prevention (usually because of poverty or conflict), and already being at quite a high level, and so having little room for improvement.**
4. What reasons can you think of to explain different life expectancy in different countries? **Different countries have high or low income and so more or less money to spend on general health, prevention, and treatment. Countries differ in the diseases that are typical of their area, some of which may be easier or more difficult to treat. For example, malaria is a much more serious problem in much of Africa than in other parts of the world, and malaria is difficult to prevent entirely, and effective treatment can be difficult to deliver if people do not come for it. Beliefs about health and illness are different and affect people's lives. For example, in some places, people think it is healthy to be fat, but in fact being fat leads to many health problems. Some people think that eating fresh fruit or leaves causes disease, when in fact these foods are important for health and strength. Because of history, conflict, beliefs, education, and development, there will be many differences in life expectancy.**
5. Calculate life expectancy, and show the steps:
What if 800 people live to be 70, and 200 die at age 2? **(800 x 70) + (200 x 2) = 56000 + 400 = 56,400. Divide by population 56,400/1000 = 56.4 round to 56 years average life span.**
What if 950 lived to be 70, and only 50 children died at age 2? **(950 x 70) + (50 x 2) = 66,500 + 100 = 66,600. Divide by population: 66,600/1000 = 66.6 round to 67 years average life span.**

6. What can you say about the life expectancy of men and women? **Women live longer than men on average in all but one of the countries in the table. The difference is greatest in Thailand, where the average female life expectancy is ten years longer than the average male life expectancy.**

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? **The percentages of all births which are attended by skilled personnel are closer to the percentage of births attended among the wealthiest 20% in Armenia, Indonesia, Gabon, and India. This means that the general level of basic maternal birth care is more similar that the care of the rich than the poor. It also means that the difference between rich and poor is great, with the poorest 20 percent being highly neglected. In Cambodia and Niger, the general level of care is more similar to the care experienced by the poorest 20 percent of mothers. That also means that the situation of the wealthiest 20 percent of the population is quite different from the general society.**

2. The MMR is the number of deaths of mothers per 100,000 live births. 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? **The lifetime risk of maternal mortality combines the risk of death per live birth (MMR) multiplied by the average number of children per mother. Each time a woman has a baby, that data is included in the MMR. Where woman have more children, their lifetime risk is higher, even where the MMR remains the same.**

Some unusual features are: the literacy rate appears to be much higher than the school attendance rate. This could be because people are educated in literacy outside of school, because former school attendance was higher than present school attendance, because there was literacy education outside of school, or that figures are wrong.

In nutrition, it is interesting that stunting is higher than the underweight. Stunting is caused by poor nutrition over years. Underweight is caused by poor nutrition in the short term. This means that the shortage of nutrition is long term, though there is a lot of short-term under-nutrition as well. Poor nutrition is not only too little of food or food without enough nutrients. Intestinal worms and diarrhoea also contribute to poor nutrition. Although nearly 70 percent of infants are not breastfed for six months, not all the babies who do not receive the recommended time of breastfeeding are stunted or underweight.

Infant and child mortality fell more between 1960 and 1980, than after that year. Infant and child mortality fell very little between 1980 and 1990, but began falling more again by 2000. Life expectancy shows a similar pattern.

Appendix A

Inference Tool

Language in Text

Symptoms are changes in your body or mind that can tell you a disease agent has attacked your body. Agents cause diseases, diseases cause symptoms, and symptoms tell us that we are ill

Information I know

Disease causes symptoms
Symptoms tell us that an agent is attacking our body
Agents cause disease

Hidden Information

~~Symptoms are caused by agents~~
If we get rid of the agent, we will get rid of the disease.
If we get rid of the symptom, the agent and the disease will still be in our body.

Inferred Meaning

~~To get rid of a disease, we need to get rid of the agent.~~
Getting rid of the symptoms only will not be effective; however it may provide some temporary relief to the sick person

Appendix B

Ringworm: • Spreads from person to person somewhat easily • Lasts 3-5 days; is not sharp or intense • Is caused by a fungus • Found on the skin • Has visible symptoms • Is annoying but will not cause death • Effective treatments are available in most places • Anyone can get ringworm, regardless of their age	**Tetanus:** • Caused by a bacteria • Does not spread from person to person easily • Found in the muscles and nerves • Is sharp and intense; does not last very long • Has visible symptoms • Can cause death or paralysis if left untreated • Effective treatments are available in most places • Most people who die from tetanus are over 25 years old
Malaria: • Does not spread from person to person • Can last for many years • Found in the liver and the blood • Has visible symptoms • Can cause death • Caused by a parasite • Effective treatments are sometimes available • Anyone can get malaria, regardless of their age	**Acne:** • Does not spread from one person to another easily • Found on the skin • Can last up months or years • Is annoying but will not cause death • Most people who have acne are young people • Somewhat effective treatments are available in most places • Has visible symptoms • Caused by a bacteria
Stroke: • Does not spread from person to person • Is sharp and intense; does not last very long • Found in the brain • Can cause death • Caused by environmental factors • Most people who have a stroke are older than 25 • Only somewhat effective treatments are available in most places • Has visible symptoms	**Warts:** • Caused by a virus • Can spread from person to person somewhat easily • Can last many months or years • Are annoying but not fatal • Has visible symptoms • Effective treatments are available in most places • Anyone, regardless of age, can get a wart • Found on the skin
Depression: • Does not spread from person to person • Has no visible symptoms • Found in the mind • Caused by a variety of environmental factors • Does not usually cause death, but can be debilitating • Can last months or years • Most people who have depression are over 25 • Less effective treatments are sometimes available	**Schizophrenia:** • Does not spread from person to person • May have visible symptoms sometimes • Found in the mind • Caused by environmental factors • Can last months or years • Does not usually cause death, but can be debilitating • Most people who get schizophrenia are over 25 • Less effective treatments are sometimes available

Tuberculosis (TB): • Spreads very easily from person to person • Has visible symptoms • Found in the lungs • Caused by bacteria • Can cause death • Effective treatments are available most places • Treatment lasts several months • Anyone can get TB, regardless of their age	**Diabetes:** • Caused by environmental factors • Has recognisable symptoms • Found in the pancreas • Can cause death over time • Lasts for years • Somewhat effective treatments help to manage the disease • Anyone can get diabetes, regardless of their age • Does not spread from person to person
Scabies: • Caused by a parasite • Anyone can get scabies, regardless of age • Has recognisable symptoms • Can spread from person to person easily • Effective treatments are available in most places • Is annoying • Found on the skin • Lasts 1-2 weeks	**Cholera:** • Is sharp and intense for a few days • Can be fatal • Caused by bacteria • Anyone can get cholera, regardless of their age • Found in the stomach • May not have any symptoms • Can spread from person to person • Effective treatments available in most places
Heartburn: • Is annoying but not fatal • Anyone can get heartburn regardless of their age • Caused by internal factors and environmental factors • Cannot be spread from one person to another • Effective treatment for symptoms available • Has recognisable symptoms • Found in the throat (esophagus) • Sharp and intense and lasts for a few hours	**Pneumonia:** • Can range from mild to fatal • Caused by micro-organisms • Spreads somewhat easily between people • Usually effects older people, but can effect anyone at any time • Has recognisable symptoms • Found in the lungs • Lasts • Effective treatments are available in most places.
Characteristic Card: **Acute**	**Characteristic Card:** **Somewhat Acute**
Characteristic Card: **Usually affects old people**	**Characteristic Card:** **Chronic**

Characteristic Card: **Usually affects young people**	**Characteristic Card:** **Usually affects people of any age**
Characteristic Card: **Infectious**	**Characteristic Card:** **Somewhat infectious**
Characteristic Card: **Non-infectious**	**Characteristic Card:** **Affects a patient mentally**
Characteristic Card: **Affects a patient somewhat mentally and somewhat physically**	**Characteristic Card:** **Affects a patient physically**
Characteristic Card: **Caused by environment only**	**Characteristic card:** **Caused by the environment and micro-organisms**
Characteristic Card: **Caused by micro-organisms only**	**Characteristic Card:** **Has symptoms that are easy to identify**

Characteristic Card: **Has symptoms that are not very easy to identify**	**Characteristic Card:** **Does not have identifiable symptoms**
Characteristic Card: ***Serious* - potentially fatal**	**Characteristic Card:** **Somewhat serious**
Characteristic Card: ***Mild* - annoying but not fatal**	**Characteristic card:** **Effective treatments usually available everywhere**
Characteristic Card: **Effective treatments sometimes available in some places**	**Characteristic Card:** **Effective treatments not available**