MEDEX

MID-LEVEL HEALTH WORKER TRAINING MODULES

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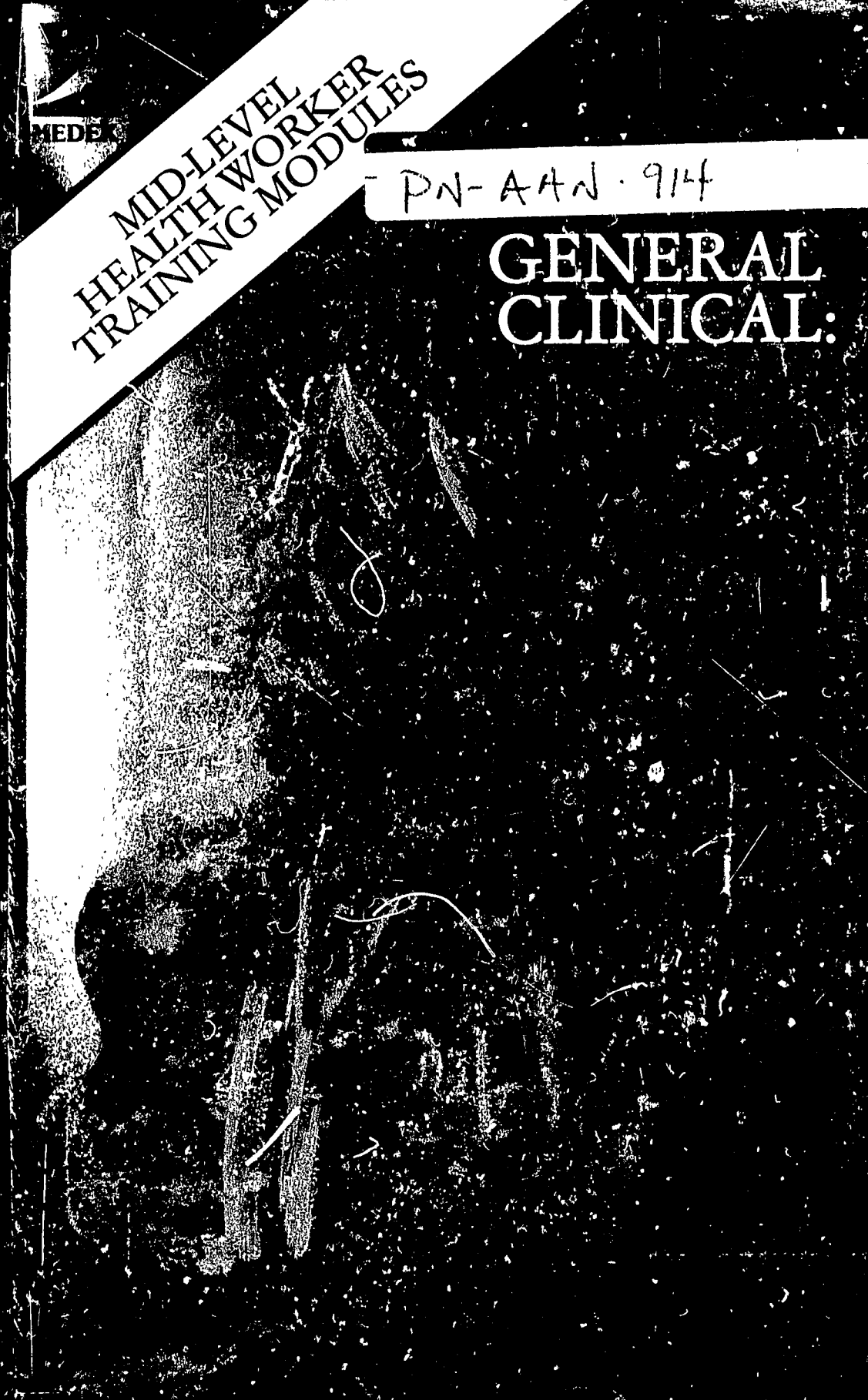

Common Problems

RESPIRATORY AND HEART

UNIVERSITY OF HAWAII JOHN A. BURNS SCHOOL OF MEDICINE

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A more detailed list of acknowledgments can be found in the *Overview* to the MEDEX Primary Health Care Series.

The MEDEX Primary Health Care Series

Common Problems
RESPIRATORY AND HEART

Student Text

Health Manpower Development Staff
John A. Burns School of Medicine
University of Hawaii, Honolulu, Hawaii, U.S.A.

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TASK ANALYSIS TABLE

Diagnosing, treating, and preventing respiratory and heart problems

Work Requirements *DUTIES*	Training Requirements *SKILLS*	 *KNOWLEDGE*
The MLHW will:	The MLHW trainee will show that he is able to:	The MLHW trainee will show that he knows:
1. Take and record a medical history of all patients presenting with a respiratory or heart complaint	1.1 Record a patient's presenting complaint	
	1.2 Question a patient about his respiratory or heart problem	1.2.1 How to question a patient about his respiratory or heart problem 1.2.2 Information needed to complete the medical history of a patient's respiratory problem: Whether the patient's condition improves or worsens during the day or night Location, radiation, pattern, and quality of chest pain Whether the patient has a cough and whether his sputum is clear, yellow, green, or bloody Whether the patient has a fever

Work Requirements *DUTIES*	Training Requirements *SKILLS*	*KNOWLEDGE*
		What makes the problem worse Information needed to complete the medical history of a patient's heart problem: Whether the pain is a crushing or squeezing pain, when it occurs, where it occurs, how often it occurs, and whether it is a radiating pain Whether the patient's lower back or ankles are swollen Whether the patient coughs in the morning Duration of the patient's cough What activities cause shortness of breath and whether shortness of breath occurs while the patient is lying down or resting Whether the patient has allergies Whether the patient has lost weight
	1.3 Record a patient's medical history	1.3.1 How to use medical history forms

Work Requirements *DUTIES*	Training Requirements *SKILLS*	 *KNOWLEDGE*
2. Give patients presenting with a respiratory or heart complaint a physical examination	2.1 Identify the signs of respiratory and heart problems listed in the skill checklists and Level I of the Clinical Performance Record: Increased breathing rate Flaring nostrils Intercostal retractions Cyanosis Increased pulse rate or weak pulse Fever Loss of weight Cough Clear, white, yellow, green, or bloody sputum Prolonged expiration Uneven expansion of chest Flat percussion note Absent or reduced breath sounds Abnormally high blood pressure of 140/90 and above Abnormally low blood pressure of 90/60 and below Heart murmur Irregular heart beat Crushing, squeezing, radiating, chest pain Enlarged neck veins	2.1.1 The anatomy and physiology of the heart and lungs 2.1.2 The definition of common physical signs associated with respiratory and heart problems

Work Requirements *DUTIES*	Training Requirements *SKILLS*	 *KNOWLEDGE*
	Shortness of breath Cool, damp, and pale skin Rales Rhonchi Wheezing Bronchial breath sounds Difficulty breathing Barrel chest Pitting edema of ankles and lower back	
	2.2 Give a physical examination for respiratory and heart problems, and record the findings	2.2.1 How to use forms for writing down the findings of a physical examination
3. Diagnose respiratory and heart problems: Pneumonia Acute bronchitis Chronic bronchitis and emphysema Bronchial asthma Pleural effusion Tuberculosis Congestive heart failure Rheumatic heart disease Angina pectoris Myocardial infarction Hypertension	3.1 Use the Student Text and Diagnostic Guides to identify respiratory and heart problems	3.1.1 The clinical picture of heart and respiratory problems, and the course and complications of the problems

Work Requirements *DUTIES*	Training Requirements *SKILLS*	*KNOWLEDGE*
4. Treat and care for patients with respiratory and heart problems	4.1 Use the Student Text, the Formulary, the Patient Care Procedures, and the Patient Care Guides to treat patients with respiratory and heart problems	4.1.1 Where to find reference manuals and how to use them
	4.2 Decide how to treat a patient with respiratory or heart problems	4.2.1 The correct medical treatment for each common respiratory and heart problem
		4.2.2 The properties of drugs and medicines for heart and respiratory problems
		4.2.3 The side effects and contraindications of heart and respiratory drugs and medicines
	4.3 Collect sputum and send it to a lab for a tuberculosis test	4.3.1 How to collect sputum for a tuberculosis test
5. Share with patients ideas on how to prevent and care for respiratory and heart problems	5.1 Counsel patients about home care, medications, and prevention of respiratory system and heart problems	5.1.1 Recommended home care procedures
		5.1.2 The prescribed drugs and dosages for each heart and respiratory problem

Work Requirements *DUTIES*	Training Requirements *SKILLS*	 *KNOWLEDGE*
		5.1.3 How to prevent heart and respiratory problems
6. Give health workers, patients' families, and others advice on how to care for and prevent respiratory and heart problems	6.1 Tell a patient's family and community groups about respiratory and heart problems and how to prevent them	6.1.1 How to tell groups of people about heart and respiratory problems using aids to make the message clear
	6.2 Teach community health workers about respiratory and heart problems	6.2.1 The content of the community health worker modules
	6.3 Contact a health office for assistance	6.3.1 When and how to ask other members of the health team for help

SCHEDULE

Common Problems — RESPIRATORY AND HEART

DAY 1	DAY 2	DAY 3	DAY 4
Introduction to Respiratory and Heart module Recognizing the signs of abnormal respiratory conditions	Interviewing and examining patients with respiratory problems; clinical practice	Treating and caring for respiratory problems Practice collecting sputum to diagnose tuberculosis	Interviewing and examining patients with heart problems; Clinical practice
Taking the medical history of a patient with respiratory problems	Diagnosing respiratory problems: Pneumonia Acute bronchitis Chronic bronchitis and emphysema Bronchial asthma Pleural effusion Tuberculosis	Recognizing the signs of abnormal heart conditions Taking a medical history and examining a patient with heart problems	Diagnosing, treating and caring for heart problems: Congestive heart failure Rheumatic heart disease Angina pectoris Myocardial infarction Hypertension

DAY 5	DAY 6		
Sharing ideas with patients and the community on the prevention of and care for respiratory system and heart problems	Diagnosing respiratory and heart problems and caring for patients; Clinical practice Group A - Patient care Group B - Interviewing patients Group C - Presenting health messages		
Diagnosing respiratory and heart problems and caring for patients; Clinical practice Group A - Interviewing patients Group B - Presenting health messages Group C - Patient care	Diagnosing respiratory and heart problems and caring for patients; Clinical practice Group A - Presenting health messages Group B - Patient care Group C - Interviewing patients		
	Posttest		

Skill development: two weeks
Clinical rotation: one month
Community phase: three months

Introduction

You already have studied the Anatomy and Physiology, Medical History, and Physical Examination modules. What you learned in these clinical knowledge and skills modules has prepared you for the study of respiratory system and heart problems. So before you start this module, be sure you know:

The normal anatomy and physiology of the respiratory system and the heart
How to take a medical history
How to give a physical examination
How to present health messages

If you are not sure how well you know this information or can do these procedures, review the clinical knowledge and skills modules before you go on.

LEARNING ACTIVITIES

Activities in this module will help you learn how to properly diagnose and care for respiratory and heart problems. These activities will take place in the classroom and in a hospital clinic or health center.

Your schedule shows you when the learning activities will occur. Student Guides in front of each unit tell you more about what you will be expected to do. The units will be taught in order, from Unit 1 to Unit 5. Your teacher will make special arrangements for Units 6 and 7 which will take place in a clinic and a community.

This training program can succeed only if you take an active part. Prepare for each session. Before each session:

Read the Student Text and answer the review questions that go with it

Read the Patient Care Guides and study the drugs you will be using

Write down questions to ask your teacher about any part of the lesson you do not understand

In class, the teacher will answer the review questions and any other questions you have.

EVALUATION

This training program will help you build your knowledge and skills. Regular evaluations will allow your teacher to watch your progress. If your progress does not meet the standard, you will be given more time to learn the subject. Your instructor will use the clinical and community performance records to measure your progress. Look at these performance records to prepare for your evaluations.

EVALUATION Level I

After six days of classroom and clinical experiences related to the diseases of the heart and respiratory system, you must be able to pass a written test of knowledge about respiratory and heart problems with a score of 80% or higher.

After another two weeks of clinical experience, you must receive two satisfactory ratings on your ability to:

- Recognize the abnormal physical signs of respiratory and heart problems
- Interview patients about their respiratory and heart problems
- Examine people with complaints of respiratory and heart problems
- Provide patients with advice about the prevention and home care of respiratory and heart problems
- Present health messages about prevention of respiratory and heart problems

EVALUATION Level II

During one month of clinical practice, you must identify and care for at least two patients for each of the heart and respiratory problems taught in this module. You are expected to earn two ratings of 4 (diagnosis, treatment, and patient advice correct) for your performance. The respiratory and heart problems listed on your Clinical Performance Record are:

Pneumonia
Acute bronchitis
Chronic bronchitis
Emphysema
Bronchial asthma
Pleural effusion
Tuberculosis
Congestive heart failure
Rheumatic heart disease
Angina pectoris
Myocardial infarction
Hypertension

During the clinical practice, you must also perform each patient care procedure listed on your Clinical Performance Record. You must earn at least two Satisfactory ratings for each procedure. The patient care procedure listed on your clinical performance record for this module is Collecting Sputum from a Suspected Tuberculosis Patient.

EVALUATION Level III

During the three-month community phase of your training, a supervisor will observe your performance and rate your skill in:

Diagnosis and treatment of patients for each of the heart and respiratory diseases

Providing patients and their families with advice about home care and ways to prevent the spread of respiratory and heart diseases

Conducting community meetings to discuss the prevention and care of respiratory and heart problems

Training a community health worker to assist with the community health program

Your clinical and community performance records list the number of acceptable ratings you must earn for each activity.

Unit 1

Assessing the Patient with a Respiratory Problem

STUDENT GUIDE

OBJECTIVES

1. Describe the signs of abnormal respiratory conditions:
   - Increased breathing rate
   - Flaring nostrils
   - Intercostal retractions
   - Cyanosis
   - Increased pulse rate
   - Fever
   - Loss of weight
   - Cough
   - Clear, white, yellow, green, or bloody sputum
   - Prolonged expiration
   - Uneven expansion of chest
   - Flat percussion note
   - Absent or reduced breath sounds
   - Rales
   - Rhonchi
   - Wheezing
   - Difficulty breathing
   - Bronchial breath sounds
   - Barrel chest
2. Recognize the signs of a breathing problem when you see or hear them in a patient.
3. Interview a patient about his breathing problem.
4. Examine a patient with a breathing problem.
5. Correctly record your findings on official forms.

LEARNING ACTIVITIES

1. Join the teacher and class in presentations, demonstrations, and discussions of the respiratory system and breathing problems.
2. Look at pictures of the respiratory system and study how it works.
3. Practice taking a medical history of breathing problems using role-play based on case studies.
4. In the classroom, interview and examine patients with breathing problems.
5. In the clinic, ask questions about patients' breathing problems, examine patients with breathing problems, and write down your findings.

1.1 SIGNS AND SYMPTOMS OF RESPIRATORY PROBLEMS

In this section, you will learn about the signs and symptoms of breathing and respiratory system problems. These signs and symptoms can help you locate and recognize a patient's problem.

Your respiratory system begins at your nose and mouth. The signs and symptoms of respiratory problems also begin at the nose and mouth. For example, a congested nose is often the sign of a cold or other upper respiratory infection.

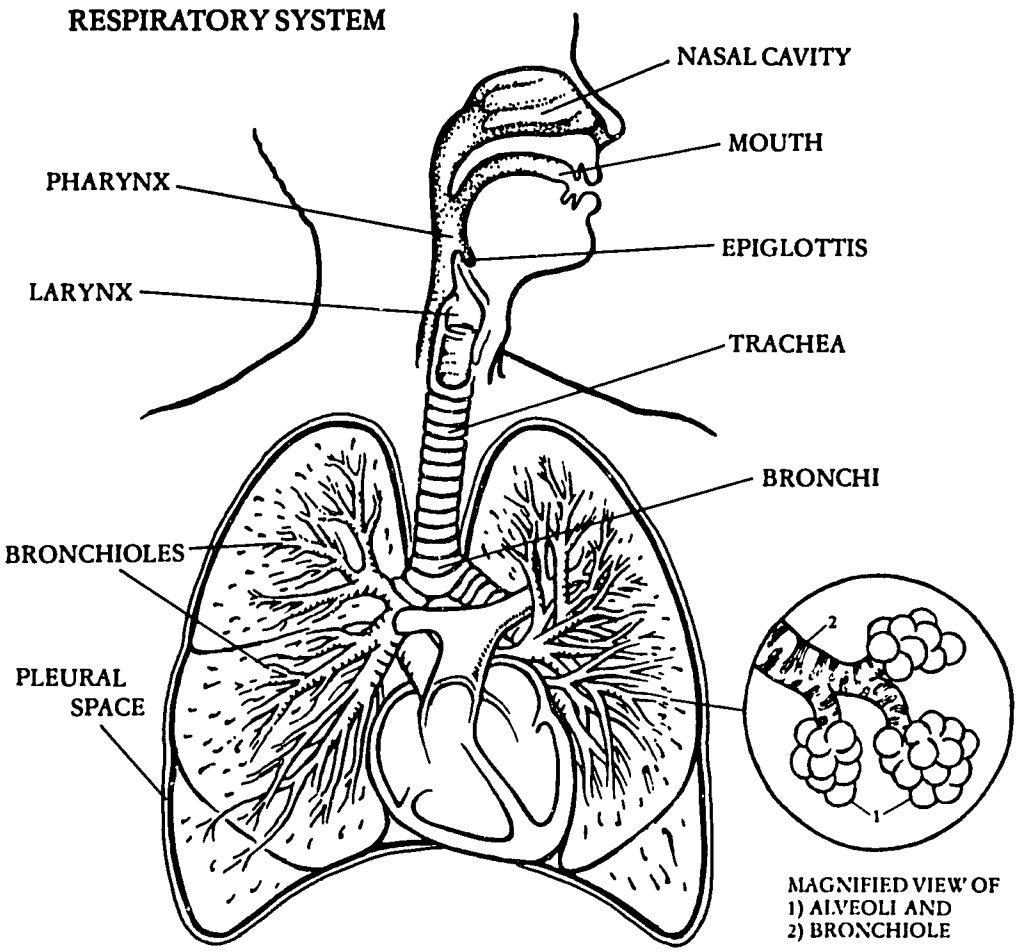
As the air your breathe flows to the back of your throat and down your windpipe, or trachea, it passes through three narrow points. The first of these points is at the back of your throat where the trachea begins. Food and other foreign bodies can stick in the throat here. A person with something stuck in his throat will choke and may not be able to breathe.

Swollen tissue at the back of the throat can also block air from passing into the lungs.

Air passes a second narrow point at the epiglottis. The epiglottis is the lid-like structure at the base of your tongue. When you swallow, your epiglottis closes over your windpipe to prevent food and water from entering your lungs. Some diseases infect the epiglottis and make it swell. A swollen epiglottis can block the trachea.

The third narrow point that air passes on its way to your lungs lies below your epiglottis at the larynx, or voice box. The larynx contains the vocal cords which vibrate and make the sounds you use to talk. When disease infects the voice box, the larynx swells. Because children's airways are very small, the swelling may block air from entering their lungs. An adult whose larynx is swollen makes a loud noise when he breathes in. This loud noise will help you locate the patient's problem.

Below the larynx, the trachea branches into two large tubes called the bronchi. These bronchi lead the air you breathe into the left and right lungs. In the lungs, the bronchi branch into small tubes called the bronchioles. The bronchi and the bronchioles normally secrete mucus. With infection, the amount of mucus they secrete increases.



The following abnormal findings often accompany diseases of the respiratory system.

Cough

The most common sign of any respiratory problem is a cough. Irritation in the throat, the larger bronchial tubes, or the lungs makes people cough. But not all coughs are alike.

A cough caused by irritation of the throat usually does not produce any fluid. The person has a dry cough. He will complain of a sore throat.

Cough with Clear, Yellow, Green, or Bloody Sputum

A cough from the bronchial tubes or deeper in the lungs will produce a fluid called sputum. Sputum is the mucus secreted from the trachea, the bronchi, and the bronchioles. A cough that produces sputum tells you that the problem comes from these lower parts of the respiratory system. The color of the sputum, however, tells you more.

Check the sputum's color. It can be clear or white, green, yellow, or bloody. Viruses and allergies produce clear or white sputum. People with bacterial infections cough up yellow or green sputum. Coughs from tuberculosis and pneumonia sometimes produce bloody sputum. So you can see that not only a patient's cough, but what that cough produces indicates a kind of disease.

Coughing, especially severe coughing, can also cause chest pains. The patient who coughs very often may feel soreness and pain in his chest and upper abdomen.

Fever

Most respiratory infections in the chest cause fever. Whenever a patient has a fever, look for inflammation or infection somewhere in the body.

Increased Pulse Rate

The pulse rate in a healthy adult usually is between sixty and eighty beats per minute. This rate will increase with fever, anxiety, and lung disease.

Increased Breathing Rate

A person with respiratory problems will often breathe fast. Sometimes he breathes fast because his lungs cannot take up enough oxygen. A person normally breathes between twelve and sixteen times per minute. With lung disease, a person will have to breathe faster to get the same amount of oxygen into his blood.

Another reason for increased breathing rate is chest pain. Chest pain occurs when the lining of a person's lungs becomes irritated or inflamed. This person will feel a sharp, stabbing pain when he breathes or coughs. He will take quick, shallow breaths to avoid the pain. Watch for this increased breathing rate. When you see it, suspect a respiratory problem.

Loss of Weight

Fever, which fights infection, also rapidly burns up the body's energy. At the same time, a person with fever loses his appetite. So a person with respiratory disease may lose weight. Chronic infections such as tuberculosis can make a person lose a lot of weight.

Cyanosis

When not enough oxygen enters a person's blood, the blood turns dark red. In serious cases, the blood turns so red that it looks blue through the skin. This blue color of blood seen through the skin is called cyanosis. Look for signs of cyanosis around a patient's lips and fingernails. Cyanosis is an important sign that not enough oxygen is getting into a patient's blood.

Flaring Nostrils

If you suspect a person has trouble breathing, look at his nostrils. Do they widen, or flare, when he breathes in? Flaring nostrils is a sign of severe breathing problems.

Intercostal Retractions

Another sign of severe breathing problems shows on a person's chest. The spaces between his ribs, called intercostal spaces, are sucked in, or retracted, by the pressure of his attempts to breathe. This sucking in of the intercostal spaces is called intercostal retraction. You will see intercostal retractions most clearly in a child or thin adult with serious lung disease. You may see similar retractions above the sternum or below the ribs when a person has trouble breathing in.

Uneven Expansion of the Chest

When a person's lungs expand during normal breathing, you can see the two sides of his chest expanding equally. Some chest or lung problems, however, affect one side of the lungs. This side may be be used less than the other. You can see the affected side of the chest moving more slowly than the unaffected side. This uneven expansion of the chest can be caused by chest pain or damage to a lung.

When the uneven expansion of the chest is great, you will be able to see it just by watching the patient breathe. When uneven expansion of the chest is not great, however, you will have to use your hands to notice the difference. Put one hand on either side

of the patient's chest while he breathes. Look and feel for any difference in your hands' movement.

Rales

When mucus fills a person's alveoli, you will be able to hear sounds called rales. You can easily imitate the sound of rales. Wet a finger and thumb of one hand and touch them together close to your ear. The crackling sound you hear when you touch them together and separate them again is like the rales caused by mucus trapped in the alveolar sacs. With a stethoscope, you can hear rales most easily immediately after a cough. Ask the patient to take a deep breath and then cough. As the patient breathes in after coughing, listen for the crackling rales. Listen very carefully in the areas of the lungs where you suspect the problem is located.

Rales occur early in the development of pneumonia. When the pus and fluid of the pneumonia infection become firm, the rales disappear. They may reappear several days later when the infection begins to heal.

Rhonchi

When you listen to the breathing of a patient with infection or inflammation of his bronchi or bronchioles, you can hear rhonchi. Rhonchi are the rattling sounds of air rushing across an abnormal amount of mucus in the bronchi or bronchioles.

Bronchial Breath Sounds

Another sign of respiratory problems you should learn to recognize is the harsh bronchial breath sound. You can hear the bronchial breath sound in only one place of a healthy person's chest. That place is just to the right of the sternum, over the right bronchial tube. In a person with inflamed bronchi, however, you will be able to hear the bronchial breath sounds in other areas of the chest. This is a useful sign of inflammation or infection within the bronchi.

Absent or Decreased Breath Sounds

When air cannot get into an area of the lungs near your stethoscope, you will hear only breath sounds from more distant areas of the lungs. The breath sounds will be softer than normal. This may be because of pneumonia in which fluid in the lung has become firm and solid. Breath sounds can be absent when the lung is collapsed or filled with hardened pus.

Wheezing

You can hear rhonchi and bronchial breath sounds when a person breathes in. You can hear other signs of respiratory problems when a person breathes out. Wheezing, for example, is a sign of a respiratory problem which occurs when a person has trouble getting air out of his lungs instead of into his lungs. When the bronchioles are inflamed, they secrete mucus which narrows the air passage. Air becomes trapped in the air sacs beyond the bronchioles. The wheezing sound is produced when the patient forces the air out of his lungs past the mucus. Wheezing occurs during expiration. In patients with asthma, the wheezing may last only a few hours. Patients with emphysema wheeze almost constantly. Patients who have hookworms passing through their lungs will also wheeze. Severe wheezing can easily be heard without a stethoscope. Wheezing is very noticeable in patients with asthma.

Flat Percussion Note

Remember that percussion helps you find changes in the density of the tissue inside the chest. Air has a very low density. Because lung tissue has many air sacs, you will hear a deep, resonant sound when you percuss the chest over a normal lung. You will hear a flat percussion sound when fluid or other secretions such as pus are in the chest cavity.

Prolonged Expiration

When the alveoli, or air sacs, are full of mucus, they trap the air. The person with this respiratory problem can breathe in without difficulty, but he must force the air out of his lungs. He takes much longer than normal to breathe out, or expire, the stale air. This is called prolonged expiration. Prolonged expiration and wheezing are signs of asthma and emphysema.

Barrel Chest

When a person has a lung disease such as emphysema which interferes with his ability to breathe out, his chest will be over-expanded. The distance from the front to the back of the chest will be greater than normal. This is called barrel chest because the chest looks like a barrel.

1.2 TAKING A MEDICAL HISTORY OF THE PATIENT WITH A RESPIRATORY PROBLEM

You will quickly find out whether your patient has a problem which involves his chest. The most important symptoms of chest problems are:

Cough
Difficulty breathing
Pain in the chest

Next, obtain more information about the kind of chest problem. Does the problem involve the air passages? Does it involve the lung tissue? Is the heart involved? Is the problem outside the chest? To answer these questions, obtain a history of the patient's problem, then examine him for signs of disease.

The following questions will help you decide whether the problem involves the respiratory system.

When the patient complains of a cough, ask:

"How Long Have You Had the Cough?"

Many diseases of the respiratory system are acute. That is, they develop in a few hours. They may last a few days or one to two weeks. Then the patient is well again. Chronic diseases such as tuberculosis and chronic bronchitis last for months or years. Decide whether the patient has an acute problem or a chronic problem.

"Do You Cough Up Any Sputum?"

Sometimes the patient coughs but nothing comes up. This is called a dry cough. At other times, the patient coughs up sputum from his lungs. Patients with emphysema and chronic bronchitis may cough up a cupful of sputum every morning. Ask the patient how much sputum he coughs up.

"What Color Is the Sputum?"

People with acute infections often cough up white sputum. People with chronic bronchitis may have greenish sputum. With pneu-

monia, the sputum may be yellow or have streaks of blood in it. Always ask the patient about blood in his sputum. Coughing up blood is an important sign of tuberculosis.

"When Do You Cough?"

People with chronic bronchitis or emphysema cough mostly in the early morning. Often, they have been coughing a long time. They do not think about it. Question them carefully.

"Does Your Cough Hurt?"

When the lining of a person's chest cavity is irritated, he will suffer a sharp pain when he breathes deeply or coughs. However, when patients cough a lot for any reason, they will feel sore. The soreness will be in the chest wall, the upper abdomen, and in the throat. This soreness differs from the pain of an irritated lining of the chest cavity.

When your patient complains of difficulty breathing, ask him these questions.

"What Kind of Breathing Problem Do You Have?"

Trouble with breathing can mean many things. Ask the patient to describe his problem. Does he have pain when he takes a deep breath? Does he feel out of breath when he exercises? Does he feel out of breath when he is lying in bed at night? Does he have this problem all of the time?

"Does Anything You Do Make the Problem Better?"

Patients with respiratory problems generally will not be able to do anything to find relief. Patients with heart disease may have difficulty breathing at night and they will find relief when they sit up. Sitting up allows fluid to drain out of their lungs.

"How Long Have You Noticed This Problem? Is It Getting Worse?"

Trouble breathing can be a sign of an acute problem or a chronic problem. Decide how long the problem has been present by asking the patient about it.

Patients often will change their ways of living so that they will not be uncomfortable. Ask the patient if he can do the same activities now that he could do a year ago.

Pain in the chest can be an important symptom of respiratory disease. When your patient complains of pain in his chest, ask him these questions about his respiratory system.

"Can You Describe the Pain?"

Always let the patient tell you about the pain in his own words. Ask him if the pain is sharp and cutting. This sharp and cutting pain may indicate an irritation of the lining of the lungs. Pain like a heavy pressure on the chest which takes away the breath may be from heart disease.

"What Starts the Pain?"

Pain from lung disease often occurs with deep breathing or when the patient coughs.

"What Reduces the Pain?"

If the lining of the chest is irritated, the patient will avoid deep breaths. This reduces the pain.

These next questions will help you decide how sick your patient is. They will also help you plan your treatment.

"Have You Had Any Fever or Chills?"

Fever and chills are important symptoms of infection and inflammation. If the patient has a bacterial or viral infection, he almost always has a fever.

"Are You Taking Any Medicines Now? Have You Taken Any Recently?"

Patients forget about other illnesses. Sometimes they visit other people for treatment. Ask the patient about what medicine or treatment he has taken in the last few months.

"Are You Allergic to Anything? Have You Taken Penicillin for Anything?"

Many people are allergic to penicillin. Explain allergy to the patient. Ask him if he has had a rash after taking pills. Avoid giving the patient a drug if it made him sick before.

"Have You Felt Tired or Worn Out? Have You Lost Your Appetite? Have You Lost Weight?"

These questions help you decide whether the patient's problem is a chronic disease like tuberculosis, chronic heart failure, emphysema, or severe anemia.

"Do You Smoke?"

Smoking is the most important cause of lung disease. Ask the patient whether he smokes. Ask him how many cigarettes or cigars he smokes a day. Ask how long he has been smoking.

"What Kind of Work Do You Do?"

Many kinds of jobs can cause lung disease. For example, miners often develop lung disease. Metal workers and painters breathe dirty air and may develop lung disease. People who work very close to others will become infected if the others are ill. This is especially true for tuberculosis.

"Does Anyone Else in Your Family Have a Similar Problem?"

When one member of the family has tuberculosis, the other members of the family have a greater chance of catching the disease. Children with parents who have suffered from asthma are more likely to develop the problem than are children whose parents have never had the problem.

1.3 EXAMINING THE PATIENT WITH A RESPIRATORY PROBLEM

Always begin your examination by noting the general appearance of your patient. Then obtain his vital signs. Only then should you focus on his chest. Signs of heart disease will be explained later, in the section on problems of the heart. Since many of the signs of heart disease are also signs of lung disease, they will be discussed twice.

Check General Appearance

Check the patient's general appearance

a. Note the patient's apparent age

Compare the patient's age to his apparent age. Patients with chronic disease appear to age quickly. They will look older than they really are.

b. Note any signs of respiratory distress

Note whether the patient has trouble breathing. Does he breathe quietly? Do his nostrils flare? Does he talk with difficulty?

c. Note any signs of pain

Does the patient's face show any sign of pain? Sharp chest pain will often show on a patient's face.

d. Note any signs of cyanosis

Look for cyanosis at the fingers and fingernails. Look at the lips and the mucous membranes of the mouth. Look at the conjunctiva. Note any sign of blueness. Cyanosis occurs when the blood lacks oxygen.

e. Note any signs of chronic disease

Does the patient look as if he has been ill for a long time? Has he lost any weight? Is he well nourished or is he thin and undernourished? Have his muscles wasted? These are signs of chronic disease.

Record Vital Signs

Obtain and record the patient's temperature, pulse, and blood pressure. Count the respiratory rate for thirty seconds and multiply by two to obtain the respiratory rate per minute. Compare the rate to the expected rate for the patient's age. An increase in respiratory rate is sometimes difficult to detect unless you count it carefully.

In a quick examination of the chest, observation and auscultation are the best methods of detecting a problem. Palpation and percussion usually help you confirm what you have found already by listening and looking.

Observe the Chest

Always remove your patient's shirt when you examine his chest. Ask yourself these questions about what you see.

a. What is the shape of the chest?

Patients with chronic emphysema have chests shaped like a barrel. The distance from front to back is increased. The chest does not move in and out with respiration because it is always expanded.

b. Does the chest move in and out evenly on the two sides?

If a problem affects one side of the chest, that side may not move in and out as much as the other side. Or it will move out a little slower than the other side.

c. Do the patient's nostrils flare?

You may have noted respiratory distress when you looked at the general appearance of your patient. With respiratory distress, the outer sides of his nose move in and out.

d. Do you see any intercostal retractions?

Look at the rib cage while the patient breathes. Look just above the breast bone. When the patient breathes in, you may see the spaces between the ribs move inward. These are intercostal retractions. Intercostal retractions are important signs of difficult breathing.

Intercostal retractions are more easily seen in young children than adults who often have too much muscle and fat. The muscle and fat prevents you from seeing the retractions. You must rely on other signs of respiratory distress.

Auscultate the Chest

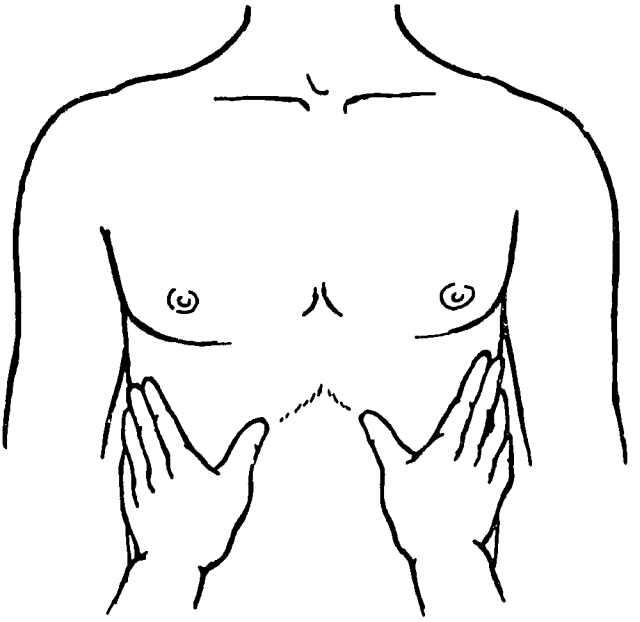
When a person breathes quietly, he sucks air into his lungs during inspiration. Inspiration is a fast movement. Expiration, when the person blows air out of his lungs, is slower and longer than inspiration. Listen to a healthy person breathe. You can easily hear the movement of air during inspiration. This is because the air moves more quickly during inspiration. Faster flowing air causes more noise than slower moving air.

When you auscultate the chest, ask the patient to take deep breaths. When he takes deep breaths, you can hear the movement of air during both inspiration and expiration. Compare the sound from different parts of the lungs.

Do you hear abnormal sounds when you auscultate the chest?

Ascultate first one side of the chest and then the other. Compare the two sides. Try to identify:

Rales	Wheezing
Rhonchi	Absent or reduced
Bronchial breath sounds	breath sounds



PLACE YOUR HANDS ON THE PATIENT'S CHEST
WHEN YOU COMPARE HOW THE TWO SIDES EXPAND

Palpate the Chest

Do the two sides of the chest expand evenly when the patient breathes?

Stand or sit directly in front of your patient. Place your hands on his chest. Your thumbs should be on the lowest ribs in the front. Tell the patient to take a deep breath. As he breathes in, watch his chest expand. Also feel it expand.

The two sides of the chest should expand at the same rate. They should also expand the same amount. A problem on one side or the other will make the affected side expand less than the normal side.

Can you locate a tender place on the chest?

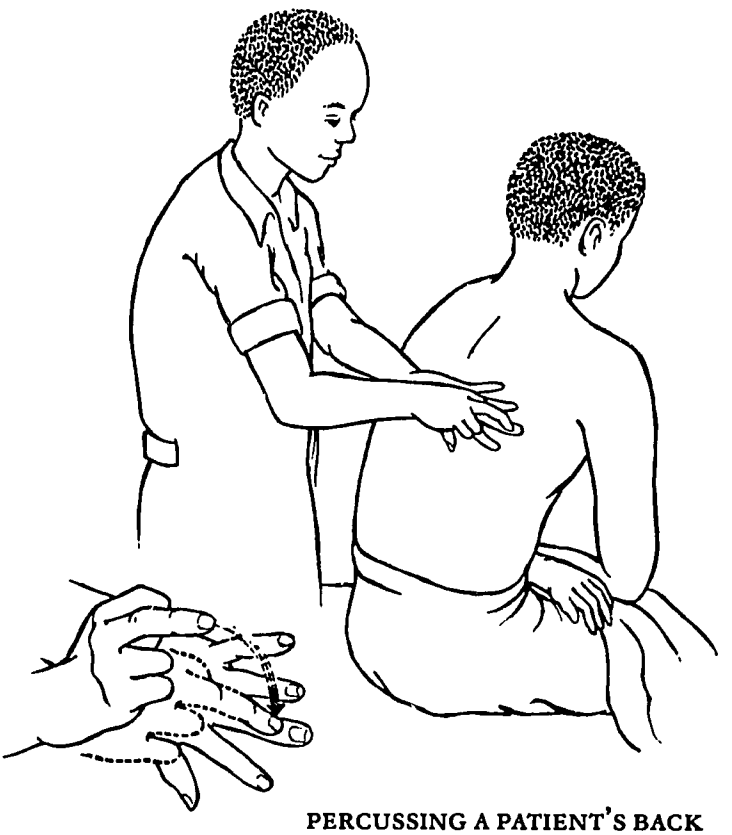
If the patient has complained of pain in his chest, gently palpate where he tells you the pain is located. Ask the patient whether he feels tenderness in that area when you palpate it. If the chest lining is inflamed, you may find tenderness when you palpate that area. Of course, an injured or broken rib also will be tender to palpation.

Percuss the Chest

Stand directly behind the patient. Percuss first the left and then the right side of the back at the same level. Compare the sound from the two sides. Then move down several centimeters. Repeat the percussion on the two sides. In this way, percuss the entire back. Listen for differences in the percussion note. Repeat the procedure on the front of the patient's chest.

Do you hear abnormal sounds when you tap on the chest?

When you percuss or tap on the chest over a lung filled with thick or hardened pus, it will sound flat or solid.



PERCUSSING A PATIENT'S BACK

REVIEW QUESTIONS
Assessing the Patient with a Respiratory Problem

1. Describe two ways air may be blocked from passing into the lungs.

2. Explain what causes wheezing.

3. What is the breathing rate in a normal, healthy adult?

4. A patient comes to you complaining of a cough. What questions would you ask this patient to find out more about his problem?

5. How should you begin your physical examination of a patient with a chest problem?

6. Complete the following statements with the word or words which make them correct.

   a. Patients with chronic bronchitis or emphysema cough mostly in the_____.

   b. Pain in the chest which is sharp and cutting is usually a sign of _____. Pain like a heavy pressure on the chest which takes away the breath may be caused by _____.

7. Briefly describe how to palpate a patient's chest.

8. While percussing the chest of a patient, you notice a flat sound in the lungs. What could this be a sign of?

9. While auscultating a patient, what abnormal signs should you listen for?

10. Write the letter of the words in column A next to their correct meaning in column B.

A	B
a. Trachea	____ The voice box
b. Intercostal retractions	____ The flap of skin at the base of the tongue
c. Wheezing	____ Two large tubes which branch off from the trachea into the lungs
d. Alveoli	____ Small tubes which branch off from the bronchi
e. Epiglottis	____ The windpipe
f. Rhonchi	____ A rattle sound from the chest caused by air rushing across mucus
g. Rales	____ A chest sound which may be heard just to the right of the sternum over the right bronchial tube
h. Bronchi	
i. Larynx	____ This sound occurs when a person has trouble getting air out of his lungs
j. Cyanosis	____ Tiny air sacs in the lungs
k. Bronchioles	____. Sounds which result from mucus in the alveoli
l. Bronchial breath sounds	____ The sucking in of the spaces between a person's ribs
	____ A sign that oxygen is not getting into a person's blood

Unit 2

Respiratory System Problems

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of:

   Pneumonia
   Acute bronchitis
   Chronic bronchitis and emphysema
   Bronchial asthma
   Pleural effusion
   Tuberculosis

2. Interview and examine patients and diagnose respiratory problems.
3. Collect sputum from suspected tuberculosis patients.
4. Provide treatment and care for patients suffering from respiratory system problems.
5. Tell patients and their families how to care for respiratory problems at home and prevent them from spreading.

LEARNING ACTIVITIES

1. Join the teacher and class in presentations, demonstrations, and discussions of the respiratory system and breathing problems.
2. Practice the diagnosis of respiratory system problems using examples from case studies.
3. Practice using Diagnostic and Patient Care Guides and the Formulary.
4. In a clinic, study and practice how to identify respiratory problems, provide treatment and care, and tell patients about home care and prevention.

2.1 PNEUMONIA

Pneumonia is an infection of the lungs. It causes fever, coughing, chest pains, and trouble breathing.

Bacteria cause pneumonia more often than viruses. Diseases such as colds, measles, and whooping cough can lead to pneumonia, especially in children. Bacteria from sneezing and coughing spreads the disease.

Pneumonia often affects young children. Pneumonia can lead to serious complications, especially when it occurs in a malnourished child.

Clinical Picture

a. Presenting complaint

Patients with acute pneumonia commonly complain of ***high fever, chills, severe coughing, difficulty breathing,*** and ***chest pain.***

b. Medical history

Acute pneumonia often occurs as the complication of diseases such as an upper respiratory infection. In children, measles or whooping cough are often complicated by pneumonia. ***High fever*** and ***chills*** may be the first symptoms some patients have.

A person with pneumonia coughs up ***yellow sputum*** that sometimes has ***blood*** in it. If the lining of the chest cavity is affected, the patient will have ***severe chest pains,*** especially when he ***coughs*** or takes a ***deep breath.*** In this case, he will complain of ***difficulty breathing.***

c. Physical examination

The patient with pneumonia will look ill and have a ***high fever.*** Watch how he breathes. Look for an ***increased breathing rate.*** In children, ***flaring nostrils*** and ***intercostal retractions*** are common. Check for ***uneven expansion*** of the ***chest,*** especially if the patient takes shallow breaths because of chest pain.

Percuss the chest. The ***percussion note*** over areas of congestion will be ***flat.***

Auscultate the chest. You may hear ***rales*** in a patient with pneu-

monia in its early stages. Later, as the fluid in his lungs thickens, you will hear ***abnormal bronchial breath sounds.***

If the patient is very ill, he may have signs of *cyanosis.* Look for blue skin around his fingernails and lips.

Course and Complications of Pneumonia

With proper treatment, the condition of a patient with pneumonia should begin to improve within twenty-four to forty-eight hours. However, he may not be completely well for several weeks.

Without proper treatment, pneumonia may cause an abscess to develop in the patient's lungs. The infection can spread through the blood to other organs, including the brain.

Small children with pneumonia may vomit. Without enough fluids, they quickly become dehydrated. Breathing rate and fever increases. Patients with tuberculosis often will develop pneumonia. If the pneumonia infection does not respond to treatment, check the patient for signs of tuberculosis.

Patient Care

a. Observe the patient for at least twenty-four hours

Pneumonia is very serious, especially in young children. Keep the patient at the health center for at least twenty-four hours after you begin treatment. You will be able to see the patient's progress during that time.

b. Give antibiotics

Start procaine penicillin IM every twelve hours. Change this to oral penicillin V when the patient begins to improve. If the patient is allergic to penicillin, substitute erythromycin. See Patient Care Guides.

c. Urge the patient to drink extra fluids

Fever and rapid breathing lead to loss of fluid from the body. Insist that the patient drink at least one glass of water or other fluid every two hours he is awake.

d. Manage the fever and cough

When your patient has a very high fever, use wet towels to bring his temperature down. Give him aspirin every four hours. A cough expectorant may help his cough. See Patient Care Guides.

e. Improve the patient's nutrition

Encourage the family to feed the patient nutritious food while he is ill. If the patient is a child who takes breast milk, have him continue to take it.

f. Refer the patient to a hospital

If the patient has not begun to improve within twenty-four hours after beginning treatment, refer him to a hospital. He may have an infection which penicillin cannot treat. He may also have another complication such as a lung abscess.

2.2 ACUTE BRONCHITIS

In a normally healthy person, acute bronchitis is usually part of a more generalized upper respiratory infection. His bronchi and trachea will be inflamed and produce extra fluids. Any one of a large group of viruses cause acute bronchitis. It clears without treatment. However, if the person has a history of lung disease, acute bronchitis can be very serious.

Clinical Picture

a. Presenting complaint

The patient with acute bronchitis complains of a *severe cough* which sometimes produces *green* or *yellow sputum*. He often has a *fever* and discomfort in his upper abdomen and chest from the strain of coughing.

b. Medical history

Fever and *cough* are the major presenting complaints of acute bronchitis. Acute bronchitis *starts with discomfort, fever,* and a *runny nose*. These symptoms develop into a blocked nose; a dry, tight throat; cough with some sputum; hoarseness; and irritation of the throat. The *sputum* becomes *yellow* or *green* after a few days.

c. Physical examination

Listen for *rhonchi* when you auscultate the lungs. When the inflammation is deep in the chest, the patient may *wheeze* when

he breathes. Redness of the nasal mucosa, nasal discharge, and a red throat are signs that are frequently associated with acute bronchitis.

Course and Complications

Acute bronchitis clears within a week or two if the patient was healthy before he caught the disease. Acute viral bronchitis can lead to a bacterial infection of the ears, sinuses, or the bronchi. These complications more often occur if the patient is old, has heart disease, or has a chronic lung infection.

Patient Care

a. Rest and eat well

   Resting in bed and eating good food will help a person with acute bronchitis fight his infection.

b. Drink extra fluids

   Urge the patient to drink extra fluids so he will avoid dehydration.

c. Give aspirin

   Give the patient aspirin every four to six hours to make him feel more comfortable.

d. Give cough medicine

   Give the patient a cough expectorant to soothe his throat and reduce coughing.

e. Consider an antibiotic

   Consider giving elderly patients or infants with a history of lung disease an antibiotic such as procaine penicillin or erythromycin. See Patient Care Guides.

f. Advise against smoking

   If the patient smokes, advise him to stop. Smoking will prolong the illness. It also increases the risk of chronic bronchitis and emphysema.

2.3 CHRONIC BRONCHITIS AND EMPHYSEMA

Chronic bronchitis occurs when smoke and respiratory diseases irritate the bronchi for a long time. The patient with chronic bronchitis probably smokes. He also probably coughs so often that he does not even think of coughing as a sign of trouble anymore. He will cough up a green sputum. This patient will have frequent attacks of acute bronchitis.

Emphysema occurs when chronic bronchitis damages the bronchioles, destroys lung tissue, and increases the size of alveolar sacs.

Clinical Picture

a. Presenting complaint

The patient with chronic bronchitis has a ***morning cough.*** He may ***cough*** up between a teaspoonful and a cupful of ***greenish sputum*** every day. He may seek help during an attack of acute bronchitis, when the symptoms are suddenly worse. Because his cough is constant, the patient may forget it is a problem.

b. Medical history

Morning cough is the most important symptom of chronic bronchitis. The ***patient often smokes.*** He may have a long history of pneumonia and acute bronchitis. His cough may be worse at one time of year than another. People who develop emphysema have a ***gradual onset*** of ***shortness of breath.*** This forces them to slow their physical activity. They may begin to feel short of breath even when they are resting.

c. Physical examination

When you asucultate the chest of a patient with chronic bronchitis, you will hear ***rhonchi*** and ***wheezing.*** As the condition worsens, becoming emphysema, you will find additional signs. Check the size of the patient's chest. Look for a ***"barrel chest"*** and shallow movement of the chest when the patient breathes. The shallow movement tells you that because of the effects of the disease, the chest is already expanded and can expand only very little more.

Note whether the patient has any trouble catching his breath after moving or exercising. In later stages of emphysema, the patient will have difficulty breathing even while he rests. Note any ***prolonged expiration.*** ***Prolonged expiration*** occurs when the patient has trouble forcing the air from his lungs.

Course and Complications

Patients with chronic bronchitis suffer from repeated episodes of more severe bronchitis and pneumonia. Not all patients develop emphysema, but those who do will die when their lungs become too damaged to do their job. This follows several years of increasingly severe shortness of breath and cyanosis.

Patient Care

a. Advise against smoking

Search for any causes of chronic irritation to the lungs. The most important of these is smoking. Encourage the patient to give up smoking.

b. Use an antibiotic

Treat severe episodes of chronic bronchitis intensively. Use an antibiotic such as ampicillin, four times a day for one week. See Patient Care Guides.

c. Give fluids

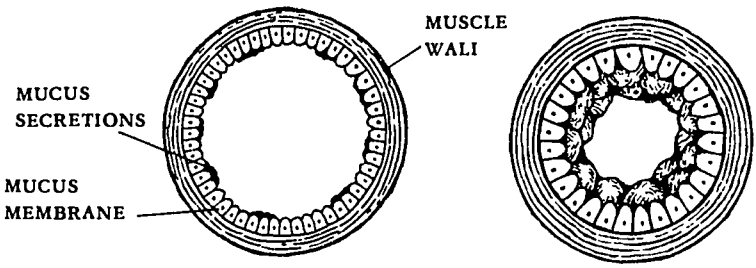
Encourage the patient to drink more fluids. Drinking helps the body keep its lung secretions thin and easy to cough up.

Prevention

The most important prevention is to stop smoking. Patients who live or work in a polluted area may improve if they can change their working or living place.

2.4 BRONCHIAL ASTHMA

Bronchial asthma occurs when the bronchioles contract. The membranes which line the air passages swell. Thick secretions block the passages. Allergies often cause these reactions. The patient feels healthy except when the bronchial asthma attack occurs. Asthma can be caused by many kinds of parasites, including ascaris.



CROSS-SECTIONS OF BRONCHIOLE TUBES

Clinical Picture

a. Presenting complaint

The patient *suddenly has trouble breathing.* He often *coughs* and *wheezes* aloud during the attack.

b. Medical history

Asthma attacks sometimes follow a viral upper respiratory infection. Sometimes they are caused by tree or grass pollen. The attacks may occur more frequently at one time of the year than another. The patient nearly always has a *past history* of *similar asthma attacks.* Allergic conditions occur within families.

c. Physical examination

Check the patient's breathing. Often, the *chest is expanded* and the patient has trouble forcing air out of his lungs. His *expirations are prolonged.* On auscultation during expiration, you will hear *wheezing* throughout the lungs. Fever is a sign of infection.

Course and Complications

Asthma is a chronic condition and may last for years. Some patients have only one or two attacks each year. Others may wheeze throughout the year. The most dangerous complication of asthma occurs when treatment cannot stop the wheezing. The patient can die from exhaustion and heart failure. If the wheezing happens because of an infection by parasites, treatment will clear the symptoms.

Patient Care

a. Give fluids

Patients with asthma need extra water. Water makes the secretions in the lungs thin and easy to cough up. Give the patient at least one glass of fluid every one to two hours.

b. Give epinephrine

Count and record the pulse rate. Give epinephrine SC. Check the patient again in twenty minutes. If the patient is still wheezing, repeat the epinephrine. You may repeat the epinephrine at twenty minute intervals for a total of three injections. Recheck the patient after twenty minutes. Do not give the patient any more epinephrine if his pulse exceeds 150 beats per minute. See Patient Care Guides.

c. Give theophylline

Theophylline will reverse the muscle spasm in the walls of the bronchioles. It may be given by mouth every six hours. See Patient Care Guides.

d. Treat infections

If you find signs of a bacterial infection in the throat or chest, treat the patient with an antibiotic. Avoid penicillin or ampicillin. Patients with asthma may be allergic to these drugs. Use erythromycin or tetracycline. See Patient Care Guides.

e. Refer to hospital

If the wheezing does not clear, or if it gets worse and the patient suffers respiratory distress, refer him to a hospital.

Prevention

If the patient knows what causes his asthma attacks, he may be able to avoid them.

2.5 PLEURAL EFFUSION

Pleural effusion occurs when any fluids from inflammation, congestion, or trauma fill the space between the lungs and the wall of the chest. The symptoms depend upon the cause of the fluid and the amount of fluid present.

Clinical Picture

a. Presenting complaint

Pleural effusions most often cause no symptoms. However, if the pleural effusion starts from inflammation, the patient will have a *sharp chest pain* in the infected area. With increasing effusion, the lung compresses and the patient becomes *short of breath.*

b. Medical history

The medical history of pleural effusion would depend on its causes. For example, a large pleural effusion with few other symptoms often starts from *tuberculosis.* The fluid can be the result of inflammation, as in *pneumonia.* It can be the result of congestion, as in *congestive heart failure.* Or the fluid can be blood from a chest *trauma.*

c. Physical examination

Look at the patient's chest as he breathes. Pleural effusion causes *reduced movement* on the *affected side* of the *chest,* causing *uneven expansion.* On percussion, you will hear a *flat sound* on the *affected side* of the *chest. Breath sounds* will be *absent* on the *affected side* of the *chest.*

Course and Complications

The course of a pleural effusion depends upon the course of the disease that causes it.

Patient Care

If you suspect a pleural effusion, refer the patient to a hospital.

2.6 TUBERCULOSIS

In many countries, more than half the population is infected with tuberculosis. The people who have the disease are infected in childhood. Most people get over the infection. Others, however, develop serious infection in their lungs, lymph glands, abdomen, kidneys, bones, and brain. Different signs and symptoms show for tuberculosis infection in each of these organs.

Tuberculosis quickly spreads when many people live crowded together. The tuberculosis bacteria spread through coughing, sneezing, and close contact.

The infection which follows first contact with tuberculosis, usually in childhood, is called primary tuberculosis. Children usually get well by themselves, but a few become seriously ill.

Tuberculosis bacteria grow very slowly. The bacteria from primary tuberculosis can live in a person's body without symptoms for many years. Then the infection will flare up again. The tuberculosis infection flares up in children most often when they are between ten and fifteen years old. These children may have grown weak because of another disease, or they may have contacted the tuberculosis bacteria again. The infection also flares up in adults when the person is weak because of some other disease. Or it may flare up during a woman's pregnancy.

Drugs can cure tuberculosis, but the patient must take the drugs daily for many months. The drugs often cause side effects, so patients sometimes stop taking them. For this reason, you should regularly follow the people who are taking the drugs. If people with tuberculosis stop taking the drugs, treatment will fail.

Clinical Picture

a. Presenting complaint

Primary tuberculosis in children often occurs with no symptoms, but you may find some ***fever, loss of appetite, loss of weight, tiredness,*** and ***coughing.***

Chronic pulmonary tuberculosis, which affects the lungs, develops very slowly. The patient may have a *fever* in the *late afternoon.* He may *lose his appetite* and *feel tired.* A *chronic cough* often is the only symptom of lung disease. The patient will cough up green or yellow sputum. *Blood* in the *sputum* is a very important symptom of pulmonary tuberculosis.

b. Medical history

Ask whether other members of the patient's family are sick with fever and cough. Also ask whether the patient has *lost weight. Poor appetite* and *loss of weight* are important symptoms of chronic tuberculosis. Ask the patient if he *sweats at night.*

c. Physical examination

Patients with pulmonary tuberculosis may have no apparent signs of lung disease even upon careful examination. The most certain way to diagnose tuberculosis is by X-ray or laboratory testing of the patient's sputum. Patients with tuberculosis will often have *weight loss,* anemia, and *chronic cough.* In children, examine the *neck* for *enlarged* and *painless lymph glands.* If possible, send any patient you think may have tuberculosis to the hospital for diagnosis. If the patient cannot get to a hospital, you may be able to send a sample of his sputum. See Patient Care Procedures.

Course and Complications

Untreated pulmonary tuberculosis progresses slowly. It destroys large amounts of lung tissue. The infected person continues to lose weight. Eventually, severe bleeding in the lungs and pneumonia will lead to death.

At any time in the course of tuberculosis, infection can develop in another organ. Watch for these complications.

a. Meningitis

The patient who develops meningitis becomes irritable. He develops headaches and he begins to vomit frequently. He has a high fever. He develops a stiff neck. He becomes confused and comatose. Death can occur in two to six weeks.

b. Tuberculosis of the abdomen

Tuberculosis of the abdomen usually begins when the patient drinks milk which is infected with tuberculosis. The abdomen

swells. The patient loses his appetite and complains of abdominal pain. Fluid builds up in the abdominal cavity. The patient has fever and loses weight.

c. Miliary tuberculosis

Tuberculosis that spreads through the body is miliary tuberculosis. The patient may only have a fever. However, death occurs within one to two months if the disease is not treated.

d. Tuberculosis of the bone

Most often, tuberculosis of the bone affects the spine. The patient has back pain. The disease destroys the vertebrae and deforms the spine.

e. Tuberculosis of the kidney

Tuberculosis of the kidney causes blood in the urine.

f. Tuberculosis of the lymph glands

Also called scrofula, tuberculosis of the lymph glands swells the lymph glands, usually in the neck. This disease occurs mostly in children. The glands are large and hard, not soft and tender as they are in a bacterial infection.

PATIENT CARE

a. Teach the patient and his family about tuberculosis

The patient and his family must cooperate in the treatment of tuberculosis. Explain to them that treatment takes a long time. Be sure they understand that the medicine must be taken regularly. Explain the kinds of side effects the drugs may cause. If reactions occur, they should come to see you. Follow up on each patient you treat for tuberculosis.

b. Give the proper medications

Guidelines for treating tuberculosis may have been established by a tuberculosis control program in your country. Often, three drugs are used at the beginning of treatment. After one to two months, these are reduced to two drugs. See the Patient Care Guides for the most commonly used drugs and drug combinations.

c. Urge the patient to eat a nutritious diet

Urge the patient with tuberculosis to eat foods that will give

energy and protein. His disease rapidly uses up his energy. Weigh the patient every time he visits you. He should be gaining weight.

d. Follow the patient's progress

Treatment for tuberculosis takes at least two years. During that time, the patient should visit the health center every month. At each visit, record his weight, his symptoms, the drugs he takes, and the side effects of the drugs.

The patient's weight will give you an excellent guide to his progress. If the patient continues to lose weight, send him to a hospital for more tests. Be sure he eats the right foods.

Ask the patient about what drugs he takes and when he takes them. If he does not remember, ask him to bring the drugs with him when he makes his visits. You can tell if the patient has been taking his pills by counting them each visit.

Note the patient's coughing, the amount of sputum he coughs up, and the presence of blood in his sputum. Also ask whether he has had any fever. His symptoms should improve with each visit.

Finally, check on any side effects the drugs may have.

e. Check the family for tuberculosis

Examine all family members for signs and symptoms of tuberculosis. If anyone coughs up sputum, send a sample to a hospital for testing.

Give children a skin test for tuberculosis. Children with negative skin tests should receive tuberculosis vaccine.

PREVENTION OF TUBERCULOSIS

a. Examine the patient's contacts for tuberculosis. Start treatment of any contact found with tuberculosis.

b. Tuberculosis vaccine, BCG vaccine, may provide some protection. Follow national guidelines for its use.

c. Stop the spread of tuberculosis bacteria by routinely checking every patient you see for tuberculosis. Start treatment for any new tuberculosis cases.

REVIEW QUESTIONS
Respiratory System Problems

1. Pneumonia is an inflamation of the_____ which is usually caused by_____.

2. TRUE (T) or FALSE (F)

   ____ Pneumonia may occur alone or as a complication of other diseases such as measles.

   ____ Pneumonia is not contagious.

   ____ Pneumonia is much more severe in children than it usually is in adults.

3. A mother brings to your clinic her three-year-old child who you diagnosed three days ago as having measles. Now from the child's symptoms and signs, you diagnose pneumonia.

   a. What care would you provide for the child?

   b. What would you tell the mother about caring for her child at home?

4. What causes acute bronchitis?

5. How long does it usually take for acute bronchitis to clear up in the healthy individual?

6. You have diagnosed a sixty-five-year-old patient as having acute bronchitis. During your history taking, you noted that she has had a previous history of lung disease. The choice of drug for this patient is procaine penicillin. However, the patient reports that she devel-

oped a rash the last time she was given penicillin. You supect that she is allergic to penicillin. Use your Formulary when answering the following questions.

a. What antibiotic would you give to the patient?

b. How would you administer this antibiotic?

7. Name three important physical signs associated with emphysema.

8. You have just diagnosed chronic bronchitis in a forty-five-year-old man who smokes one pack of cigarettes a day. What is the most important care you can provide this patient?

9. What does "pleural effusion" refer to?

10. The two most common causes of pleural effusion are _____ and _____.

11. There are three important physical examination signs to note when making the diagnosis of pleural effusion.

    1) You will see _____ during inspection of the chest.

    2) You will hear a _____ sound when percussing the chest.

    3) You will not hear _____ when auscultating the involved lung.

12. TRUE(T) or FALSE(F)

    ____ Asthma attacks may be caused by tree or grass pollens.

    ____ Asthma is usually an acute condition which will not last very long.

____ The most dangerous complication of asthma is when the wheezing cannot be interrupted.

____ Asthma attacks may occur more frequently at one time of the year than another.

13. A mother brings her five-year-old child to the clinic. The child is having a mild asthmatic attack. What two immediate things would you do in the clinic to treat the child?

14. How are the bacteria which cause tuberculosis spread from one person to another?

15. What is the infection which follows first contact with tuberculosis, usually in childhood, called?

16. Why should you regularly follow the progress of patients who are taking drugs for tuberculosis?

17. At any time in the course of tuberculosis, infection can develop in another organ. What other infections should you watch for?

18. How can you confirm a diagnosis of tuberculosis?

19. What points might you include in educating the patient and his family about tuberculosis?

20. Determine the dosage of anti-tuberculosis drugs for a 15 kg child.

21. You have diagnosed tuberculosis in a nine-year-old boy who weighs 30 kg. Blood tests tell you the boy is also severely anemic. How will you manage this patient?

REVIEW EXERCISE

Case Study 11

Name of Patient:	George, Cindy	
Sex:	Female	
Date of Birth:	16 February 1957	
Date of Visit:	20 December 1979	
Urine:	Normal	
Vital Signs:	Temperature	38.7°C
	Pulse	112
	Respiration	24
	Blood Pressure	130/70
	Weight	57 kg
Presenting Complaint and Medical History:	The patient's fever began two days ago. After one day, the patient developed a stabbing pain in her right front chest. The pain increases when she breathes in and coughs. Nothing relieves the pain. She coughs up a thick yellow-green sputum and has some difficulty breathing.	

Past medical history: The patient has never felt like this before. Her last menstrual period was two weeks ago. It lasted five days. It was painful, and she had heavy clots. She has one living child. She delivered one stillborn premature infant.

Physical Examination: The patient looks sick. Her mucous membranes are pink and her tonsils are normal. Her thyroid gland feels normal. She does not have any sign of respiratory distress. The chest expands evenly on both sides. The patient has trouble fully expanding the right lung because of pain. A flat percussion note comes from over her right front and back chest. The heart sounds normal. Her breath sounds are decreased and rales can be heard over her right lung. Bronchial breath sounds also are evident. No signs of swelling appear on her feet and ankles.

Study the information given above. Then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?

REVIEW EXERCISE

Case Study 12

Name of Patient:	Hayden, Shauna
Sex:	Female
Date of Birth:	24 May 1976
Date of Visit:	16 May 1979
Vital Signs:	Temperature 37.6°C Pulse 120 Respiration 32 Weight 12 kg
Presenting Complaint and Medical History:	The patient's mother says her child developed a cold and severe cough about a week ago. The child has had a fever, off and on, for the last five days. She has been coughing up a green sputum, especially at night. Past medical history: The child was a premature delivery. She had pneumonia two years ago and was treated with an antibiotic.
Physical Examination:	The child looks feverish, but not sick. She has no respiratory distress. Her mucous membranes are pink. Her chest expands evenly. Her heart sounds normal. Scattered rhonchi can be heard over both lungs. Her abdomen is soft, without tenderness or enlarged organs.

Study the information given above. Then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?

REVIEW EXERCISE

Case Study 13

Name of Patient:	Ismond, Linda	
Sex:	Female	
Date of Birth:	29 June 1931	
Date of Visit:	14 October 1979	
Urine:	Normal	
Vital Signs:	Temperature	36.6°C
	Pulse	80
	Respiration	22
	Blood Pressure	115/70
	Weight	53 kg

Presenting Complaint and Medical History: The patient has had a gradual onset of trouble breathing during the last two weeks. The trouble is growing worse. She has had a cough without sputum for the last week. She thinks that eating a heavy meal makes the problem worse. Some pills she received from the hospital last week helped a little.

Past medical history: She had a similar problem last month and was treated at the hospital. Her last menstrual period was 29 September 1979. It was regular, lasting five days.

Physical Examination: The patient is a healthy looking woman. She does not appear to have any trouble breathing, although some slight wheezing can be heard on expiration. Her mucous membranes are pink and her tonsils are normal. Normal percussion notes are heard over both lungs. Her wheezing on expiration is scattered through both lung fields. Her abdomen is soft, without tenderness, fluid, or enlarged organs.

Study the information given above. Then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?

REVIEW EXERCISE

Case Study 14

Name of Patient:	Nagaloo, James	
Sex:	Male	
Date of Birth:	3 February 1924	
Date of Visit:	25 June 1979	
Urine:	Normal	
Vital Signs:	Temperature	36.6°C
	Pulse	110
	Respiration	30
	Blood Pressure	110/70
	Weight	46 kg
Presenting Complaint and Medical History:	About six weeks ago, the patient started coughing. He says he coughs up some white sputum but no blood. He has had fever off and on and some wheezing for the last month. He has lost about ten pounds during the past six weeks. His appetite comes and goes. He feels tired. He reports no	

night sweats or shortness of breath. He smokes moderately.

Past medical history: The patient has not felt like this before. No family member has had any similar symptoms.

Physical Examination: The patient is a thin looking man. He has no fever. His tongue is not coated and his mucous membranes are pink. He shows no signs of respiratory distress. His chest expands equally on both sides. Fine rales can be heard from both lungs, especially in the right upper lung field, both front and back. His heart sounds are normal.

Study the information given above. Then answer these questions.

1. What is the diagnosis?
2. What information in the case study was the most helpful when you made your diagnosis?
3. Was any information missing from the case study that would have helped to make the diagnosis?
4. How would you treat this patient?

REVIEW EXERCISE

Case Study 15

Name of Patient:	Hindras, Shandell
Sex:	Female
Date of Birth:	22 November 1975
Date of Visit:	15 December 1979
Vital Signs:	Temperature 39.4°C Pulse 96 Respiration 30 Weight 19.5 kg
Presenting Complaint and Medical History:	The patient's mother noticed two days ago that her daughter suddenly began having trouble breathing. The girl has been coughing up yellow sputum and vomiting after coughing. She developed a fever. Her appetite is poor and she is restless. She has chest pain that is made worse by coughing.
Physical Examination:	The patient is a sick looking child. She has moderate respiratory distress. She is fully conscious and alert. She has some dryness of the mouth. Her nostrils flare when she breathes in, and she has intercostal retractions. Her chest expands equally on both sides. The percussion note at the back base of the right lung sounds flat. Rales are present at the base of both lungs. Her heart sounds are normal.

Study the information given above. Then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?

REVIEW EXERCISE

Case Study 16

Name of Patient:	Austin, Mary
Sex:	Female
Date of Birth:	23 July 1966
Date of Visit:	16 May 1979
Urine:	Normal
Vital Signs:	Temperature 37.2°C
	Pulse 110
	Respiration 26
	Weight 53 kg
Presenting Complaint and Medical History:	The patient has had a head and chest cold for the last two weeks. Three days ago she developed a cough. The cough has grown worse during the last two days. The child reports chest pain and a little difficulty breathing, but only when she was asked. She has been coughing up some green sputum. She has had some fever which is worse at night. Nothing seems to make the problem any better or worse. Past medical history: The patient recently has had fever and colds.
Physical Examination:	The patient is a sick looking child. She has labored breathing. Her mucous membranes are pink. Her tonsils are slightly enlarged, but clear. She has some mild intercostal retractions. Her chest expands evenly on both sides. The percussion note over the lower part of both lungs is slightly flat. Rales occur in the lower long fields on both sides of the chest. She has abnormal, rasping bronchial breath sounds.

Study the information given above. Then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?

SKILL CHECKLIST
Collecting Sputum from a Suspected Tuberculosis Patient

This checklist has two purposes.

1) Students should use it as a guide for checking their own skills or other students' skills.
2) Supervisors should use it when they evaluate how well students collect sputum from suspected tuberculosis patients.

After observing a student, enter a rating in the appropriate column.

Rating: 1 = Inadequate
2 = Needs improvement
3 = Satisfactory
4 = Above average
5 = Excellent

When collecting sputum:	YES	NO	RATING	COMMENTS
1. Tell the patient to rinse his mouth with water and spit the water out.				
2. Tell the patient to cough deeply.				
3. Collect sputum in a clean, wide-mouth container, and cover it.				
4. Label the container and send it to the hospital the same day.				
5. Record collection on tuberculosis register and the patient's card.				
6. Record return results on tuberculosis register and patient's card.				

7. Send the patient home with a container to collect a second sample. Give the patient instructions on how to collect his sputum.				

Unit 3

Assessing the Patient with a Heart Problem

STUDENT GUIDE

OBJECTIVES

1. Recognize and describe the signs of heart problems:

   Cyanosis
   Pitting edema of the ankles and lower back
   Increased pulse rate or weak pulse
   Abnormally high blood pressure of 140/90 and above
   Abnormally low blood pressure of 90/60 and below
   Enlarged neck veins
   Heart murmur
   Irregular heart beat
   Shortness of breath
   Rales
   Cough
   Substernal pain
   Crushing, squeezing, radiating chest pain
   Cool, damp, and pale skin

2. Recognize the signs of a heart problem when you see or hear them in a patient.
3. Question a patient about his heart problem.
4. Examine a patient with a heart problem.
5. Correctly record your findings on official forms.

LEARNING ACTIVITIES

1. Join the teacher and class in presentations, demonstrations, and discussions of the heart and heart problems.
2. Look at slides on the anatomy and physiology of the heart and study how the heart works.

3. Practice taking a medical history of heart problems using role-play based on case studies.
4. In the classroom, interview and examine patients with heart problems.
5. In the clinic, interview patients about their heart problems, examine patients with heart problems, and write down your findings.

3.1 SIGNS AND SYMPTOMS OF HEART PROBLEMS

This section discusses the signs and symptoms of heart disease and what causes them. Most of these findings are caused by either heart failure or lack of oxygen to the heart.

The heart is made of two pumps, one beside the other. The left side of the heart pumps blood into the aorta, the main artery. From the aorta, the blood flows through the rest of the body. This left side of the heart and the blood vessels which carry blood throughout the body make up the systemic circulation. The blood pressure in the systemic circulation is very high. It forces blood to the most distant parts of the body.

The right side of the heart pumps blood to the lungs. When the blood returns to the heart from the rest of the body, it enters the heart through the inferior and superior vena cava. From there, it flows into the right auricle and then into the right ventricle. When the heart contracts, blood flows up through the pulmonary arteries and into the blood vessels of the lungs. This low pressure system is the pulmonary circulation.

The right and left sides of the heart must pump exactly the same amount of blood. If they do not, blood backs up behind the heart. The patient develops the signs and symptoms of heart failure.

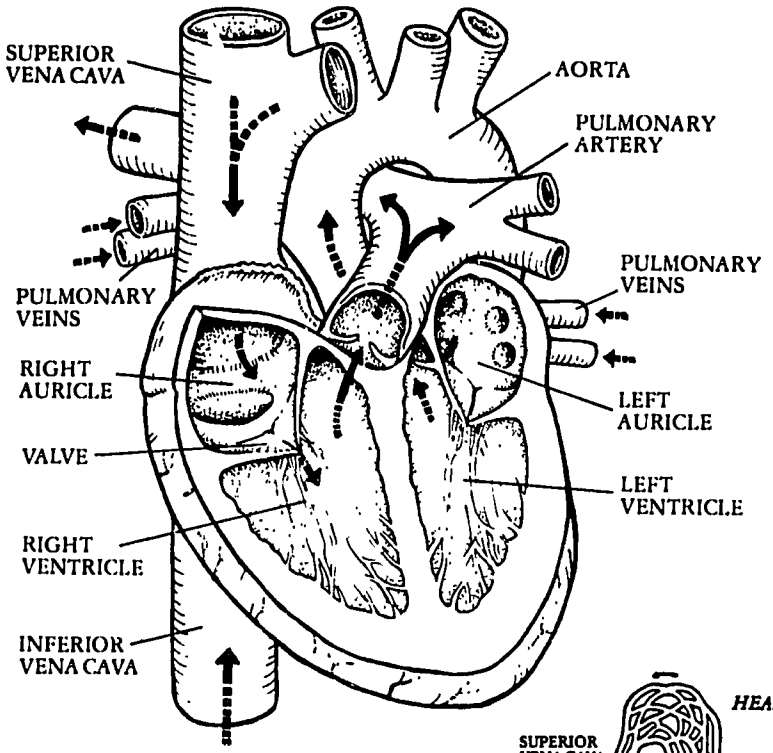
When the heart fails, it is usually because of one of the three types of problems discussed in this module. They are damage to heart muscles, or myocardial infarction; damage to heart valves caused by rheumatic heart disease; and high blood pressure.

The abnormal signs that affect the ability of the heart to pump blood through the body are described in the following section.

Shortness of Breath

Problems involving the left side of the heart often cause the first symptoms of heart failure. When the left ventricle does not pump enough blood, the blood backs up behind the left side of the heart. This means more than the normal amount of blood fills the lungs.

When blood stays in the lungs waiting to be pumped to the rest of the body, water leaks from the blood vessels into the lung tissue. The lungs no longer easily expand and contract. The person feels



THE ARROWS INDICATE THE DIRECTION OF BLOOD FLOW.

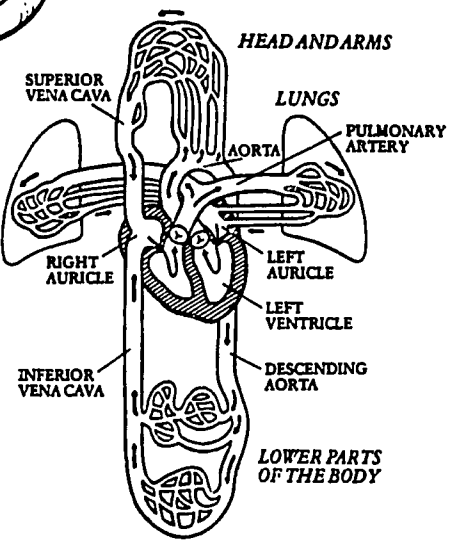


DIAGRAM OF HEART AND MAJOR BLOOD VESSELS

short of breath. Fluid may collect in his lungs when he lies down at night. He may awaken feeling short of breath. He will sit up to catch his breath. These are symptoms of heart failure.

Always ask your patient whether he becomes short of breath at night, or if he must sleep sitting up.

Increased Pulse Rate

One of the earliest signs of heart failure is an increased pulse rate. Always measure the pulse rate when the patient is resting. Normally, it should be less than eighty beats per minute. However, the range of normal pulse rates is wide. Healthy people may still have heart rates above eighty beats per minute.

Rales

When water leaks into lung tissue because of heart failure, you will often hear rales. Auscultate the patient's chest. Listen for rales at the lower parts of the lungs, especially in the back. Listen immediately after the patient has coughed.

Enlarged Neck Veins

As the heart failure continues to worsen, new signs and symptoms develop. Blood backs up behind the right side of the heart. Blood vessels which carry blood back to the heart from the rest of the body become overfilled with blood. Pressure rises in the jugular veins.

Normally, the neck veins are flat, even when the person is lying on his back. Heart failure enlarges the jugular vein in the neck. When you seat the heart patient with his back at a 45 degree angle, you may note that his jugular vein remains enlarged. This test gives you an important sign of heart failure.

Edema of the Ankles and Lower Back

Increased pressure in the veins leading back to the heart also forces fluid to leak into the body tissues. The patient complains of swelling of his ankles and feet. This is called edema. This may only occur late in the day. At night, fluid may collect over the lower back.

Pitting Edema

As the heart failure worsens, the swelling may not disappear at night. Examine the patient for swelling of the lower legs and the lower back. Press your thumb firmly down on the front of the lower leg or ankle for a few seconds. Then remove your thumb and look for a thumb mark. The mark is a sign of increased fluid in the tissues. The sign is called pitting edema. Examine the lower back in the same way.

Enlarged Liver

With heart failure, the liver and the spleen also become congested and enlarged. The liver becomes firm. You will easily be able to feel it by palpating below the right edge of the rib cage. You may also be able to feel the enlarged spleen.

Heart Murmur

Normally, when you listen to the heart, you will hear a "first sound" and a "second sound." These change with heart disease. When people who have had rheumatic fever develop rheumatic heart disease, their blood will not pass smoothly through the heart. It flows past rough valves that cause unusual vibrations. These vibrations are called heart murmurs.

Chest Pain

The heart muscles receive oxygen through the blood. Because the heart muscles work very hard, they need a large amount of oxygen. Often, especially in old people, the inside walls of the arteries become rough and narrow. The arteries do not carry enough blood to meet the needs of the heart muscle.

The most important symptom of lack of oxygen to heart muscles is pain. The patient may suddenly feel a heavy pressure on his chest. It takes his breath away. If he is working, he must stop. After a minute or two, the pain disappears. The pain may radiate into the patient's neck. It may move down his left arm and into his hand. Sometimes it moves into the right arm and shoulder. This kind of pain is called angina pectoris. When disease or age causes arteries which carry blood to the heart muscles to grow narrow, the person will feel attacks of angina.

Severe lack of oxygen to the heart muscle causes a heart attack, or myocardial infarction, in which part of the heart muscle dies. The pain is much greater in a myocardial infarction than in angina pectoris. The patient will describe the pain as crushing, squeezing, and causing severe shortness of breath. He may say the pain occurs directly beneath his sternum. This substernal pain may radiate to his left arm and neck. If a large part of the muscle has died, the heart will not be able to pump blood to the rest of the body. The patient will die.

Irregular Heart Beat

The heart normally beats with a regular rhythm. A heart attack often disturbs the rhythm of the heart. The rhythm becomes irregular. It may become so irregular that the heart stops pumping blood properly. People who suffer a heart attack most often die because their heart stops pumping blood properly.

Decreased Blood Pressure

As a heart condition worsens, the patient's blood pressure begins to fall. When it falls to 90/60 or less, he almost certainly suffers shock. He may become very restless. The blood which normally flows to his skin is pumped to his brain and other vital organs instead. His skin becomes cold, pale, and damp. The person eventually sinks into a coma.

3.2 TAKING THE MEDICAL HISTORY OF A PATIENT WITH A HEART PROBLEM

Patients with heart problems have many of the same signs and symptoms as patients with respiratory problems. This discussion focuses on the signs and symptoms of heart problems.

When the patient complains of chest pain, ask these questions.

"Can You Describe the Pain?"

Ask the patient to describe the pain in his own words. When the heart muscle does not get enough oxygen for its needs, your patient may describe the pain as crushing or constricting, or say it "takes my breath away." The pain is constant. The patient cannot get relief by moving or changing position.

"Where is the Pain?"

The pain usually is substernal. It often radiates into the neck, jaw, shoulders, or down into the left arm and wrist.

"When Did the Pain Start? Does It Come and Go? How Long Does It Last When It Comes?"

Ask the patient how often he suffers the attacks of pain. When was the first attack? How many attacks has he had? These questions will help you decide whether the pain is angina or myocardial infarction.

"What Eases the Pain or Makes It Worse?"

Exercise can cause an attack of angina. The pain quickly stops when the person rests.

When the patient complains of shortness of breath, ask these questions.

"When Do You Have This Problem?"

When a person's heart starts to fail, he becomes short of breath during exercise. He may also wake up at night because he feels short of breath. He will have to sit up to catch his breath and may have to sleep in a sitting position.

"What Work or Play Could You Do Before That You Cannot Do Now?"

Patients often stop doing some things because they feel uncomfortable. Ask how far the patient can walk or run without becoming short of breath. Ask him whether the distance has changed during the past six to twelve months.

Ask about other symptoms of heart disease.

"Do Your Ankles or Lower Back Swell?"

In early stages of heart failure, a person may notice that his legs and ankles swell in the afternoon and evening. The swelling goes away during the night. Later, the swelling becomes worse and does not go away. At night, the swelling occurs over the lower back because the water shifts from the legs to the back.

"Do You Have a Cough? Do You Cough Up Anything?"

People with heart failure often have a dry cough. They may cough up a thin, clear sputum. Later, they may cough up blood.

3.3 EXAMINING A PATIENT WITH HEART DISEASE

Note the patient's general appearance. Is he in pain? Is he having any trouble breathing? Examine his mucous membranes, lips, and nailbeds. Are they pink, pale, or cyanotic? Patients suffering from a heart attack suffer severe chest pain. They have difficulty breathing. They are often pale or cyanotic.

Check the Vital Signs

Record your patient's pulse, temperature, and respiratory rate. Are they normal for a person his age, size, and weight? Check his blood pressure to see whether it is within a normal range, or whether he has signs of hypertension or shock.

Examine the Ankles and Lower Back

Examine the ankles and lower back for signs of edema. Edema occurs when the patient suffers from congestive heart failure.

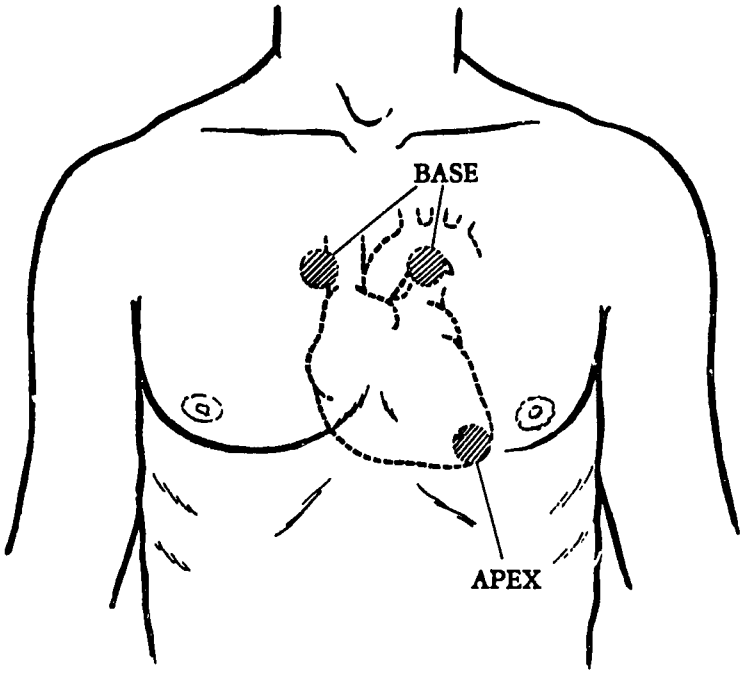
Examine the Neck

Feel the carotid arteries in the neck. The pulse should be strong and it should occur with the beat of the heart at its apex. Do not confuse the carotid pulse with the jugular venous pulse. The blood in the jugular vein runs directly down into the superior vena cava and into the heart. Back pressure from the heart will build a column of blood that reaches into the neck.

Have your patient lie down. Examine his jugular veins. When the patient is seated at a 45 degree angle, the jugular veins ought to be flat. Pressure in the jugular veins will distend them. You will notice enlarged neck veins.

Auscultate the Heart

Listen to the heart with your stethoscope. Listen at the apex and at the base of the heart. You will hear a continuous series of sounds. They are sometimes described as "lub-dub lub-dub" sounds. The "lub" sound is the first sound. It occurs at the same time that you feel the heart strike the chest wall. The "dub" sound



AUSCULTATE THESE AREAS OF THE HEART
WHEN EXAMINING A PATIENT WITH HEART DISEASE

is the second sound. With practice you will be able to distinguish the first and second sounds from each other. A longer pause usually occurs between the second and first sound than between the first and second sound: "lub - dub (pause) lub - dub (pause) lub - dub ..."

No other noises normally occur between heart sounds. Noises that occur between the heart sounds are called murmurs. Murmurs are often an important sign of heart disease.

Listen to the rhythm of the heart while you listen to the heart sounds. Note whether the sounds are regular. Regular sounds come from a healthy heart. Irregular sounds mean trouble. When you hear a murmur, refer the patient to a doctor.

REVIEW QUESTIONS
Assessing the Patient with a Heart Problem

1. Briefly explain the flow of blood through the heart and lungs.

2. Describe why you will often hear rales at the base of the lungs when you examine a patient with heart failure.

3. Describe briefly what causes angina.

4. What kinds of medical history questions might you ask a patient who complains of chest pain?

5. When you examine the patient with a possible heart problem, you must focus on three major areas: _____, _____, and _____.

6. What is a heart murmur?

7. What is the only way you can diagnose hypertension?

Unit 4

Heart Problems

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of:

   Congestive heart failure
   Rheumatic heart disease
   Angina pectoris
   Myocardial infarction
   Hypertension

2. Interview and examine patients and diagnose their heart problems.
3. Provide treatment and care for patients with heart problems.
4. Discuss with patients and their families how to care for heart problems at home and how to prevent them.

LEARNING ACTIVITIES

1. Join the teacher and class in presentations and discussions of heart problems.
2. Use case studies to practice diagnosing heart problems.
3. In a clinic, practice how to identify heart problems, how to provide treatment and care for heart problems, and how to tell patients and their families about the care and prevention of heart problems.

4.1 CONGESTIVE HEART FAILURE

Congestive heart failure occurs when a damaged heart fails to properly pump blood. A heart can be damaged many ways, but the three most common ways are:

By diseases that decrease the blood supply to the heart muscle

By diseases that damage the heart valves and interfere with the normal flow of blood through the heart

By diseases or conditions that cause high blood pressure

When blood vessels that carry blood to the heart are damaged or blocked by disease, the heart muscles do not get enough oxygen and become weak. They must work harder to pump blood through the body. Signs of congestive heart failure begin to appear.

When disease affects the heart valves, blood leaks in the wrong direction and flows at the wrong times. The heart must work harder. Eventually, the heart starts to fail and the signs of congestive heart failure begin to appear.

When the blood pressure is very high, the heart must pump blood against strong pressure. The heart muscle is weakened if it pumps blood against high pressure for a long time. The weakened heart muscle does not perform effectively and signs of heart failure appear.

CLINICAL PICTURE

a. Presenting complaint

The patient complains of a *cough* or *shortness* of *breath* when he *exercises.* He feels tired and weak. His *ankles swell* in the *afternoon* or *evening.*

b. Medical history

The symptoms of congestive heart failure depend upon when it is diagnosed. The most common complaints are *shortness* of *breath* and *swelling* of the *ankles.* As the condition becomes worse, the patient may wake up in the night feeling short of breath. He may also have a dry cough. The *cough* may produce a *thin, clear sputum.* Sometimes he may cough up blood. Swelling of the ankles may worsen. The patient may complain of *lower back swelling.*

c. Physical examination

The major signs of congestive heart failure do not always occur together. In most cases, however, you will find *pitting edema* of the *ankles, enlarged neck veins, shortness* of *breath* during exertion or when lying down, *increased pulse rate,* and *rales.*

Other signs of congestive heart failure are a cough, enlarged liver, irregular heartbeat, high blood pressure, heart murmur, and cyanosis. These signs will help you find the cause of the congestive heart failure.

Course and Complications

A patient with congestive heart failure can live normally for many years. Once he starts medication, he must continue to take it for the rest of his life. He also must learn to rest more often and to stop using salt in his diet.

Heart failure may gradually become worse. Congestion in the lungs can lead to pneumonia and death. The patient may suddenly develop severe heart failure. The lungs become filled with fluid, and the patient drowns.

Patient Care

Refer a patient with severe congestive heart failure to a hospital. Move him in a sitting position.

For a mild case of congestive heart failure, follow these steps.

a. Urge the patient to rest as much as possible during the day.

b. Tell the patient to stop adding salt to his food. Salt holds fluid in the body and prolongs the edema.

c. Tell the patient to stop working the moment he feels short of breath.

d. Give the patient one 25 mg tab of hydrochlorothiazide twice a day until the edema disappears. The dose should be reduced, if possible, to one tablet on alternate days. See Patient Care Guides.

e. Refer a patient with mild congestive heart failure to a doctor.

Follow the patient's progress. Explain congestive heart failure to the patient and his family. Tell them how it must be treated. This will help them understand why the person with heart failure must faithfully follow his treatment.

Tell the patient and his family about each of these points.

a. Congestive heart failure can be controlled by medications, but cannot be cured.

b. The patient with congestive heart failure must continue to take his medications for the rest of his life.

c. If the patient stops his medications, the symptoms of congestive heart failure will return.

d. The patient must not use salt when cooking or at the table.

e. The patient may be more comfortable at night with his head and chest raised higher than his feet because fluid collects in the lungs at night and causes shortness of breath.

f. The patient needs extra rest during the day.

Urge the patient to return once a month for a checkup. When he returns, follow these steps.

a. Ask the patient if he is adding any salt to his food.

b. Urge the patient to avoid salt.

c. Ask the patient about swelling of his ankles, shortness of his breath while working or at night, cough, weakness, and other symptoms, such as chest pain.

d. Examine the patient and record his weight, the presence or absence of edema, signs of fluid in his lungs, heart rate, heart rhythm, other signs of congestive heart failure, and blood pressure.

e. If your patient is taking digitalis, check for signs of either too little or too much of this drug. Signs of too little digitalis are a pulse rate of more than ninety beats per minute and fluid collecting in the body. Signs of too much digitalis are nausea, vomiting, headache, slow heart rate, and an irregular heartbeat.

f. If you think your patient is taking too little or too much digitalis, or that signs of heart failure are not under control, refer him to a hospital.

g. If the patient is taking a diuretic, ask him if he is also eating at least one banana or orange a day. The diuretic washes out an important chemical in his body, potassium. Without enough potassium, the patient will become weak or develop muscle cramps.

Prevention of Heart Failure

Always look for conditions which can cause heart failure. These include severe anemia and high blood pressure.

4.2 RHEUMATIC HEART DISEASE

Rheumatic fever most often occurs in children between the ages of five and fifteen. Rheumatic fever often causes inflammation of the heart muscles. Repeated attacks of rheumatic fever lead to rheumatic heart disease. The inflammation damages heart valves. Damaged heart valves leak. The valves may also become very stiff. Blood cannot pass through stiff valves normally. Eventually, the heart will fail. The person is often between twenty and forty years old when he develops symptoms of rheumatic heart disease. Many adults with rheumatic heart disease, however, do not remember being sick with rheumatic fever.

Clinical Picture

a. Presenting complaint

Rheumatic heart disease most fequently causes heart failure. The patient complains of a *cough*, *shortness* of *breath* when he *works*, and *swollen ankles*.

b. Medical history

You will seldom find a history of rheumatic fever. The symptoms of heart failure such as *cough*, *shortness* of *breath* on *exertion*, and *swollen ankles* should alert you to rheumatic heart disease.

c. Physical examination

Patients with rheumatic heart disease nearly always have *loud heart murmurs*. The kind of murmur depends upon which heart valves are involved. The murmur is caused by vibrations in the walls of the heart. The blood does not flow smoothly through the valves. The patient develops *heart failure* with all of the *signs* of that problem.

Course and Complications

The course of rheumatic heart disease depends upon the severity of the valve damage. Once the patient develops heart failure, his life is nearly always shortened by the disease.

Patient Care and Prevention

Refer your patient to a physician or hospital if you think he has rheumatic heart disease. Treat congestive heart failure according to the Patient Care Guides.

To prevent rheumatic heart disease, you must prevent rheumatic fever. You can help prevent rheumatic heart disease by diagnosing and treating bacterial tonsillitis.

4.3 ANGINA PECTORIS

Lack of oxygen to the heart muscles causes a chest pain called angina pectoris. Narrowed and hardened arteries block the blood which carries the oxygen. This occurs most often in arteriosclerosis, a disease which affects old people.

Clinical Picture

a. Presenting complaint

The patient will complain of a *squeezing substernal pain* that can be brought on by minor *exertion.*

b. Medical history

A person may have *repeated attacks* of *angina pectoris.* The *pain occurs suddenly.* It *lasts* for a *minute* or *two,* then eases. The *pain* may shoot, or *radiate,* into the *shoulders,* the *jaw,* or along the *left arm. Nitroglycerin* will *relieve* the *pain.*

Between attacks of angina pectoris, the patient feels fine. He has no other symptoms of heart problems.

c. Physical examination

The physical examination of a patient who has had an attack of angina pectoris may reveal *no* other *signs* of *heart problems.* You will have to *rely on* the *presenting complaint* and *medical history* to make your diagnosis.

Course and Complication

People may suffer attacks of angina pectoris for many years. They learn to take nitroglycerin to ease the pain. They also limit their

activity to reduce their chances of new attacks. Their heart problem, however, does not improve. If the heart problem worsens, it will lead to a myocardial infarction.

PATIENT CARE

a. No smoking

Advise the patient not to smoke. Smoking narrows the blood vessels and makes the problem worse.

b. Lose weight

Advise an overweight person to start a diet. Losing weight will ease the heart's work.

c. Eat small meals

Tell the patient not to eat large meals. He should instead eat small meals more often. He should also rest after each meal.

d. See a doctor

Send the patient to a doctor.

e. Check blood pressure

Check the patient's blood pressure and test him for diabetes. These both increase the heart's work.

f. Give nitroglycerin

Give the patient nitroglycerin pills. Tell him to take one pill each time he feels an attack of angina pectoris. He should put the pill under his tongue and let it dissolve there. See Patient Care Guides.

4.4 MYOCARDIAL INFARCTION

Lack of oxygen to the heart causes myocardial infarction as well as angina pectoris. In myocardial infarction, however, the lack of oxygen kills part of the heart. The pain, though great in angina pectoris, is far more serious in a myocardial infarction. The person suffering a myocardial infarction feels as if he is going to die.

CLINICAL PICTURE

a. Presenting complaint

A person who has survived a myocardial infarction, or heart attack,

will tell you that he felt as if he had been kicked hard in the chest. The ***substernal pain*** will have been ***severe***. He will have felt as if the ***pain*** was ***crushing*** his ***chest***. The pain will have caused ***severe shortness*** of ***breath***.

b. Medical history

People who suffer a myocardial infarction often have a ***history*** of ***angina pectoris***. With the myocardial infarction, he finds his ***nitroglycerin pills do not work***. The pain continues, growing even more severe. The ***pain lasts minutes***, or ***hours***. Resting does not relieve it.

c. Physical examination

A patient who has had a recent myocardial infarction will be in great pain. He will be restless, ***cyanotic***, ***pale***, and frightened. He will have ***trouble breathing***. He may be in ***shock***. His ***skin*** will be ***cool***, ***pale***, and ***damp***. His ***pulse*** will be ***weak*** and ***fast***, more than ninety beats per minute. His ***blood pressure*** will be ***less than 90/60***. His heart beats will sound ***weak***, ***muffled***, or ***irregular***.

Course and Complications

If the pain of a myocardial infarction lasts for more than a few minutes, heart muscle has been damaged. The amount of damage determines the course of the disease. Some people die within a few seconds. Other people develop heart failure. People who survive one myocardial infarction may suffer others.

Patient Care

a. Treat for shock

Myocardial infarction is an emergency. Treat the patient for shock. See Patient Care Guides.

b. Transport to hospital

Transport the patient in a sitting position to a hospital.

c. Relieve pain

If the patient has severe pain, give him 100 mg pethidine IM. Give him another shot after three hours if he still suffers pain. See Patient Care Guides.

This table compares symptoms and signs of angina pectoris and myocardial infarction.

TABLE

SYMPTOMS OF ANGINA PECTORIS	SYMPTOMS OF MYOCARDIAL INFARCTION
	A patient often has had attacks of anginal pain before. He may have been diagnosed as having angina pectoris.
Squeezing, substernal pain	A severe, crushing, substernal pain. The patient feels as if he cannot breathe.
Sudden pain brought on by exertion. It lasts for one to two minutes and is relieved by rest. Nitroglycerin relieves the pain.	The pain lasts for ten minutes to several hours. Rest or nitroglycerin has no effect.
SIGNS OF ANGINA PECTORIS	**SIGNS OF MYOCARDIAL INFARCTION**
None	The patient is restless and in great pain.
	The patient is cyanotic.
	The patient is frightened and is having difficulty breathing.
	The patient's skin is pale, cool, and damp. His pulse is weak and above 90 beats per minute. His blood pressure is below 90/60.
	The heart sounds are weak and muffled.

4.5 HYPERTENSION

When a person's blood pressure is regularly above normal limits, he has high blood pressure, or hypertension. Either systolic, diastolic, or both readings may be elevated. These are the usual values for mild, moderate, and severe hypertension:

	Systolic Pressure	*Diastolic Pressure*
Mild hypertension	140 to 160	90 to 104
Moderate hypertension	160 to 180	105 to 125
Severe hypertension	Over 180	Over 125

Hypertension most frequently occurs in adults older than thirty. However, children with kidney disease also develop hypertension.

CLINICAL PICTURE

a. Presenting complaint

The patient ***rarely has a presenting complaint*** associated with hypertension. You will find hypertension in a patient when you take his blood pressure.

b. Medical history

People with hypertension are usually ***between thirty*** and ***fifty years old.*** They may have a history of ***headache, nosebleeds,*** or ***lightheadedness.*** Ask whether the patient has a ***family history*** of ***hypertension,*** heart disease, or strokes.

c. Physical examination

In early cases of hypertension, the only sign you will find is ***high blood pressure.*** The patient's pulse may be fast.

COURSE AND COMPLICATIONS

High blood pressure damages the heart, the kidneys, and the brain. The high pressure can cause a stroke. The pressure also damages the kidney. The patient will eventually die from kidney failure. High blood pressure can also lead to congestive heart failure or myocardial infarction.

Some patients develop very high blood pressure. They have severe headache, difficulty with their vision, and convulsions. They also vomit and lose consciousness. This stage is a hypertensive crisis, a medical emergency.

PATIENT CARE

a. Lose weight

Tell overweight patients that excess weight makes high blood pressure worse. Blood pressure will drop as an overweight person loses weight.

b. Avoid salt

Salt in the diet also increases blood pressure. Urge the patient to eat food without salt.

c. Follow the patient weekly

Follow the patient's weekly progress for the first three months. At each visit, take his blood pressure at least twice. Be sure the patient has been resting for at least fifteen minutes before you take his pressure.

d. Give hydrochlorothiazide

If a mildly hypertensive patient's blood pressure remains high after three months, give him one 25 mg tablet of hydrochlorothiazide daily. See Patient Care Guides.

e. Control blood pressure

Begin giving the patient with moderate hypertension one tablet of hydrochlorothiazide daily. See Patient Care Guides. If his blood pressure remains high after four weeks, increase the hydrochlorothiazide to two tablets per day. If this does not control the pressure after another month, refer the patient to a doctor.

f. Refer to hospital

Patients with severe hypertension will not respond to your treatment. Refer them to a hospital for stronger medications.

FOLLOW-UP CARE FOR PATIENTS WITH MODERATE OR SEVERE HYPERTENSION

a. Always let a patient rest for fifteen minutes before taking his blood pressure. If the blood pressure is high on the first reading, ask the patient to wait for fifteen more minutes and repeat the measurement.

b. With treatment, blood pressure should be brought below 140/90. This is not always possible, even with strong medications.

c. If his blood pressure remains high, refer the patient to a doctor.

d. If the patient's blood pressure falls below 130/80, and the patient feels weak or faint, reduce his medications.

e. If the blood pressure is satisfactory, give him one month's supply of medications.

f. During each visit, check the patient's diet for salt intake.

g. Take patients with hypertensive crisis to a hospital immediately. Go with the patient to the hospital. The patient will die if his pressure is not quickly brought down.

Prevention

Most people with hypertension do not know they have a problem. If hypertension is a problem in your community, plan a screening and follow-up program. Also, take the blood pressure of every adult patient who comes to the health center.

REVIEW QUESTIONS
Heart Problems

1. What are the chief complaints of a person with congestive heart failure?

2. Early symptoms of congestive heart failure include shortness of breath and swelling of the ankles. What symptoms appear in later stages of congestive heart failure?

3. The drug digitalis helps patients with congestive heart failure live a normal life. What else will help them live normally?

4. What health messages would you include in talking to a patient with congestive heart failure and his family?

5. Describe how you could determine if a patient taking digitalis is getting too little or too much of the drug.

6. You may have to transport a patient with moderate or severe congestive heart failure to a hospital. What position should the patient be in while travelling?

7. Explain the relationship between rheumatic fever and rheumatic heart disease.

8. TRUE (T) or FALSE (F)

   ____ Although rheumatic fever is related to rheumatic heart disease, many patients who present with rheumatic heart disease will have no history of rheumatic fever.

9. Describe some of the major differences between the pain of angina pectoris and the pain of a myocardial infarction.

10. If your patient experiences angina pectoris, you can treat him at the health center. In addition to advising him about when to take nitroglycerin, what other advice should you give?

11. When blood is cut off from a portion of a person's heart muscle, the person has a myocardial infarction, or heart attack. How would you care for a person who suffers a myocardial infarction?

12. The patient with hypertension rarely has symptoms. How can hypertension be detected?

13. Explain what is meant by a hypertensive crisis.

14. A patient complains of headache. Your examination reveals that the patient weighs 95 kg and is 1.7 meters tall. You determine that he is mildly hypertensive. Discuss the major points in your management of this patient.

15. Discuss the initial management of a patient whose blood pressure is continually elevated to 170/115.

Patient education -

Drug therapy -

REVIEW EXERCISE
Heart Problems

Fill in the missing information without looking at your text. When you are finished, check your answers with the text.

PROBLEM	CAUSES	COMMON SYMPTOMS AND SIGNS
CONGESTIVE HEART FAILURE		
RHEUMATIC HEART DISEASE		
ANGINA PECTORIS		
MYOCARDIAL INFARCTION		
HYPERTENSION		

REVIEW EXERCISE

Case Study 18

Name of Patient:	Tittle, Ibrahim	
Sex:	Male	
Date of Birth:	9 July 1936	
Date of Visit:	14 October 1979	
Urine:	Normal	
Vital Signs:	Temperature	37°C
	Pulse	85
	Respirations	28
	Blood Pressure	120/60
	Weight	83.2 kg

Presenting Complaint and Medical History:

The patient has noticed that he has been short of breath for about a year. It seems to be gradually growing worse. He has to rest in a sitting position. He cannot climb stairs without feeling short of breath. He can often feel his heart pounding.

For the past three months, the patient's ankles have swelled, especially in the afternoon. He has not noticed any fever or pain in his chest. He has not awakened at night with shortness of breath. However, he has to sleep with his head slightly raised.

Past medical history: The patient was in a hospital for the same problem once before. He was treated with pills and not asked to come back for follow-up. He quit taking the pills.

Physical Examination:

This patient is a very worried looking man who seems slightly short of breath. His mucous membranes are pink and his tongue and tonsils are normal. He has some pitting edema of his ankles. He also has varicose veins on his left leg. When he sits at an angle of 45 degrees, his neck veins become enlarged. His heart sounds normal without

murmur. The patient has scattered fine rales at the bases of his lungs.

Study the information given above, then answer these questions for discussion.

1. What is the diagnosis?
2. What information in the case study was most helpful when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. Using the Patient Care Guides, determine how you would treat this patient.
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 19

Name of Patient:	Mantell, Mick	
Sex:	Male	
Date of Birth:	26 January 1935	
Date of Visit:	20 October 1979	
Urine:	Normal	
Vital Signs:	Temperature	37°C
	Pulse	72
	Respirations	22
	Blood Pressure	150/85
	Weight	96 kg

Presenting Complaint and Medical History:

The patient has had a squeezing pain in his chest for the last two days, off and on. He says the pain starts while he is riding his bicycle and lasts about ten minutes. He notes that the pain does not radiate to any other place. It occurs under his breastbone. He says that it starts rapidly and lasts for about ten minutes. He has had about six attacks of this pain so far. However, he has had no fever or chills. He has felt a rapid heartbeat with some mild chest pain, off and on for the last two weeks.

Past medical history: He has had no previous visits to a doctor. He smokes more than a pack of cigarettes a day. He drinks in moderation, and he has a good appetite.

Family history: No high blood pressure is known to him.

Physical Examination:

This patient is an obese but healthy looking male. His neck veins are flat. His breath sounds are normal and he has no edema. His heart sounds are normal with no murmurs. His abdomen is not tender.

Study the information given above, then answer these questions for discussion.

1. What is the diagnosis?
2. What information in the case study was most helpful when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. Using the Patient Care Guides, determine how you would treat this patient.
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 20

Name of Patient:	Benjamin, Frank	
Sex:	Male	
Date of Birth:	10 May 1928	
Date of Visit:	31 October 1979	
Urine:	Normal	
Vital Signs:	Temperature	36.4°C
	Pulse	72
	Respirations	20
	Blood Pressure	190/120
	Weight	67 kg

Presenting Complaint and Medical History:

Last week the patient lifted a piece of furniture in his house and got a severe backache. Although this incident brought on the severe ache, the patient has had back pains off and on for the last five years. Walking and bending over make the pain worse. The pain is located in the lower lumbar area. It does not radiate anywhere. Sometimes the patient feels weakness in his left leg.

The patient suffers from high blood pressure, but is not receiving any treatment. He had an accident four months ago and fractured his left big toe. The patient says that he cannot afford to go to a private doctor for treatment of his high blood pressure. He does not smoke or drink.

The patient says that he has not experienced any weight loss nor any shortness of breath or chest pain. He has a good appetite. He also has a tendency to worry.

Physical Examination:

This patient looks worried. Examination shows that his mucous membranes are pink, his tonsils clear, his tongue moist, and his neck without goiter. His jugular pressure and breath sounds are normal. His abdomen is soft and not tender.

There is tenderness over the patient's lower lumbar area. Sensations appear normal in his left leg. His reflexes are good and his strength is normal.

Study the information given above, then answer these questions for discussion.

1. What is the diagnosis?
2. What information in the case study was most helpful when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. Using the Patient Care Guides, determine how you would treat this patient.
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 21

Name of Patient:	Eller, Carl	
Sex:	Male	
Date of Birth:	14 June 1924	
Date of Visit:	6 December 1979	
Urine:	Normal	
Vital Signs:	Temperature	37°C
	Pulse	84
	Respirations	24
	Blood Pressure	140/90
	Weight	68.6 kg

Presenting Complaint and Medical History:

The patient complains of feeling more and more weak during the last two weeks. He sometimes notices some shortness of breath. His ankles also swell.

Past medical history: The patient has had heart problems for the last five years. He has been treated in the outpatient department for heart and kidney problems. He takes kidney tablets every time his legs start to swell.

He has been taking these tablets recently and the swelling has improved.

The patient does not smoke or drink.

Physical Examination:

The patient looks healthy. He is not short of breath. His mucous membranes are pink. His tongue is pink and moist. His tonsils appear normal. Examination of his neck revealed that his neck veins are not enlarged. Examination of his chest revealed few rales. His heart sounds are normal. His abdomen is soft and not tender. The liver, kidney and spleen are not palpable. Some mild pitting edema occurs in his lower extremities.

Study the information given above, then answer these questions for discussion.

1. What is the diagnosis?
2. What information in the case study was most helpful when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. Using the Patient Care Guides, determine how you would treat this patient.
5. What advice would you give this patient?

Unit 5

Sharing Ideas with Patients and the Community on the Prevention of and Care for Respiratory System and Heart Problems

STUDENT GUIDE

OBJECTIVES

1. Identify health messages related to respiratory system and heart problems that may be shared with patients, family members, or other community members.
2. Develop health messages into simple terms the patients, family members, or other community members could understand.
3. Describe how the health worker could use these messages in his daily activity and in storytelling.
4. Share health messages with patients and other groups of people.

LEARNING ACTIVITIES

1. Discuss health messages and how to use them to help community members stay healthy.
2. Discuss the sample of a health worker's interview of a patient and a sample story.
3. Study and practice how to identify simple health messages, develop messages into clear and understandable terms, and share health messages.

5.1 SHARING HEALTH MESSAGES

You have an important role in helping people prevent and care for respiratory and heart problems. Share health messages with them. Simple health messages help people develop healthy living habits and prevent respiratory and heart problems. They also help people learn how to care for themselves when they are ill with a respiratory or heart problem.

Because you meet many people, you will have many chances to share health messages with them. Sometimes you will be able to discuss the prevention and care of respiratory and heart problems with patients. Other times you will direct your health messages to groups of people. In both cases, avoid preaching or just giving people stale facts. Sharing health messages is a two-way process. You must give some information and take some information.

Much of your respiratory and heart health messages will be about prevention and home care. But you will also be asking people about how they feel, what they already know about respiratory and heart problems, and what they already know about preventing and caring for them.

This unit will tell you about two ways to establish this health partnership with a community. One of these ways is simply putting health messages into your talks with a patient. The other way is communicating health messages through a story.

Health Messages for the Patient

You do not always need to prepare a formal presentation to share health messages with people. In fact, the best way to share health messages is to make them a regular part of your talk with a patient. Include health messages with your history and physical examination as well as after you make a diagnosis.

You can include different kinds of health messages in your talks with a patient. For example, explain to a patient what happens inside his body because of his respiratory or heart problem. Or explain how health habits relate to health problems. Another health message might be about a specific prevention or home care procedure which might help the patient prevent or overcome his respiratory or heart problem.

This talk between a patient and a health worker gives you an example of how health messages may become part of your work with a patient. Note places in the talk where the health worker puts his health messages. Also, note other places where you would put health messages.

HEALTH WORKER (H.W.): Good morning, Mr. Adeyo. How are you feeling today?

PATIENT: I am worried. I have noticed that during the last few months I lose my breath while working. I cannot do as much work as I used to. I get tired, and at the end of the day all I want to do is sleep. Then two nights ago, I started having trouble breathing while I sleep. This problem frightens me.

H.W.: Can you describe your breathing problem to me, Mr. Adeyo?

PATIENT: While I am sleeping, my lungs feel full. I cannot get air into them.

H.W.: Is there anything else you can tell me about this feeling?

PATIENT: No. I just want to know what is wrong.

H.W.: Mr. Adeyo, I would like to ask you a few more questions before I examine you. Does anything seem to help you breathe better at night?

PATIENT: I have noticed that if I sit up in bed, I can breathe better.

H.W.: Does anything seem to make your problem worse?

PATIENT: At night, I just cannot breathe comfortably. During the day, the problem gets worse the more I work.

H.W.: Did your trouble breathing at night just start?

PATIENT: Yes. Two nights ago.

H.W.: Have you been taking any medicines lately, Mr. Adeyo?

PATIENT: No. No medicines.

H.W.: Do your ankles swell up?

PATIENT: My ankles become larger after I have finished work. But they are fine when I get up in the morning.

H.W.: Do you have a cough?

PATIENT: Yes. I have lately caught a dry cough.

H.W.: Do you feel any chest pain?

PATIENT: No. No chest pain.

H.W.: Have you or any of your relatives ever had any heart problems, Mr. Adeyo?

PATIENT: I haven't had any problems before this, but my father died of a heart attack about ten years ago. That is why I am afraid.

H.W.: Mr. Adeyo, sometimes health problems may be passed on from parents to their children. I'm going to examine you now. Please lie down on this table for me. First I will check your heart beat.

Your heart beats faster than normal for a man your age, Mr. Adeyo.

PATIENT: What does that mean?

H.W.: Usually it means that your heart is working harder than normal. But let us look a little further to see if we can find anything else.

The health worker examines the patient's neck and notices enlarged neck veins. Then he observes the chest and palpates the heart, but finds nothing unusual. He then listens to the heart and detects a slight irregularity in the heartbeat. The health worker finds the patient's blood pressure to be moderately high at 160/105.

Mr. Adeyo, your heart seems to be working harder than it should. It is becoming weak. This is why you feel weak and out of breath when you work.

PATIENT: Why is my heart working harder than it should be?

H.W.: Your heart pumps blood through your body like a small machine. Sometimes the parts of this small machine become weak and do not work properly. Diseases that we get as we grow older can cause this. Sometimes the problem is with us when we are born.

When the small parts of the heart do not work properly, other parts of the heart must work harder. For example, when one of your work animals falls ill, you and your healthy work animals must work harder.

PATIENT: How can you make me feel better?

H.W.: You and I will both have to work at making you better, Mr. Adeyo. I am going to send you to a doctor in the city. He will be able to help you get better. Until then, you should rest

during the day as much as possible. If you continue to work, your problem may get worse. You should also cut down on the salt you put on your food. Salt makes your body hold extra fluid. This extra fluid makes your ankles swell up. If you have a hard time breathing or become short of breath while doing something, stop and take a rest. I'm going to give you this medicine to take for the swelling in your ankles. Take one tablet twice a day until the swe. ing goes away. Then take one tablet every other day. Please come and see me after you have seen the doctor in the city. Do you have any questions that you would like to ask me?

PATIENT: No, I don't think so.

H.W.: You are a strong person, Mr. Adeyo. However, your condition could become very serious if you do not take care of yourself. Be sure to rest and cut down on the salt in your diet. I will see you after you have visited the doctor.

Health Messages and Storytelling

Putting health messages into stories also effectively passes information about the prevention and care of respiratory and heart problems to people. People enjoy listening to stories, so using a story to give a health message is a good way of keeping people's attention while you talk about health subjects.

Storytelling is a good way to tell groups of people about diseases like tuberculosis that spread among them. The more people who hear a story about a disease like tuberculosis, the better. All these people will then be able to help prevent it.

Storytelling, like other educational methods, requires a little thought. For example, keep in mind who you want to share your health information with and why. This will give purpose to your story. With this purpose in mind, you can then choose the health messages that will fit. Remember, however, that sharing health messages is a two-way process. Let those who listen to your story comment or ask questions as you tell it.

This example of a story might be used to tell people about the disease of tuberculosis. The following information was used to plan it.

a. The health worker considered to whom the story was to be told. He planned an informal talk to adults.

b. The health worker considered why the story needed telling. The incidence of tuberculosis was rising in the community.

c. The health worker considered what important health messages he needed to share. The first was that tuberculosis is a serious disease. It can make a person very weak and ill. The second was that tuberculosis is a very contagious disease. It easily passes from one person to another. Third, the treatment for tuberculosis takes a very long time, but it is effective. And fourth, tuberculosis may be prevented with early treatment of suspected carriers and vaccinations for those around the patient.

MOHA LEARNS ABOUT WHAT WAS MAKING HIM TIRED

Moha, his wife, and three children live on a farm in the small village of Bata. He raises chickens and grows wheat and vegetables. He sells the vegetables at the market on Saturdays.

While working in his fields one afternoon, Moha began to feel hot and tired. Moha was not an old man. He was seldom weak or ill. However, lately he seemed to be easily losing his energy. He sat down to rest and thought about how he was feeling.

"This is very strange," he thought. "It seems as though every day for the last few weeks I have been feeling hot and tired at this time of the day." Moha also noticed that he was getting a cough. He thought that he was only getting a cold. He did not go to see the health worker.

After about two weeks, Moha became weaker and could only do about half a day's work. He also began to lose weight and his appetite. His cough became worse. Moha's wife, Amil, wanted Moha to see the health worker, but Moha though that with rest he would get better. Two more weeks went by, but Moha did not get better.

Question for the audience: What do you think is making Moha tired?

Soon, two of Moha's children also began coughing and feeling feverish. Moha noticed a little blood in the spit that he coughed up from his lungs. This worried him. The fact that two of his children were also ill worried him, too. Moha now decided to go see the health worker.

The health worker asked Moha many questions. He examined him. He also took a little of the spit that Moha was coughing up and put it in a small jar. This, he explained to Moha, would be sent to the hospital laboratory to be examined.

"From what you have shared with me, Moha, and what I have found from examining you, I think your condition is probably tuberculosis. This is a disease of your lungs," said the health worker pointing to his chest. "I will know for sure after the hospital laboratory examines your spit. You are lucky that you came to the clinic when you did, Moha. Tuberculosis is a very serious disease."

"Two of my children are ill too," said Moha. The health worker explained that tuberculosis is very contagious and that Moha's children and wife may also have the disease. He recommended that Moha's family come to the clinic for checkups as soon as possible.

"How and when can I get better?" asked Moha.

"Several things will help you get better, Moha. However, treatment will take many months," explained the health worker. The health worker continued to explain to Moha that the medicine for tuberculosis must be taken regularly and for a long time. He also mentioned that the medicine sometimes causes side effects or reactions.

One thing that the health worker stressed to Moha was that he should begin eating a nutritious diet. "Because of your illness, Moha, much of your energy has been burnt up. This is why you have lost weight and are weak," said the health worker. The health worker explained that Moha should begin eating foods which contain energy and protein to get his strength back and to fight his illness.

Later that day, Moha began taking the medicine and eating nutritious foods. This was very difficult because he did not feel well. The following day, when he brought his family in to the clinic for checkups, the health worker told him that both he and his two children indeed had tuberculosis.

About two years passed from the time that Moha first visited the health worker. During that time, he and his family took medicine to get rid of the tuberculosis. Sometimes Moha thought that he would be ill forever. But finally after the long treatment, Moha and his children were healthy again.

Now Moha has another job besides his farming. He also works at the clinic and in the community as a health educator. Moha learned a lot

about the care and prevention of tuberculosis during his two-year battle with it. He decided to share this information with others. Now he helps other people not only learn how to prevent tuberculosis but how to prevent other disease as well.

Questions for the audience:

1. Do any of you have a cough and feel very tired?
2. How can we keep from spreading the disease of tuberculosis?
3. How can we prevent tuberculosis?
4. What can we do to help keep our strength when we are ill?

REVIEW QUESTIONS
Sharing Health Messages

1. Explain why health messages should be an important part of your talk with patients.

2. Explain what is meant by "sharing health messages is a two-way process."

3. Describe three kinds of health messages that you can include in your talk with a patient.

4. Explain why storytelling can be a good way to share health messages.

5. What two things should you keep in mind when preparing a story to share health messages?

REVIEW EXERCISE
Sharing Health Messages

1. The reason for taking a medical history of a patient is to find out more information about his presenting complaint. By asking the patient certain questions, you learn more specific information such as the onset of the problem, how long it has been a problem, and what makes the problem worse or better. Look at the patient-health worker dialogue in the text. Identify and write down the places in the dialogue where the health worker finds out the following information:

   Presenting complaint:

   Onset:

   Duration:

   What makes the problem worse:

   What makes the problem better:

   Associated cough:

Family history of heart problems:

2. In this unit you learned that there are different kinds of health messages that you can include in your talk with a patient. For example, you can explain to a patient what is happening inside his body as a result of his respiratory or heart problem. Or you can explain to a patient how health habits are related to health problems. You can also share with the patient information about a preventive measure or home care procedure.

   For the disease of pneumonia, develop three health messages which relate to the kinds of health messages discussed above.

   a. What is happening in the body:

   b. The relationship of health habits to health problems:

   c. Specific preventive measures and home care procedures:

SKILL CHECKLIST
Health Messages for the Patient

This checklist has two purposes.

1) Students should use it as a guide for checking their own skills or other students' skills.
2) Supervisors should use it when they evaluate how well students share health messages with patients.

After observing a student, enter a rating in the appropriate column.

Rating: 1 = Inadequate
2 = Needs improvement
3 = Satisfactory
4 = Above average
5 = Excellent

When sharing health messages with a patient:

	YES	NO	RATING	COMMENTS
1. Include health messages with your history and physical examination as well as after you make a diagnosis				
2. Explain to the patient what is happening inside his body				
3. Explain how health habits relate to health problems				
4. Explain how the patient may prevent health problems or care for them at home				
5. Ask the patient questions to be sure he understood your message				

SKILL CHECKLIST
Health Messages and Storytelling

This checklist has two purposes.

1) Students should use it as a guide for checking their own skills or other students' skills.
2) Supervisors should use it when they evaluate how well students use storytelling to share health messages.

After observing a student, enter a rating in the appropriate column.

Rating: 1 = Inadequate
2 = Needs improvement
3 = Satisfactory
4 = Above average
5 = Excellent

When using storytelling to share health messages with patients:	YES	NO	RATING	COMMENTS
1. Outline who you want to share your health message story with and why				
2. Outline the important health messages you want to communicate in your story				
3. While telling your story, let those who are listening comment or ask questions				
4. Follow up your story with questions to be sure the people understood				

Unit 6

Caring for Patients with Respiratory and Heart Problems; Clinical Rotation

STUDENT GUIDE

ENTRY LEVEL

Before starting your clinical experience, you must have:

1. Passed a test of your knowledge about respiratory and heart problems with a score of 80% or higher.
2. Received at least two Satisfactory ratings on how you:

   Recognize and identify the abnormal physical signs associated with respiratory system and heart problems

   Take a medical history of a respiratory system or heart problem

   Do the physical examination for a respiratory system or heart problem

   Give patient education for respiratory and heart problems

   Present health messages about respiratory and heart problems

OBJECTIVES

When you have completed this unit, you should be able to:

1. Diagnose all the respiratory system and heart problems described in this module.
2. Properly record information about medical history, physical examination and patient care.
3. Provide correct patient care, using the treatments described in this module and Patient Care Guides.
4. Advise patients and their families about the home care and prevention of respiratory system and heart problems.

LEARNING ACTIVITIES

You will provide patient care, under supervision, for one month in a hospital ward or outpatient clinic.

During that time, your supervisor will help you identify and treat patients with respiratory system and heart problems. You will be expected to use Diagnostic and Patient Care Guides. You will have a chance to practice the patient care procedures intro-

EVALUATION Level II

When you feel that you have had enough experience, ask your supervisor to evaluate you. He will do this using a log book. This log book contains a list of the problems you will work with in the hospital ward or outpatient clinic. It also shows how many patients with respiratory system and heart problems you should see. As your supervisor watches you deal with a problem, he will write his rating in the log book. He will rate you in the following way for diagnosis and patient care.

1 = Diagnosis incorrect
2 = Diagnosis correct and treatment incorrect
3 = Diagnosis and treatment correct, but no patient advice given
4 = Diagnosis, treatment, and patient advice correct

You will be expected to get a 4 rating.

During the clinical experience described in this unit, you will be expected to earn the prescribed number of Satisfactory ratings on your skill in collecting sputum from a suspected tuberculosis patient.

Unit 7

Helping a Community Prevent and Care for Respiratory and Heart Problems; Community Phase

STUDENT GUIDE

ENTRY LEVEL

Before you start your community experience, you must:

1. Score at least 80% on a test of your knowledge about respiratory system and heart problems.
2. Complete four to six weeks of clinical experience in a hospital or outpatient clinic.
3. Score two ratings of 4 on diagnosis, treatment, and patient advising for each of the problems.
4. Earn Satisfactory ratings on patient care skills.
5. Earn Satisfactory ratings on methods for teaching community health workers.
6. Earn Satisfactory ratings for presenting community health messages.

OBJECTIVES

1. Provide clinical services to people who suffer from respiratory system and heart problems.
2. Identify infectious respiratory problems and plan a program to prevent them from occurring and spreading.
3. Advise the community about its role in preventing respiratory system and heart problems.
4. Identify other members of the health team who can assist in prevention.

LEARNING ACTIVITIES

Your community experience will last three months. During that time, in addition to providing clinical services, you should:

1. Survey the community to identify the most common respiratory system and heart problems.
2. Identify any local customs that increase or decrease the occurrence of respiratory system and heart problems.
3. Hold meetings with community members and obtain their help in preventive activities.
4. Prepare a community health worker to assist you in community education.

EVALUATION Level III

During your community experience, your supervisor will evaluate you. To do this, he will use the standards set out in the log book.

Common Problems

GASTROINTESTINAL

The MEDEX Primary Health Care Series

Common Problems
GASTROINTESTINAL

Student Text

Health Manpower Development Staff
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Helping a Community Prevent and Care for Gastrointestinal Problems; Community Phase

TASK ANALYSIS TABLE

Diagnosing, treating and preventing common gastrointestinal problems

Work Requirements	Training Requirements	
DUTIES	*SKILLS*	*KNOWLEDGE*
The MLHW will:	The MLHW trainee will show that he is able to:	The MLHW trainee will show that he knows:
1. Take and record the medical history of all patients presenting with a gastrointestinal complaint	1.1 Record a patient's presenting complaint	
	1.2 Question a patient about his gastrointestinal problem and record his answers	1.2.1 How to question a patient about his gastrointestinal problem
		1.2.2 Information needed to complete the medical history of a patient's gastrointestinal problem:
		Whether the patient has any pain in the stomach
		The exact location, severity, onset, and duration of this pain
		Whether the patient has lost his appetite, felt nauseous or vomited
		How often he has vomited
		Whether any blood or greenish bile is in the vomit
		Whether the patient has had any diarrhea
		Number and frequency of stools

(12)

Work Requirements	Training Requirements	
DUTIES	*SKILLS*	*KNOWLEDGE*
		Whether stools contain any mucus, blood, or worms Whether the patient has had a strong urge to pass his stools, any pain or itching around his rectum, any constipation, any fever or chills, or any weight loss
		1.2.3 How to use medical history forms
2. Give patients presenting with a gastrointestinal complaint a physical examination	2.1 Identify the following signs of gastrointestinal problems: Abdominal swelling Guarding, tenderness in the abdomen Rebound tenderness Ascites Enlarged and tender liver, spleer Jaundice Dehydration Anemia High pitched percussion note Increased or decreased bowel sounds Enlarged al vessels Anal fissures	2.1.1 The anatomy and physiology of the gastrointestinal system

Work Requirements	Training Requirements	
DUTIES	*SKILLS*	*KNOWLEDGE*
	2.2 Give a physical examination for gastrointestinal problems and record the findings. Inspect, palpate, percuss, and auscultate the abdomen. Examine the anus.	2.1.2 The definition of common physical signs associated with gastrointestinal problems
		2.2.1 How to use forms for writing down the findings of a physical examination
3. Diagnose gastrointestinal problems: Amebiasis Giardiasis Peptic ulcer Gastroenteritis Roundworms Pinworms Tapeworms Hookworms Viral hepatitis Cirrhosis Acute abdomen Acute appendicitis Intestinal block Hemorrhoids Anal Fissures	3.1 Use the Student Text and Diagnostic Guides to identify gastrointestinal problems	3.1.1 The clinical picture of gastrointestinal problems and the course and complications of these problems

Work Requirements	Training Requirements	
DUTIES	*SKILLS*	*KNOWLEDGE*
4. Treat and care for patients with gastrointestinal problems	4.1 Use the Student Text, the Formulary, the Patient Care Procedures, and the Patient Care Guides to treat patients with gastrointestinal problems	4.1.1 Where to find reference manuals and how to use them
	4.2 Decide how to treat a patient with gastrointestinal problems	4.2.1 The correct medical treatment for each common gastrointestinal problem
		4.2.2 The properties of drugs and medicines for gastrointestinal problems
		4.2.3 The side effects and contraindications of gastrointestinal drugs and medicines
5. Share with patients ideas on how to prevent and care for gastrointestinal problems	5.1 Counsel patients about home care, medications, and prevention of gastrointestinal problems	5.1.1 Recommended home care procedures
		5.1.2 The prescribed drugs and dosages for each gastrointestinal problem
		5.1.3 How to prevent gastrointestinal problems

Work Requirements	Training Requirements	
DUTIES	*SKILLS*	*KNOWLEDGE*
6. Give health workers, patients' families, and others advice on how to prevent and care for gastrointestinal problems	6.1 Tell a patient's family and community groups about gastrointestinal problems and how to prevent them	6.1.1 How to tell groups of people about gastrointestinal problems using aids to make the message clear
	6.2 Teach community health workers about gastrointestinal problems	6.2.1 The content of the community health worker modules
	6.3 Contact a health office for assistance	6.3.1 When and how to ask other members of the health team for help

SCHEDULE

Common Problems – GASTROINTESTINAL

DAY 1	DAY 2	DAY 3	DAY 4
Introduction to Gastrointestinal module Recognizing the signs of abnormal gastro-intestinal conditions	Interviewing and examining patients with gastrointestinal problems; Clinical practice	Caring for the patient with diarrhea, vomiting, or mild abdominal pain	Presenting health messages about gastro-intestinal problems Making and using visual aids
Taking the medical history of patients with gastrointestinal problems	Assessing the patient with diarrhea, vomiting, or mild abdominal pain Amebiasis Giardiasis Peptic ulcer Gastroenteritis	Assessing and caring for the patient with intestinal worms Roundworms Pinworms Tapeworms Hookworms	Assessing and caring for the patient with liver diseases Viral hepatitis Cirrhosis

DAY 5	DAY 6	DAY 7	
Assessing the patient with an acute abdomen Acute abdomen Acute appendicitis Intestinal block	Assessing and caring for patients with anal problems Hemorrhoids Anal fissures	Assessing and caring for patients with gastro-intestinal problems; Clinical practice Group A - Patient care Group B - Interviewing and examining patients Group C - Presenting health messages	
Caring for the patient with an acute abdomen	Assessing and caring for patients with gastro-intestinal problems; Clinical practice Group A - Interviewing and examining patients Group B - Presenting health messages Group C - Patient care	Assessing and caring for patients with gastro-intestinal problems; Clinical practice Group A - Presenting health messages Group B - Patient care Group C - Interviewing and examining patients	
		Posttest	

Skill development: two weeks
Clinical rotation: one month
Community phase: three months

Introduction

You already have studied the Anatomy and Physiology, Medical History, and Physical Examination modules. What you learned in these clinical knowledge and skills modules has prepared you for the study of gastrointestinal problems. So before you start this module, be sure you know:

The normal anatomy and physiology of the gastrointestinal system
How to take a medical history
How to perform a physical examination
How to present health messages

If you are not sure how well you know this information or can do these procedures, review the clinical knowledge and skills modules before you go on.

LEARNING ACTIVITIES

Activities in this module will help you learn how to properly diagnose and care for gastrointestinal problems. These activities will take place in the classroom and in a hospital clinic or health center.

Your schedule shows you when the learning activities will occur. Student Guides in front of each unit tell you more about what you will be expected to do. The units will be taught in order, from Unit 1 to Unit 7. Your instructor will make special arrangements for Units 8, 9, and 10 which will take place in a clinic and a community.

This training program can succeed only if you take an active part. Prepare for each session. Before each session:

Read the Student Text and answer the Review Questions that go with it

Read the Patient Care Guides and learn about the drugs you will be using

Read the Diagnostic Guides and compare the content to the disease discussions in your module

Read the Patient Care Procedures for passing a nasogastric tube

Write down questions to ask your teacher about any part of the lesson you do not understand

In class, the teacher will answer the review questions and any other questions you have.

EVALUATION

This training program will help you build your knowledge and skills. Regular evaluations will allow your teacher to watch your progress. If your progress does not meet the standard, you will be given more time to learn the subject. Your instructor will use the clinical and community performance records to measure your progress. Look at these performance records to prepare for your evaluations.

EVALUATION Level I

After seven days of classroom and clinical experiences related to diseases of the gastrointestinal system, you must be able to pass a written test of knowledge with a score of 80% or higher.

After another two weeks of clinical experience, you must receive two Satisfactory ratings on your ability to:

Recognize the abnormal physical signs of gastrointestinal problems

Interview patients about their gastrointestinal problem

Examine people with complaints of gastrointestinal problems

Provide patients with advice about the prevention and home care of gastrointestinal problems

Present health messages about prevention of gastrointestinal problems

EVALUATION Level II

You will have one month of clinical practice. To satisfy the requirements of this clinical evaluation, you must correctly diagnose, treat, and advise two patients for each of these problems: amebiasis, giardiasis, peptic ulcer, gastroenteritis, roundworms, pinworms, tapeworms, hookworms, viral hepatitis, cirrhosis, acute abdomen, acute appendicitis, intestinal block, hemorrhoids, and anal fissures.

During the clinical practice, you must also perform each patient care procedure listed on your Clinical Performance Record. You must earn at least two Satisfactory ratings for each procedure. The patient care procedure listed on your clinical performance record for this module is on passing a nasogastric tube.

EVALUATION Level III

During the three-month community phase of your training, a supervisor will observe your performance and rate your skill in:

- Diagnosis and treatment of patients for each of the gastrointestinal problems
- Providing patients and their families with advice about home care and ways to prevent the spread of gastrointestinal problems
- Conducting community meetings to discuss the prevention and care of gastrointestinal problems
- Training a community health worker to assist with the community health program

Your clinical and community performance records list the number of acceptable ratings you must earn for each activity.

Unit 1

Assessing Patients with Gastrointestinal Problems

STUDENT GUIDE

OBJECTIVES

1. Describe the significance of the following signs of abnormal gastrointestinal conditions:
   - Abdominal swelling
   - Guarding, tenderness in the abdomen
   - Rebound tenderness
   - Ascites
   - Enlarged and tender liver, spleen
   - Jaundice
   - Dehydration
   - Anemia
   - High pitched percussion note
   - Increased or decreased bowel sounds
   - Enlarged anal vessels
   - Anal fissures
2. Identify these signs when you see or hear them in a patient.
3. Interview a patient to obtain information about his gastrointestinal problem.
4. Examine a patient with a gastrointestinal problem, using the proper procedure.
5. Record the findings of the interview and examination on official forms in the recommended way.

LEARNING ACTIVITIES

1. Look at slides on the anatomy and physiology of the digestive system.
2. If patients are available, practice identifying their physical signs associated with gastrointestinal problems.
3. Take medical histories from patients, if patients are available, or from fellow students role-playing patients described in case studies 22, 23, 24, and 25.
4. In a clinic or hospital, practice interviewing and examining patients with gastrointestinal problems.

1.1 SIGNS AND SYMPTOMS ASSOCIATED WITH ABDOMINAL PROBLEMS

The healthy person rarely thinks about his stomach. When he is hungry, he eats. When he feels the need to empty his bowels, he does so. He eats enough so that he does not gain weight or lose weight. He passes some gas through his rectum. He may bring gas up from his stomach.

Food and liquid which enter the stomach move into the rectum during a period of twenty-four to forty-eight hours. The foods and liquids are pushed along by the muscles of the intestinal walls. These muscles contract and relax in a series of rhythmic waves. When disease disturbs the normal activity of the gastrointestinal tract, certain signs and symptoms appear.

Inflammation of the Intestines

When disease irritates the stomach or intestines, the muscles in the walls of these organs begin to contract and relax faster and harder than normally. The patient feels sudden pain. When the muscles relax, the pain goes away. Abdominal pain which comes and goes is called colic or colicky pain. Worms and infections in the intestine cause colicky pain.

When you listen to the abdomen with your stethoscope, you will often hear liquid sounds as the patient's abdominal walls contract and relax. These sounds become much louder and more frequent when the bowels are inflamed.

The stomach and intestines normally secrete several liters of fluid each day. Nearly all of this fluid is reabsorbed into the bloodstream as it moves through the large intestines. The stool, therefore, normally contains very little water.

Irritated or inflamed intestines, however, move their contents rapidly through the body. The person develops diarrhea. The body does not have time to reabsorb the fluid from the stool, and large volumes of fluid may be lost.

Inflammation of the Peritoneum

A thin membrane called the peritoneum lines the abdominal cavity and covers the organs within it. Small glands in the peritoneum secrete a fluid. The fluid keeps the abdominal walls wet and slippery and allows the organs to slip against each other as they expand and contract.

An inflamed peritoneum, peritonitis, causes severe pain. This pain is continuous. It does not come and go like colicky pain. Peritoneal pain causes the patient to tighten his muscles. The tight muscles prevent movement. The pain may be localized in one area, but if the inflammation spreads, the pain becomes generalized over the entire abdomen.

Many conditions can lead to inflammation of the peritoneum. Most often, the appendix becomes inflamed. If it ruptures, the infection spreads to other parts of the abdomen. For example, peptic ulcers which rupture will inflame the peritoneum.

Abdominal Swelling

Always examine your patient for signs of an enlarged liver, spleen, and bladder. A large amount of stool in the large intestine may swell the abdomen. When the liver is diseased, the abdomen swells with fluid. This condition is called ascites.

If the intestines become blocked, fluid and gas will make the abdomen swell.

Poor nutrition weakens children's abdominal muscles. Malnourished children will often have many worms in their intestinal tract as well. The poor muscle tone and worm-enlarged intestines will swell the abdomen.

Jaundice

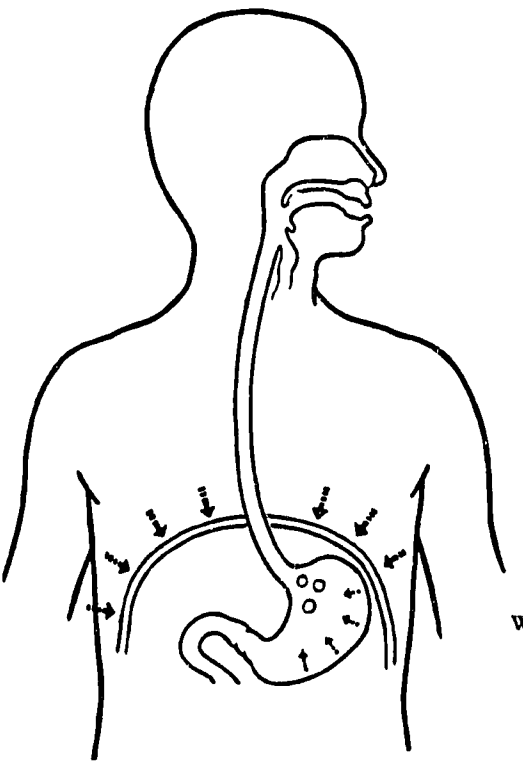
As part of the liver's routine process of removing old red blood cells from the bloodstream, it produces a yellow pigment. The liver normally cleans this yellow pigment from the blood. When the liver does not function properly, however, the yellow pigment collects in the skin and sclera. This condition is jaundice. Jaundice is a sign of liver disease.

Vomiting, Diarrhea, and Dehydration

Irritated intestines cause vomiting and diarrhea. When the irritation is in the stomach and small intestines, the major symptoms

are nausea and vomiting. Irritation in the large intestines more often causes diarrhea. The most serious complication of diarrhea and vomiting is dehydration.

Vomiting is the sudden, strong forcing of the contents of the stomach out through the mouth. When a person vomits, two sets of muscles work together. The first set of muscles forms the wall of the abdomen. The second forms the diaphragm. Together they force the contents of the stomach up the esophagus and out of the mouth. A person vomits up partly digested food and digestive secretions. Acids and juices from the stomach cause the bad taste and strong smell.



ABDOMINAL MUSCLES AND THE DIAPHRAGM WORK TOGETHER WHEN A PERSON VOMITS

Irritation of the large intestines causes diarrhea, the frequent passage of loose, watery stools. Food that normally takes from twenty-four to forty-eight hours to pass through a person's body passes through in a few hours if he has diarrhea. Most of the food's nutrients pass through the body without being absorbed.

Fluid also passes through the body without being absorbed. Severe diarrhea, therefore, can cause malnutrition and dehydration.

1.2 TAKING THE MEDICAL HISTORY OF A PATIENT WITH AN ABDOMINAL PROBLEM

Patients with problems which involve the digestive tract or other organs within the abdomen often develop specific symptoms. Obtain information about these symptoms when you take the patient's medical history. Ask these questions.

"Have You Had Any Pain in Your Stomach?"

Does the pain come and go? Colicky pain occurs when the intestines are irritated. Continuous pain occurs when the lining of the abdominal cavity is irritated.

"Have You Had This Problem Before? When Did the Pain Start?"

Did the pain start suddenly and without warning? Did the pain develop over a few hours or over a few days? Has the patient had this kind of pain in the past? Many problems such as ulcers come and go over a long time. Other diseases such as acute appendicitis occur only once.

"Where Is the Pain?"

The location of the pain can sometimes help you to decide what is wrong. Pain high in the abdomen often indicates irritation of the stomach. Pain in the right upper part of the abdomen may indicate liver or gall bladder disease. Pain in the right lower part of the abdomen indicates an infected appendix. When the large bowel is involved, the pain may be in the lower or left side of the abdomen. The bladder is just behind the pubic bones and will cause discomfort in that area.

An inflamed appendix often causes pain around the umbilicus. The pain moves to the right lower part of the abdomen.

"How Bad is the Pain?"

The severity of the pain is a very important sign of the patient's condition. Decide whether your patient suffers mild or severe pain.

DIFFERENCES BETWEEN MILD AND SEVERE ABDOMINAL PAIN

A Patient with Mild Pain	A Patient with Severe Pain
Walks normally	Walks only with great difficulty
Talks normally	Appears distressed, anxious, and unable to talk
Breathes easily	Takes shallow, guarded breaths and cannot laugh
Feels only slight pain on palpation	Feels severe pain on palpation
Feels no rebound tenderness	Feels rebound tenderness
Has a normal pulse rate	Has a fast pulse rate

"Does Anything Make the Pain Better or Worse?"

Ask your patient whether eating causes pain or relieves it. Ask him whether passing gas relieves the pain.

"Do You Feel Hungry or Sick to Your Stomach?"

If the patient feels hungry, he probably does not have an extremely serious emergency condition. Nearly all gastrointestinal illness causes the patient to lose his appetite.

"Have You Vomited? How Many Times Have You Vomited? What Did the Vomit Look Like? Did You see Blood in the Vomit? Was it Green?"

When a patient's stomach or intestines are irritated by infection or are blocked, he will vomit. The vomit is green because it contains bile from the liver. The bile enters the intestines from the liver through the bile duct.

Stomach acid turns the blood black. If a person vomits black material, he may be bleeding into his stomach. A peptic ulcer will bleed into the stomach.

Frequent vomiting can quickly dehydrate a person.

"Have You Had any Loose Stools? How Many Have You Had Today?"

Infants normally pass stool after each feeding. As the infant grows older, the number of times he passes his stool each day decreases. Adults pass their stool once daily to once every two or three days.

"Did You See Any Blood or Mucus in Your Stool?"

Ask the patient whether he has had diarrhea. Ask him what his stool looks like. A patient with blood or mucus in his stool will often have pain in his lower abdomen. He will have a strong feeling that he must pass his stool immediately.

"Did You See Any Worms in Your Stool?"

A patient may see a piece of a worm or an entire worm pass out in his stool. Some worms will crawl out through the anus. The patient will find them in his clothing. Sometimes, the patient will vomit a worm or worms.

"Have You Had Any Pain or Itching Around Your Rectum?"

Pain and itching are the two most important symptoms of rectal problems. Ask the patient whether he has pain when he passes his stool.

"Have You Had Any Fever or Chills?"

Fever is a sign of inflammation and infection. Chills may be a sign of severe bacterial infections.

"Have You Lost Any Weight?"

People with serious illnesses often lose weight.

1.3 PHYSICAL EXAMINATION OF THE PATIENT WITH AN ABDOMINAL PROBLEM

When you examine a patient with an abdominal problem, have him lie on a firm surface. Support his head on a pillow to help him relax his abdominal muscles. Your hands should be clean and warm. Cold hands will make the patient tighten his abdominal muscles.

General Appearance

Many abdominal problems lead to weight loss and wasting of the body. Does the patient appear well nourished? Check for any sign of weight loss.

Examine the conjunctiva. Use daylight if possible. Look for signs of anemia and jaundice.

Is the patient in pain? How severe is the pain?

Look for signs of dehydration. Check the mucous membranes and the skin for dryness and other signs of dehydration.

Vital Signs

Always record the pulse and temperature. The pulse and temperature are often affected by problems of the gastrointestinal tract.

Observation of the Abdomen

The normal abdomen is flat and has no scars or visible blood vessels. The upper abdomen in very thin people pulsates because of the abdominal aorta.

If the patient complains of abdominal pain, ask him to point to the painful area. Is the pain localized or does it extend all over the abdomen?

Look for signs of swelling. Air, fluid in the intestines, a tumor, a mass, or an enlarged organ may swell the abdomen. Children with weak muscles and worms often have distended abdomens.

Auscultate the Abdomen

Before you palpate the abdomen, listen to it with your stethoscope. You should hear an occasional tinkling sound. With practice, you will learn to recognize these normal sounds. Inflammation or blocked intestines will increase the sounds. You will hear rushing sounds as the contraction and relaxation of the intestinal muscles increases.

If at first you do not hear any abdominal sounds, listen for at least five minutes more. Absence of intestinal sounds is an important sign of a serious problem. Decide whether the sounds are increased, reduced, or absent.

Percuss the Abdomen

Percussing the abdomen is not usually helpful unless you suspect fluid has collected inside. Turn the patient partly on one side. Percuss the abdomen. Determine where the percussion note shifts from resonant to flat. Turn the patient. Repeat the percussion. If fluid is inside the abdominal cavity, the point where you

hear the percussion note change from resonant to flat will be different. The fluid will have moved within the abdomen.

Also listen for a high pitched percussion note. The note sounds as if you were tapping on a drum. Fluid and air which are trapped in the abdomen make this sound.

Palpate the Abdomen

Begin palpating a patient's abdomen where the patient has no pain. Use gentle pressure. If the patient tightens his abdominal muscles, ask him to relax. Tell him to take deep breaths.

To palpate the liver, stand at the patient's right side. Ask the patient to take deep breaths. Gently palpate upward as the patient breathes in. Begin at the middle of the lower right quadrant of the abdomen. With each breath, move your fingers several centimeters higher until you have reached the rib cage. In this way, you will not miss feeling the edge of a very large liver.

To palpate the spleen, place your right hand under the patient's left rib cage, and pull forward. Use your left hand to gently palpate in the upper left part of the abdomen. Begin in the middle of the upper left quadrant and move upward. The spleen is normally too small to feel.

Palpate the abdomen above the pubic bones. Feel for the bladder. A distended bladder will extend over the middle edge of the pubic bones.

When a patient has pain in his abdomen, look for tenderness to palpation and rebound tenderness. Tenderness to palpation occurs when pushing in on the abdomen causes pain. Rebound tenderness occurs when you gently push in the abdomen then suddenly release the pressure. Sudden pain when the pressure is released is rebound tenderness.

Examination of the Anus

Ask the patient to stand and lean over a table or chair, or lie on a table on his side. Spread the cheeks of the buttocks. Look for irritation around the anus. Look for cracks or fissures in the mucous membrane. Look for enlarged veins surrounding the anus. These enlarged veins are called hemorrhoids.

REVIEW QUESTIONS
Assessing Patients with Gastrointestinal Problems

1. How much time do food and liquid normally take to move from the stomach to the rectum as waste?

2. Disease can disturb the normal activity of the gastrointestinal tract. When this happens, certain signs and symptoms appear. Briefly describe five symptoms and signs associated with abdominal problems.

3. A patient complains of an abdominal pain that comes and goes. What is happening in the patient's body?

4. What is the most serious complication of diarrhea?

5. Describe some of the differences between mild and severe abdominal pain.

6. A patient complains of pain in the right lower part of his abdomen. Which abdominal problem does the location of his pain suggest? (Check one.)
   ____ An infected gall bladder
   ____ A large intestine problem
   ____ An infected appendix

7. Explain why patients with gastrointestinal problems may vomit greenish or black material.

8. How does food pass through the digestive tract?

9. Briefly explain how to palpate a patient's liver.

10. What is the difference between 'tenderness to palpation' and 'rebound tenderness?'

11. Enlarged veins around the anus are:
   ____ Fissures
   ____ Buttocks
   ____ Hemorrhoids

Unit 2

Assessing and Caring for Patients with Diarrhea, Vomiting, or Mild Abdominal Pain

STUDENT GUIDE

OBJECTIVES

1. Describe the clinical pictures for these gastrointestinal problems:

   Amebiasis
   Giardiasis
   Peptic ulcer
   Gastroenteritis

2. Describe the abnormal physical signs of these gastrointestinal problems.
3. Demonstrate how to interview and examine patients to identify these gastrointestinal problems.
4. Treat and care for patients suffering from these gastrointestinal problems.
5. Counsel patients and family members about home care, medications, and the prevention of these gastrointestinal problems.

LEARNING ACTIVITIES

1. Listen to the instructor's presentation on the signs and symptoms associated with amebiasis, giardiasis, peptic ulcer and gastroenteritis.
2. Work in small groups to create patient roles for a role-play exercise in assessing patients with diarrhea, vomiting, or mild abdominal pain.
3. Interview and examine fellow students who role-play the part of patients with gastrointestinal problems.

4. Work in small groups to determine the treatment and care for a gastrointestinal problem.
5. Join in a group presentation on how you would treat and care for a patient with a gastrointestinal problem. Discuss the main health messages for the prevention and home care of this problem.
6. Practice interviewing and examining patients, providing patient care, and delivering health messages in a clinic or hospital.

2.1 AMEBIASIS

Ameba are tiny, one-celled animals which can live in the human intestine. They cause diarrhea. They enter the body in contaminated food, then move to the large intestine. Improperly discarded stool containing ameba can infect water or food supplies. Everyone in a community may become infected.

Adults infected with ameba do not usually have any signs or symptoms of infection. Children are more likely to become infected and are more likely to have symptoms when they are infected.

Clinical Picture

a. Presenting complaint

Patients will complain of diarrhea. The diarrhea will range from mild diarrhea to severe *diarrhea with blood and mucus* in the stool. Severe diarrhea will cause *severe cramps* in the lower abdomen. The patient will feel an urge to move his bowels. He may have five to ten loose stools a day. Fever is usually slight.

b. Medical history

Patients may have no signs or symptoms of an amebiasis infection before they suddenly develop severe diarrhea.

c. Physical examination

The patient may have some *mild tenderness* in the lower abdomen when you palpate there. Look for signs of dehydration in severe cases.

Course and Complications

If the ameba enter the blood stream, they may travel to the liver. The patient may develop a large, tender liver and high fever. These are signs of an amebic liver abscess. Transfer patients with a suspected liver infection to the hospital immediately.

PATIENT CARE

When you suspect that the patient is suffering from amebiasis, treat him with metronidazole. He must take this medicine three times a day for one week. See Patient Care Guides.

The patient should take the medicine with meals to avoid stomach irritation. Advise the patient not to drink alcohol while taking medication. Alcohol will react with the medicine to cause nausea and vomiting.

PREVENTION OF AMEBIC INFECTIONS

You can prevent most amebic infections by following these three rules. First, dispose of stools safely. Use latrines. Second, boil water that you drink or cook with. Third, wash your hands and food. Wash your hands after passing stool and before you touch food. Wash raw vegetables and fruit before you eat them.

2.2 GIARDIASIS

Giardia are one-celled animals like ameba. Like ameba, they enter the body through contaminated food and water and live in the intestines. However, giardia live in different parts of the intestines and cause different signs and symptoms.

CLINICAL PICTURE

a. Presenting complaint

Giardiasis does not always cause symptoms. When the patient has symptoms, the symptoms usually include ***abdominal cramps***, ***gas***, and ***diarrhea***. He may have symptoms like those of peptic ulcers.

b. Medical history

The patient may complain of mild diarrhea over many months, or he may have very severe diarrhea. No blood or mucus will be found in the stool. The patient will not have a fever.

c. Physical examination

With heavy infections of giardia, food is not digested properly. The patient may lose weight.

PATIENT CARE

Metronidazole is the most effective drug for treatment of giardia. The patient must take the drug three times a day for one week. See Patient Care Guides.

PREVENTION OF GIARDIAL INFECTIONS

Giardia can live in the soil or water for many days. They easily contaminate food and drinking water. Stool must be disposed of in a sanitary way.

Urge people to wash all raw fruits and vegetables before eating them. Also urge people to wash their hands before cooking and eating.

2.2 PEPTIC ULCER

The membrane which lines the stomach secretes an acid. This acid aids in the digestion of food. This acid is so strong, however, it is able to burn the stomach tissue. Usually this does not happen. The lining of the stomach and small intestine is protected by mucus. The mucus is secreted by these organs to form a protective coating.

Some foods, drinks, and stress will cause the stomach to secrete more acid than usual. The acid burns through the protective mucus and lining of the stomach or small intestine. Hot, spicy foods such as chilies cause the stomach to secrete extra acid. Drinking a lot of coffee, tea, alcohol, or cola can also cause extra acid. Stress makes the anxious or nervous person secrete extra acid for a long period of time.

Strong drugs like aspirin and cortisone can damage the lining of the stomach or small intestine. These drugs should never be given to a patient with a gastrointestinal problem or a history of peptic ulcer disease.

When acid irritates the stomach or intestinal walls, the patient feels a burning sensation. This condition is commonly called "heartburn" because of the location of the burning sensation below the sternum. The patient may only have an excess amount of acid in his stomach or he may actually have an ulcer. Stomach ulcers are very much like the ulcers on a person's skin.

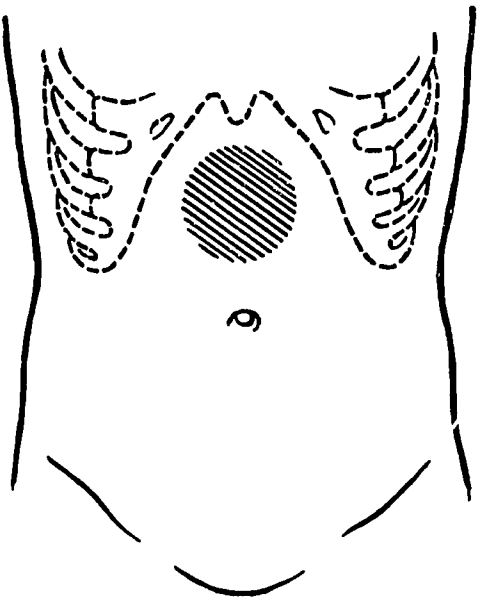
CLINICAL PICTURE

a. Presenting complaint

The patient with a peptic ulcer most often complains of mild abdominal pain. He describes a ***gnawing, aching,*** or ***burning sensation*** in the upper part of his abdomen, below the sternum.

b. Medical history

The patient may have a ***history of ulcers.*** If not, the patient will report that the ***pain*** occurs thirty to sixty minutes ***after a meal.*** He may report that the ***pain*** occurs during the ***early part of the night.*** Patients often say that the pain is relieved within five to ten minutes after taking milk, mild food, or an antacid. The patient will report that the problem is made worse by eating spicy food or drinking coffee, tea, cola, or alcohol. He will also report that he feels the pain when he is under a lot of stress.



LOCATION OF PAIN FROM A PEPTIC ULCER

The patient may complain of nausea followed by vomiting. The vomit will be an acid juice from his stomach. These symptoms come and go during several years.

If the ulcer has burned deep into the wall of the stomach or small intestine, it will bleed. When the ulcer bleeds, the patient will report having ***black tar-like stools.*** Digested blood makes the stools black. The patient's vomit is reddish-brown to black.

c. Physical examination

Without complications of the ulcer, the patient will have normal vital signs. His general appearance will also be normal. You will probably find no sign of problems during your inspection, percussion, or auscultation of the abdomen. You may only note some ***tenderness*** when you palpate the patient's abdomen ***below the sternum.***

Course and Complications

A peptic ulcer will often heal by itself. Sometimes it may heal only to become a problem again several weeks or months later. Some peptic ulcers become a chronic problem.

The first, most common complication of a peptic ulcer is bleeding. If the ulcer perforates a large blood vessel, the patient will bleed into his stomach or intestine. He will pass dark tar-like stools and may vomit reddish-brown to black material. A bleeding ulcer is a medical emergency. Shock due to blood loss can develop very quickly. If the patient is not immediately treated for shock and referred to a hospital, he may die.

A peptic ulcer may perforate the stomach or intestine in serious cases. The symptoms and signs are those of acute abdomen.

All complications of a peptic ulcer require immediate care. Refer the patient to a hospital.

Patient Care and Prevention

a. Reduce tension and stress

The best way to treat early peptic ulcer disease is to reduce the patient's tension and stress. Urge the patient to rest and relax. Help him with personal problems which may be causing his stress.

b. Control the diet

The patient with a peptic ulcer must avoid alcohol and other

drinks and food which irritate the stomach. Spicy foods, coffee, tea, and cola drinks irritate an ulcer. Smoking tobacco should be discouraged. Urge the patient to eat small meals of mild, nutritious foods rather than large, spicy meals.

c. Avoid aspirin and cortisone

Aspirin and oral cortisone irritate the stomach. Tell the patient not to take these medicines.

d. Give antacids

Antacids reduce the acid level of the stomach contents. Tell the patient to take one to two tablets of antacid or the same amount in liquid form an hour after each meal. He should also take the antacid whenever he gets the stomach pain. This may be as often as every hour. Antacids can cause diarrhea or constipation.

e. Prevention of peptic ulcer disease

The best ways to prevent peptic ulcers are to reduce stress and avoid spicy foods and acid drinks.

f. Treat the complications of a peptic ulcer

Refer patients with complications of a peptic ulcer to a doctor.

2.3 GASTROENTERITIS

Gastroenteritis is an inflammation of the stomach and intestines. The inflammation is usually caused by viruses and bacteria or poisons the bacteria produce. Although many kinds of bacteria and viruses from many different sources can cause gastroenteritis, the symptoms and signs usually are the same. The person will have diarrhea, he will vomit, or he will have both symptoms at once.

Food Poisoning

One common way people develop gastroenteritis is by food poisoning. They eat food that has gone bad. Bacteria has grown on the food and produced a toxin, or poison. The symptoms of food poisoning start soon after the person has eaten the bad food. The symptoms end within a day or two.

Viruses and Bacteria

Viruses and bacteria which do not produce poisons can, however, cause gastroenteritis. These infections last longer than food poisoning. Their symptoms can be more severe.

CLINICAL PICTURE

a. Presenting complaint

When food poisoning causes gastroenteritis, the person will become sick to his stomach and *vomit.*

When viruses and bacteria cause the gastroenteritis, the person will complain of *severe diarrhea.*

b. Medical history

If your patient is vomiting and you suspect food poisoning, ask him whether others in his family are also ill. Ask him whether other *people who ate the same food he has eaten* during the last twelve hours *are also ill.*

The person with food poisoning should not have a fever. He may have *colicky pain* in his abdomen. He may have diarrhea, but the stool should not contain blood or mucus.

The person with a bacterial or viral inflammation of his stomach or intestines will vomit, have some fever off and on, and will suffer cramps and colicky pain. He will feel a strong urge to pass his stool. The stool is often *watery* and it may *contain blood or mucus.*

c. Physical examination

Because gastroenteritis causes diarrhea and vomiting, always examine your patient for signs of dehydration.

Palpate the patient's abdomen. *Tenderness* on palpation is a sign of bacterial inflammation. However, the tenderness should not be severe enough to cause guarding. A patient with gastroenteritis will not have rebound tenderness or any signs of acute abdomen.

A severe bacterial infection will give the patient a *high fever.* He may also have *blood and mucus in his stool.*

COURSE AND COMPLICATIONS

Food poisoning lasts one day or two days. Diarrhea and vomiting caused by bacterial or viral gastroenteritis lasts from three days to five days.

The most serious complication of any type of gastroenteritis is dehydration.

Patient Care

If your patient's gastroenteritis is from food poisoning, urge him to drink small amounts of water, juice, or other fluid every fifteen minutes. Antibiotics will not help the patient. Do not use them. If your patient's diarrhea continues for more than one week, refer him to a hospital for more examination. Check and treat for dehydration. See Patient Care Guides.

If your patient has a fever, give him a five day course of ampicillin. See your Patient Care Guides. Do not use ampicillin for more than five days even if your patient's diarrhea continues.

REVIEW QUESTIONS

Assessing and Caring for Patients with Diarrhea, Vomiting, or Mild Abdominal Pain

1. TRUE (T) or FALSE (F)
   ____ A patient with amebiasis may complain of severe diarrhea with blood and mucus in his stools.
   ____ A possible complication of amebiasis is a liver abscess.
   ____ Niclosamide is the drug of choice in treating amebiasis.

2. What are the usual symptoms of giardiasis?

3. Describe how amebic and giardial infections may be prevented.

4. Describe the patient care for giardiasis.

5. A family comes to the clinic complaining of illness and vomiting. Two of the family have slight diarrhea. None of them has a fever. What problem would you suspect? What care would you give them?

6. What are the signs of a severe bacterial infection?

7. What is the most common presenting complaint of a patient with a peptic ulcer?

8. If an ulcer has burned deeply into the wall of the stomach or small intestine, the ulcer will bleed. When this happens, a patient will often report that he has black, tar-like stools. Explain why his stools are black.

9. The first, most common complication of a peptic ulcer is:
   ____ Perforation of the intestine
   ____ Perforation of the stomach
   ____ Bleeding

10. Briefly describe the best ways to prevent a peptic ulcer.

REVIEW EXERCISE

Case Study 22

Name of Patient:	Bartollo, Juan
Sex:	Male
Date of Birth:	2 February 1940
Date of Visit:	19 February 1982
Vital Signs:	Temperature 37°C Pulse 70 Respiration 20 Weight 62 kg
Presenting Complaint and Medical History:	The patient started having diarrhea about three weeks ago. The diarrhea is now worse. No blood or mucus has appeared in the stool. He has not had a fever. He has a good appetite and has not experienced any weight loss. He had a similar episode of diarrhea about two months ago. Some medicine from the dispensary stopped the problem. Past medical history: The patient had an operation for a hernia six years ago.
Physical Examination:	The patient is a healthy looking male in no apparent distress. His mucous membranes are pink. His tongue is moist, and there is no enlargement of tonsils. He has no goitre or distended neck veins. His breath sounds are normal. He does not have a heart murmur. His abdomen is soft and non-tender. No organ enlargement felt. He has a scar in the right lower quadrant from hernia repair.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?

3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 23

Name of Patient:	Guinn, Tom	
Sex:	Male	
Date of Birth:	18 April 1935	
Date of Visit:	22 February 1980	
Vital Signs:	Temperature	37°C
	Pulse	84
	Respiration	24
	Weight	73 kg
Presenting Complaint and Medical History:	The patient has had heartburn off and on for the last year. He finds that milk of magnesia seems to relieve the indigestion. Oily and spicy foods make the pain worse. Pain also develops when he is hungry. He has a burning sensation in the pit of his stomach. He notices his heart pounding when he has the pain.	
	Past medical history: The patient was in the hospital fifteen years ago for anemia. He received a transfusion.	

Physical Examination: The patient is a healthy looking but anxious man. His mucous membranes are pink. His tongue is moist and his tonsils are not inflamed. He has no goitre in his neck. His jugular venous pulse is not increased. His breath sounds are normal. His heart has no murmur. No abdominal organs were felt.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

Unit 3

Intestinal Worms

STUDENT GUIDE

OBJECTIVES

1. Describe the clinical picture of the following gastrointestinal problems:

   Roundworms
   Pinworms
   Tapeworms
   Hookworms

2. Describe the abnormal physical signs caused by intestinal worms.
3. Demonstrate how to interview and examine patients to identify these intestinal worms.
4. Provide treatment and care for patients suffering from these intestinal worms.
5. Counsel patients and their families about home care and prevention of these intestinal worms.

LEARNING ACTIVITIES

1. With other students, prepare a presentation on one kind of intestinal worm.
2. With other students, present information about the intestinal worm to your class.
3. Practice interviewing and examining patients, providing care, and delivering health messages about intestinal worms in a clinic or a hospital.

Many kinds of worms can grow inside a person's body. The worms vary in size. Some are so small that you can hardly see them. Others are ten meters long. Some can cause dangerous complications. Others cause few symptoms or physical signs.

You will have to examine a person's stool with a microscope to be sure of the kind of worm that has infected him. When this laboratory work is not available, you will have to rely upon your best clinical judgment. Listen to what the patient or parent of a child tells you. They often know what kind of worm they have because they have had them before. They often know the worm by its local name. Also, watch how the patient responds to treatment. Follow-up the patient. See whether your treatment has helped him.

3.1 ROUNDWORMS

Roundworms, or ascaris, are 20 cm to 30 cm long. They are pink or white. They lay thousands of tiny eggs. The eggs pass out of the body in the stool. Outside the body, the eggs spread to the hands, soil, and water.

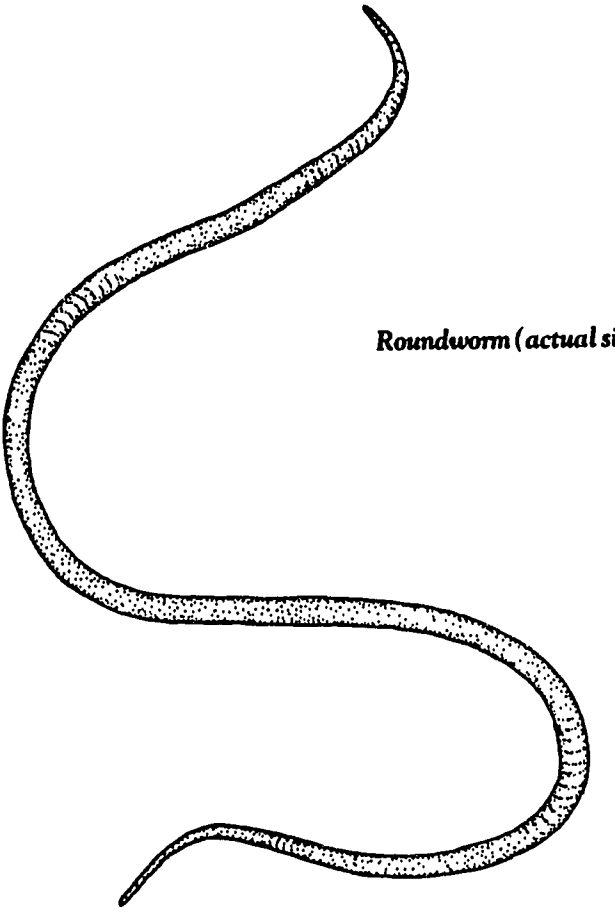
Roundworm eggs spread to the skin if a person with roundworm infection does not wash his hands after passing his infected stool.

Roundworm eggs spread into the soil from infected stool. People who touch the infected soil will have the roundworm eggs on their hands.

Roundworm eggs spread from infected soil into water. People who drink the infected water will swallow the roundworm eggs.

You cannot see the roundworm eggs without a microscope. If a person with roundworm eggs on his hands touches the food you eat, you may swallow the roundworm eggs without knowing it.

The eggs hatch in the intestines. These immature worms enter the blood stream, travel to the lungs and develop there. They break through the lung tissue. The patient coughs them up and swallows them. This way the young worms enter the intestines. They grow into adult worms in the small intestines.



Roundworm (actual size)

Hookworm (actual size)

Clincial Picture

a. Presenting complaint

The patient may complain of *fever, coughing,* and *wheezing.* The immature worms passing through the lungs cause these symptoms. Some people with roundworms will complain of *colicky pain.* More often, however, people will report that they coughed up a worm, vomited a worm, or passed a worm in their stool.

Check patients who present with a shortness of breath and a sudden onset of wheezing for roundworms.

b. Medical history

Patients may report that they have had the *same worm problem before.* If so, they may also remember the medicine they were given and whether it worked. Ask whether others in the patient's family have worms.

c. Physical examination

In cases where roundworms cause respiratory symptoms, the patient will have a *mild fever* and a *cough.* Listen for *wheezing* when you auscultate the patient's lungs.

Check for mild abdominal tenderness when you palpate the abdomen.

You can positively diagnose roundworms only if you see the worm. Usually you will have to make your diagnosis from what the patient tells you. If the patient responds to treatment, the diagnosis is confirmed. If the patient does not respond to treatment, you will have to assess his problem once more.

Course and Complications of Roundworms

Without treatment, a person will continue to pass roundworm eggs. He will infect his entire family.

A large infection of worms contributes to poor nutrition. The worms can cause an intestinal obstruction or other abdominal emergencies which would require immediate surgery.

Patient Care

Roundworm infections often occur with other worm infections. For this reason, you should treat patients who have hookworm for

roundworm first, or you should use a drug which will kill both the roundworms and the hookworms.

Piperazine cures most roundworm infections. You can give piperazine to children and adults daily for two days. See your Patient Care Guides. Patients will report that they passed a lot of worms in their stool when they started the treatment. In a few cases, piperazine may cause nausea, vomiting, and diarrhea.

You may also use pyrantel pamoate for roundworms. You can give pyrantel pamoate to children and adults daily for two days. See your Patient Care Guides. This drug is also effective for treating hookworm and pinworm infections.

Assess the nutritional status of children. Treat malnutrition if you see signs of it. Advise parents about preventing malnutrition.

PREVENTION OF ROUNDWORMS

When you diagnose roundworm, treat the patient's family as well as the patient.

Dispose of stool safely. Use a pit latrine. Protect drinking water. Chlorinate and boil drinking water whenever possible. Discuss good personal and food health habits with the patient and his family.

3.2 PINWORMS

Pinworms are about one centimeter long. They live in the lower end of the large intestine. When the female worm is ready to lay her eggs, she crawls out the anus and lays her eggs on the skin around the anus. The person with the infection often scratches himself around the anus. The eggs get under his fingernails and onto his fingers. From there, the eggs easily get into his mouth and into the mouths of others.

CLINICAL PICTURE

a. Presenting complaint

A child with pinworms will be very *restless at night.* He will sleep poorly. Itching around his anus will keep him awake. He may *scratch around his anus.*

b. Medical history

Pinworms spread very easily. If one person in a family is infected, others may also be infected. The infection can cause vague abdominal symptoms of discomfort, colic, and diarrhea. The worms can also crawl into the vagina and cause *itching and discharge from the vagina.*

c. Physical examination

Ask the mother to carefully examine the child's anus during the night. She may be able to see the tiny worms. This will help you to make the diagnosis. Look for *scratch marks around the anus.*

Course and Complications

Unless all members of a family are treated at the same time, one family member will infect the others. Pinworm infections have no serious complications.

Patient Care

Several drugs can be used to treat pinworm infections. Give pyrantel pamoate for only one day. Do not use pyrantel pamoate with pregnant women or children less than two years old. See your Patient Care Guides.

You may also treat pinworms with piperazine. Give the patient piperazine daily for seven days. See your Patient Care Guides.

Both pyrantel pamoate and piperazine can be repeated after one month if pinworms return.

Prevention

Prevention of pinworm infection requires very good hygiene. Encourage mothers to keep their children's fingernails very short and clean. Teach the family the importance of washing hands before meals and after using the latrine.

Pinworm eggs infect an entire household, especially bed sheets and clothing. Wash these items in boiling water and dry them in the sun.

To reduce itching around the anus, show the parent how to apply Vaseline or other petroleum jelly around the edges of the anus when the child goes to bed.

3.3 TAPEWORMS

Tapeworms are long, flat worms which infect people who eat beef, pork, or fish which is not well cooked. The worm attaches itself to the wall of the small intestine. In one to three months, the worms grow to maturity inside the intestine. The worm may have a thousand segments. It may be two to three meters long. Segments at the tail of the worm break off and are passed in the stool. These segments are half a centimeter to a centimeter long. They can be seen in the stool. Tapeworms can live up to twenty-five years.

Tapeworm eggs live as tiny cysts in the muscles of beef and pork. When cysts are eaten they grow into adult worms inside the intestines.

Clinical Picutre

a. Presenting complaint

The patient often reports that he has seen ***worm segments in his stool.*** Many worms may cause mild abdominal pain or other vague symptoms.

b. Medical history

Ask the patient whether ***he eats undercooked beef, pork,*** or ***fish.*** Ask him how he prepares the food.

c. Physical examination

The only sign of tapeworm infection is seeing segments of the worm in the patient's stool. You may note ***weight loss*** and signs of ***malnutrition*** in children.

Course and Complications

Malnutrition can be often a serious complication, especially in children.

Patient Care

The most effective drug for the treatment of tapeworms is niclosamide. The drug may be given in a single dose after a light meal. It

occasionally causes some nausea, vomiting, and abdominal pain. See your Patient Care Guides.

Give the patient a purge two hours after you give the niclosamide. Use magnesium sulfate with at least eight ounces of water. See your Patient Care Guides. The purge will clean the worms and eggs out of the bowel and prevent the eggs from entering the stomach where they can cause reinfection. Treat the patient's malnutrition if necessary.

PREVENTION

Teach people that beef, pork, and fish must always be thoroughly cooked.

3.4 HOOKWORMS

Hookworm infections are one of young children's most serious problems. The worms attach themselves to the intestinal walls. They suck blood and nutrients from the body.

Hookworms pass their eggs into the stool. If the eggs fall on warm, moist earth, they develop into immature worms. The immature worms remain in the soil until they are able to attach themselves to the feet of people who walk across the ground without shoes. The immature worms then burrow into the skin of the feet and enter the blood stream. The blood stream takes them to the lungs. They break through the lung tissue and move up the air passages into the throat. They are swallowed. When they reach the small intestines, the young worms mature and attach themselves to the intestinal walls. This life cycle can be broken only if stool is disposed of in latrines. Wearing shoes also prevents infections.

CLINICAL PICTURE

a. Presenting complaint

When young hookworms enter the body through the feet or hands, they cause an *itchy rash*. The patient may complain of this rash. Small blisters occur where the young worms have broken through the skin. The patient may complain of these blisters, sometimes called a *ground itch*. After one or two weeks, the child may develop a *dry cough* and *wheezing*, very much like asthma. The

child will have some fever. The young hookworms then enter the intestines. A child will often be brought to the clinic for some other problem. You may find that he has severe anemia. This may cause him to be tired and weak.

b. Medical history

Where hookworm is present, nearly all of the people will have at least a few worms. A few children will be brought to the clinic with the complaints of *ground itch*, *wheezing*, and *cough*. Many children will have heavy loads of worms from repeated infection. They will be severely anemic and pale. They will often have a history of upper abdominal pain similar to an ulcer.

c. Physical examination

Check the patient's mucous membranes and conjunctiva. Look for *signs of anemia*.

Course and Complications

Lack of iron in the blood and anemia are the earliest serious complications of hookworm infection. Severe anemia can lead to heart failure and death. The child who has hookworm anemia for many years fails to grow normally.

Patient Care

a. Treat anemia

Severe anemia is the most serious effect of hookworm infections. Give the patient a course of ferrous sulfate. Ferrous sulfate will restore the iron which he has lost from his body. Treat his anemia for at least two weeks before using tetrachlorethylene. See Patient Care Guides.

b. Treat the worms

If you suspect the patient has infections of roundworm and hookworm, treat him for the roundworm first. Use piperazine or pyrantel pamoate. See Patient Care Guides. Pyrantel pamoate eliminates both roundworm and hookworm infection at the same time.

Tetrachlorethylene is an effective and inexpensive drug against hookworm. But you should not use this drug until you have corrected the patient's anemia. The patient should drink no alcohol for twenty-four hours before and after the treatment with

tetrachlorethylene. The drug causes severe nausea, dizziness, and headache. One dose is usually enough to eliminate most of the hookworms. See Patient Care Guides.

Alcopar is another effective drug against hookworm. Tell the patient to take alcopar before his morning meal. Give alcopar on two successive days. See Patient Care Guides.

c. Treat heart failure

If the child has signs and symptoms of heart failure, treat him for this. Refer him to the hospital.

PREVENTION

Hookworm infection is very common where soil is moist and sandy. Dispose of human stool in a safe way. As long as children can come into contact with infected stool, the young hookworm will be able to infect them.

Encourage people to wear shoes when they walk outside the home. This will reduce the chances of infection.

REVIEW QUESTIONS
Intestinal Worms

1. You can only make a positive diagnosis of roundworm if you:
   ____ Find that the patient has shortness of breath
   ____ See the worm
   ____ Watch the patient closely for two days

2. Explain how roundworm infections spread.

3. Why may a patient with a roundworm infection complain of a cough or wheezing?

4. Describe how to prevent roundworm infection.

5. Explain why a person infected with pinworms has itching around the anus.

6. TRUE (T) or FALSE (F)
   ____ If one person in the family is infected with pinworms, others are probably also infected.
   ____ Pinworms will usually cause severe abdominal cramps and diarrhea.

____ Several drugs can treat pinworm infections.

____ Preventing pinworm infections requires very good health habits such as keeping the fingernails short and clean and washing hands before meals.

7. Explain how hookworms infect humans.

8. How can people prevent hookworm infections?

9. TRUE (T) or FALSE (F)

____ Anemia is often the only sign of hookworm infection.

____ In areas where hookworm is present, nearly all of the population will have at least a few worms.

____ Diarrhea is the most important effect of hookworm infections.

10. Explain how you would treat a young child who has severe anemia because of a hookworm infection and signs of a roundworm infection.

11. The most important sign of tapeworm infection is:

____ Mild abdominal pain

____ Seeing a worm segment in the stool

____ Weight loss

12. How can people prevent tapeworm infections?

REVIEW EXERCISE

Case Study 24

Name of Patient:	Brum, Willie
Sex:	Male
Date of Birth:	15 November 1968
Date of Visit:	2 January 1982
Vital Signs:	Temperature 37.2°C Pulse 90 Respiration 24 Weight 30 kg
Presenting Complaint and Medical History:	This young patient is tired and loses his breath easily. He said he has felt this way for about two weeks. Past medical history: The patient had measles at age five but no other serious illnesses.
Physical Examination:	The patient is a thin, tired looking boy. His mucous membranes are very pale. His tongue is also pale. His tonsils are not inflamed. His breath sounds are normal. His heart rate is increased. He has a systolic murmur. His abdomen is flat and his bowel sounds are active. No organs felt on palpation. His muscle tone is poor. His skin shows some red, irritated areas between the toes.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

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Unit 4

Presenting Health Messages about Gastrointestinal Problems

STUDENT GUIDE

OBJECTIVES

1. Identify the main health messages about gastrointestinal problems that you should share with patients and the community.
2. Describe how to make and use visual aids such as flashcards, flipcharts, and posters to present health messages.
3. Demonstrate the use of visual aids in presenting health messages about gastrointestinal problems.

LEARNING ACTIVITIES

1. Attend a brief presentation by the instructor on making and using visual aids to present health messages.
2. Join a class discussion of the use of visual aids in presenting health messages about gastrointestinal problems.
3. With a small group of students, prepare a flashcard or flipchart presentation for a gastrointestinal problem. Make a health message poster.
4. With other students, present your flashcard or flipchart presentation and poster to the class.
5. Practice delivering health messages about gastrointestinal problems to patients in a clinic or a hospital.

1 PRESENTING HEALTH MESSAGES ABOUT GASTROINTESTINAL PROBLEMS

Many of the gastrointestinal problems that you have studied so far can easily spread from one person to another. This is most true where people do not have safe latrines and do not always wash their hands after passing stool.

However, people can easily prevent gastrointestinal problems. When people understand how the problems start and how they spread, they can stop many problems completely.

Health messages help people learn about gastrointestinal problems and how to prevent them. You can present health messages to people when you see them in the clinic or at community meetings and gatherings.

You have already learned about some of the ways to share health messages with people. You will learn about more ways as you study the other modules. In this unit, you will learn about using simple visual aids or pictures that can make your health messages stronger and clearer. Flashcards, flipcharts, and posters are examples of visual aids that will help do this.

Flashcards

Flashcards are a set of cards with drawings or pictures on them. You can show people flashcards one by one to tell a story, show how a disease spreads, or show how to prevent a disease. You will need ten to twenty cards for each set. Put a picture or drawing on each card to organize your health message and make it clear. Each set of cards focuses on one subject at a time. Too many subjects at once will confuse your listeners.

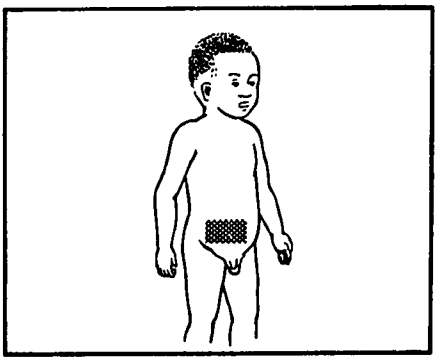
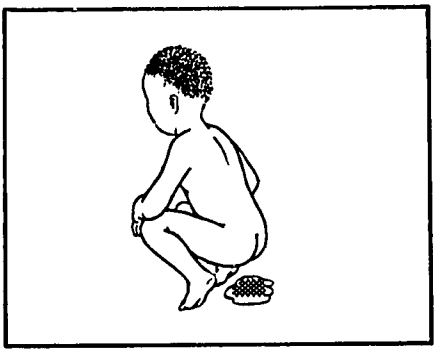
Make the cards from cardboard or stiff paper. Make them 55 cm wide and 70 cm long for groups. Make them 20 cm wide and 30 cm long for use in home visits or discussions with patients in the clinic. Write your health messages on the back of the cards. When you hold the card up for people to see, you can also read your health message on the back of it. Do not hold flashcards in the air away from your body. This creates a distraction. People will not be able to clearly focus on the card. Place

the card in front of you so people can see it and so you can read your messages.

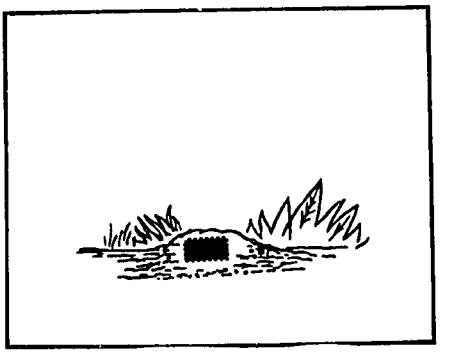
Using flashcards requires some preparation. First decide what health messages you want to present. Remember, each set of cards should have only one subject at a time. When you know what you want to say about your subject, draw simple pictures that show the messages. The drawings should make your messages clear and easy to understand. They should be simple.

The following sample flashcard presentation shows how you might use such a visual aid to present health messages about gastrointestinal problems. This presentation might be presented to a group of mothers. It deals with how diseases like amebiasis and giardiasis spread.

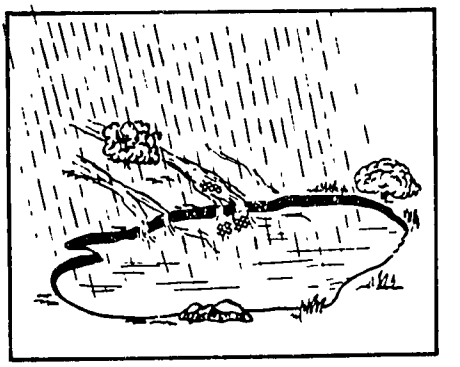
Sample Flashcard Presentation

HEALTH MESSAGES	FLASHCARD DRAWING
Diarrhea is caused by a kind of illness inside a person's body.	
When a person with this illness passes stool, some of the illness passes with it.	

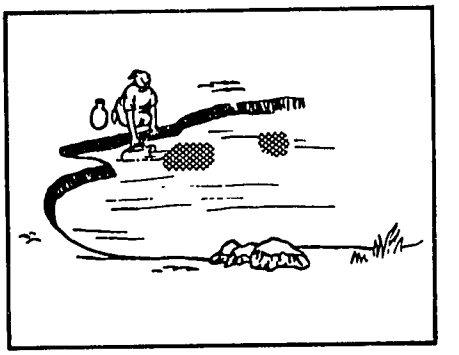
This illness lives in water or soil for many days.



Rain washes the illness into rivers, lakes, and water holes.

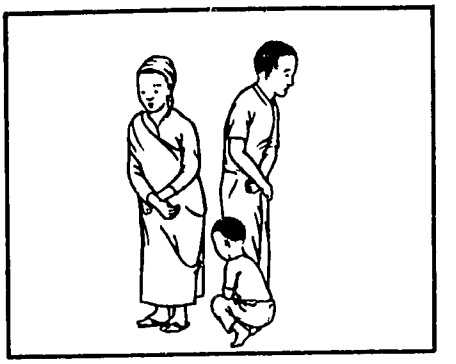


A woman who takes her water from one of these places also takes the illness.



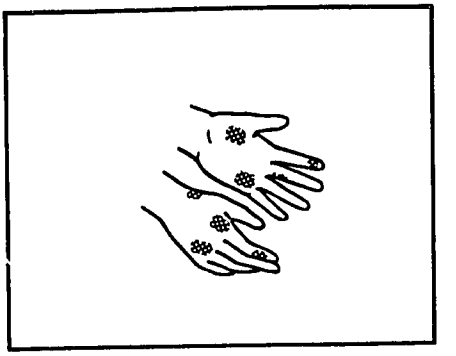
She and her family will drink the illness with the water if she does not boil the water first.

The woman and her family will have diarrhea too.

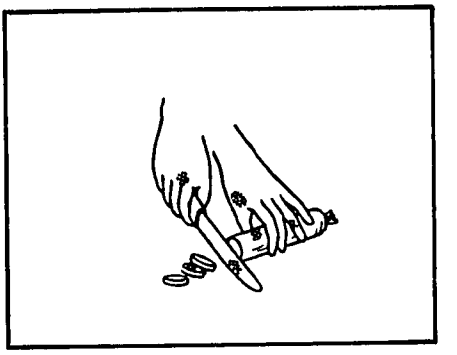


Now when the woman and her family pass a stool, the same thing happens again. This time someone else will get diarrhea.

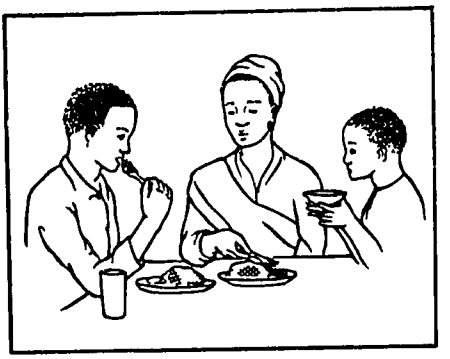
A woman with diarrhea can spread this illness if she does not wash her hands after passing a stool.



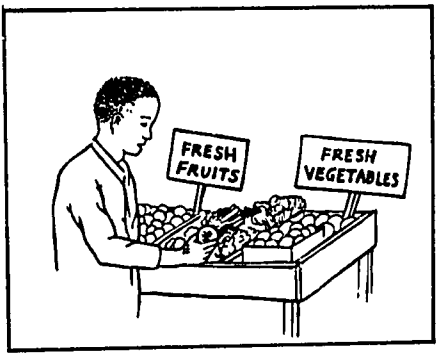
When the woman prepares her family's meals, the illness spreads from her hands into the food.



Soon her whole family has the illness.



Perhaps the man at the market had the illness on his hands when he sold the fruit and vegetables to the woman.



The illness on the food makes the woman's family ill, even if she washes her own hands.

Ask your listeners if they have any questions. Urge people to ask questions. Help people see the meaning of the drawings and your health messages. Make sure people understand how illnesses spread.

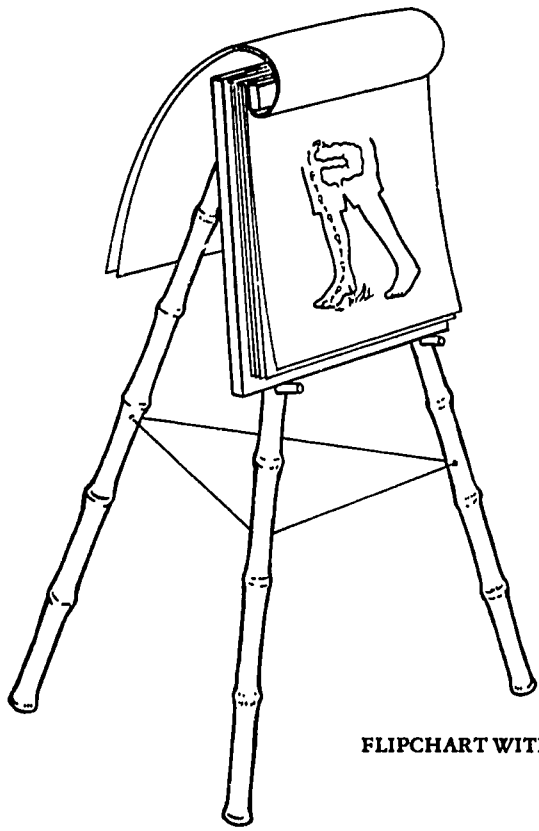
Start a discussion about how an illness enters a person's body. Go back to the first flashcard. The first flashcard in the sample presentation shows a young child with illness inside his body. You could ask, "How did this illness enter the child's body?" You could also ask, "How can you stop illness from spreading to yourself and the members of your family?" Use other flashcards to show your message. Use pictures of

people using latrines, of women washing fruits and vegetables, and of people washing their hands after passing a stool.

Let a person who understands your health messages well explain these messages to others if he can. Let him use the cards to explain what he means. This way people can take an active part in sharing health messages.

Flipcharts

Flipcharts, like flashcards, are pictures arranged to present a message. Drawings in a flipchart are fastened together at the top edge of the papers. The drawings are usually large. They are fixed on a board or stand for support. These drawings tell a story or show how something happens. As each drawing is used, you flip it over to the next one.



FLIPCHART WITH A TRIPOD STAND

Use flipcharts to present health messages to large groups. People in large groups can see a flipchart more easily than small flashcards.

Make a drawing on a page of the flipchart for each message you want to share. Write the health message for each drawing on the back of the

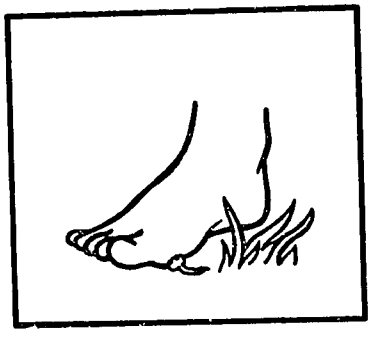
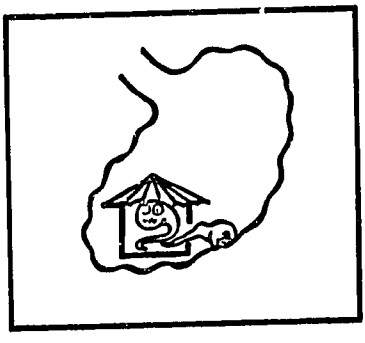
drawing that comes before it. This way, people will see a new drawing when you flip a page of the flipchart, and you can read your health message for that drawing on the back of the previous page. Your flipchart pages will stay in correct order because they are fastened at the top.

You can also write comments or messages with a pencil next to the drawings on a flipchart. People cannot see the writing from a distance.

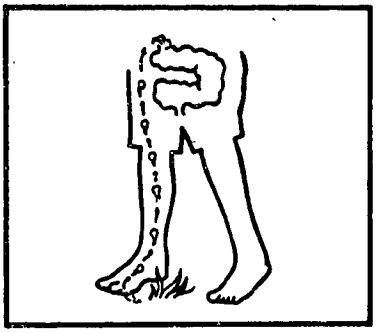
When you finish talking about one drawing, flip it over and begin the next. You can return to important drawings and messages.

Determine what health messages you want to include in your flipchart presentation. Limit your messages to one subject. People will not understand your subject if you present too much information. Repeat your important points. Repeating points helps people remember them.

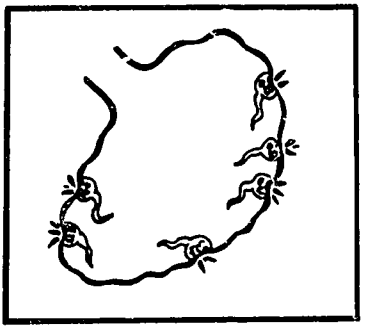
Sample Flipchart Presentation

HEALTH MESSAGES	FLIPCHART DRAWING
What is hookworm? Where does hookworm come from? How can you and your family keep from getting hookworm?	
What is hookworm? Hookworm is a small worm that may live part of its life in your belly and feeds on your blood!	

Where does hookworm come from? The baby worm is in the dirt and passes through bare feet into the body.

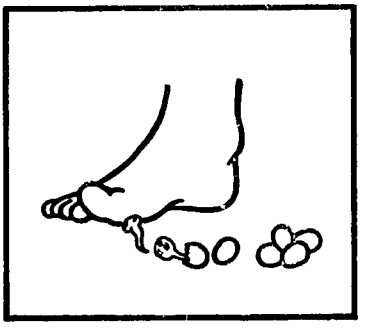


This worm enters the belly. Here, the baby worm feeds on your blood and grows into an adult worm. The adults produce eggs.

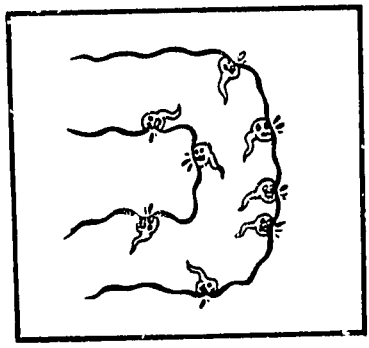


If a person does not use a latrine, these eggs are passed in the stool onto the ground.

The eggs on the ground grow into baby worms which once again pass through bare feet.

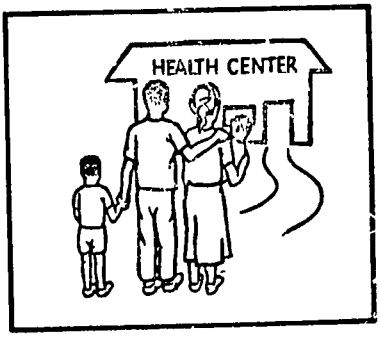


The worm enters and sucks up blood in the belly. Many worms can suck up blood. When this happens, you lose a lot of blood and become anemic or, as some people say, "poor of blood."

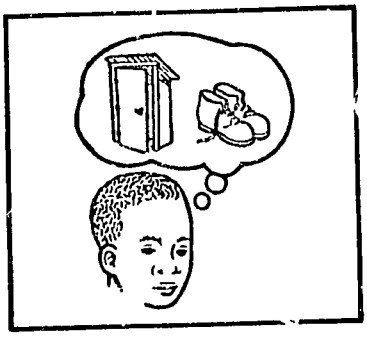


When you are anemic, or "poor of blood", you feel weak and tired. You cannot get through your work. You may be too tired to think clearly. And if the hookworm makes you really sick, you can even become short of breath.

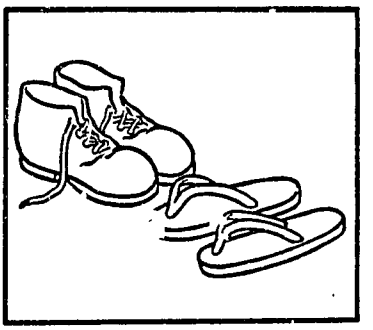
Your whole family should come to the health center if you think you or anyone in your family has hookworm. Anyone who has hookworm will receive treatment. This treatment does not hurt you, only the hookworm.



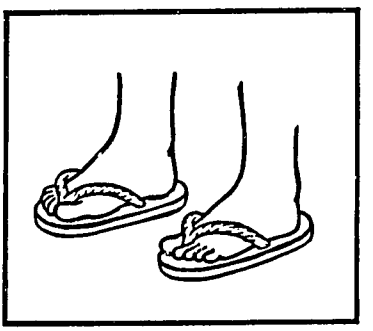
How can you and your family stop hookworm?



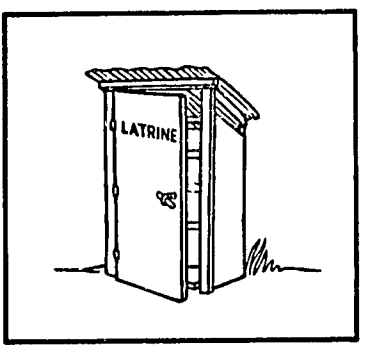
Shoes or sandals can protect you from hookworm.



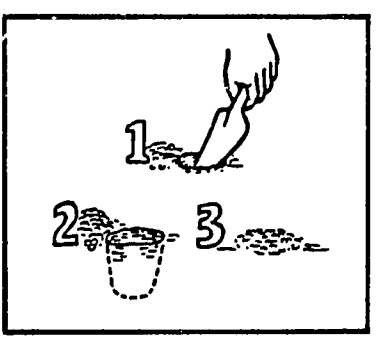
Wear shoes or sandals when you are outside your house to protect yourself from hookworm.



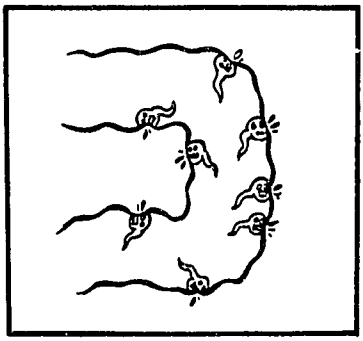
Use latrines so people who may have hookworm do not pass the worm eggs on the ground.



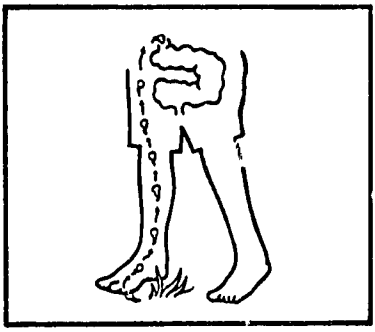
Use a hole if you are working in your fields, hunting, fishing or doing something else far away from a latrine. Dig a hole in the ground that is about six inches deep. Pass your stool in this hole. Cover the hole with dirt.



Now for the review. The hookworm wants your blood!

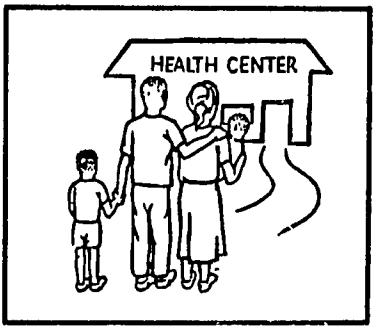


The hookworm will pass through bare feet to get to your blood.

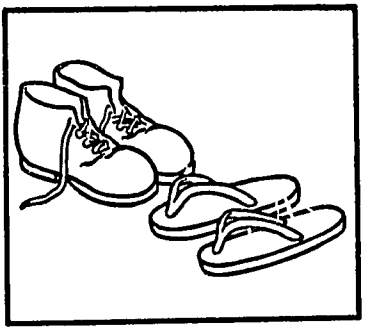


You or anyone in your family who has hookworm will feel weak and tired.

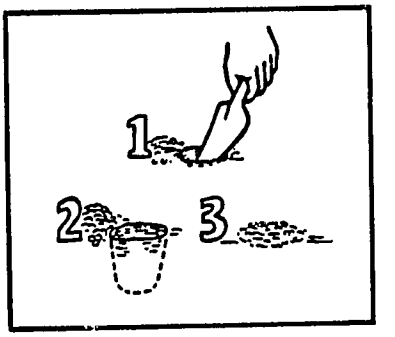
The whole family should go to the health center to be examined if anyone feels weak and tired.



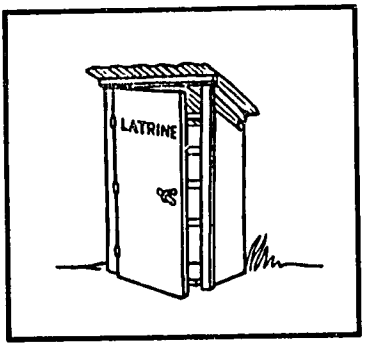
Wear shoes or sandals to stop the hookworm.



Dig a hole for your stool if you are far from a latrine. Cover the stool with dirt.



Use a latrine. This is the best way to keep hookworms away from your family and yourself.



Posters

A poster is a large drawing or illustration with one message. Use posters to share a message about health habits or to point out health conditions that should be changed.

You can easily make posters from large pieces of cardboard, wrapping paper, and the backs of old posters. You can put posters where many people will see them. For example, you can put posters on walls in the marketplace, government buildings, clinics, and hospitals.

Select a health subject that you would like to share with people. Then select a health message that is related to this subject. Once you know your message, draw a picture that helps explain it. Next to the picture, write your message in large, bold print that can be read from a distance.

Ask someone to look at your poster and tell you whether its message is clear. Make any changes. Then make copies of the poster and place these where people will see them. Encourage people to discuss the poster. Use the poster to start discussions with people who come to the clinic.

SAMPLE POSTER

REVIEW QUESTIONS
Presenting Health Messages about Gastrointestinal Problems

1. What are flashcards?

2. TRUE (T) or FALSE (F)
   ____ You should encourage questions during a flashcard presentation
   ____ Flipcharts are like flashcards except they are usually larger and the drawings or pictures are fastened together at the top edge.
   ____ You should not write your health messages on flashcards or flipcharts.
3. Describe two health messages that you would include in a presentation to mothers about how gastrointestinal diseases like amebiasis and giardiasis spread.

4. Where can you write health messages on flipchart pages?

5. What health messages would you include in a presentation about hookworm?

6. What should you do to make and use a health message poster?

SKILL CHECKLIST
Using Simple Visual Aids to Share Health Messages

This checklist has two purposes:

1) Students should use it as a guide for checking their own skills or other students' skills.
2) Supervisors should use it when they evaluate how well students use simple visual aids to share health messages.

After observing a student, enter a rating in the appropriate column.

Rating: 1 = Inadequate
2 = Needs improvement
3 = Satisfactory
4 = Above average
5 = Excellent

When using simple visual aids to share health messages, you should:

	YES	NO	RATING	COMMENTS
1. Outline the health messages you want to share				
2. Make sure each set of drawings or pictures focuses on only one subject when using flashcards or flipcharts				
3. Write your health messages on the back of the flashcards				
4. Write your flipchart health messages on the back of the drawing before the one you refer to. Or write the message in pencil next to the drawing				

	YES	NO	RATING	COMMENTS
5. Use simple drawings on flashcards, flipcharts, and posters that will make your health messages clearer and easier to understand				
6. Ask the audience questions to see if people understand the health messages. Encourage people to ask questions. Have members of the audience answer questions that are asked				
7. Include a summary of the important points you make in your presentation				
8. Ask a person with whom you want to share a poster's message whether the message on the poster is clear				
9. Fix the poster to make its message clear. Duplicate the poster. Put the posters where people will see them				
10. Urge people to discuss the poster				

Unit 5

Liver Diseases

STUDENT GUIDE

OBJECTIVES

1. Describe the clinical picture associated with these liver diseases:

   Viral hepatitis
   Cirrhosis

2. Describe the abnormal physical signs of these diseases.
3. Demonstrate how to interview and examine patients to identify these diseases.
4. Provide treatment and care for patients suffering from these diseases.
5. Counsel patients and their families about home care, medications, and prevention of these diseases.

LEARNING ACTIVITIES

1. Join an informal question and answer session to review the signs and symptoms of liver diseases.
2. Work in small groups to create a role-play based on a case study of a liver disease patient.
3. Interview and examine a fellow student who is role-playing a patient with a liver disease.
4. With others, outline the treatment, care, and health messages to give the role-play patient.
5. Join a class discussion about assessing and caring for patients with liver diseases.
6. Interview and examine patients, provide treatment and care, and deliver health messages to patients with liver diseases in a clinic or hospital.

5.1 VIRAL HEPATITIS

Hepatitis means inflammation of the liver. A virus most often causes hepatitis. Hepatitis viruses spread through infected food or water. Many people in a community may become ill when water is infected with hepatitis viruses.

Clinical Picture

a. Presenting complaint

The patient with viral hepatitis *loses his appetite.* He often complains of having *yellow skin or eyes.* He becomes *nauseated* and begins to vomit. He has *pain in the upper right quarter of his abdomen,* over his liver.

b. Medical history

The patient first begins to feel very tired. He has aches and pains throughout his body. He may have a cough, runny nose, and sore throat. He will have a slight fever. These symptoms may last five to ten days before the patient's skin begins to turn yellow. The patient may report that his *urine is darker than usual.*

c. Physical examination

Examine the patient in sunlight. Look at the whites of his eyes for signs of jaundice. *Jaundice* may appear on the first day of illness or it may not appear for ten days. The edge of the *liver* feels *smooth* when you palpate it. The liver will be *tender.* The patient will feel sudden pain when he takes a deep breath and the edge of the liver strikes your palpating fingers.

Course and Complications

Hepatitis is often a mild disease in younger children. However, hepatitis can cause weakness and weight loss. The patient usually begins to feel better and to regain his appetite and his strength after two to four weeks. The jaundice becomes worse in a few people. These people rapidly develop liver failure and die. Another small group of patients develop a chronic kind of liver disease and eventually liver failure.

Patient Care

1. Urge the patient to rest

   Urge the patient to rest and remain in bed as much as possible.

2. Give fluids

   The patient must drink fluids. You may have to give the patient intravenous fluids if vomiting is severe.

3. Give nutritious foods

   The patient should eat nutritious food. A special diet is not necessary, but greasy or fatty foods must be avoided.

4. Avoid alcohol

   Ask the patient not to drink alcohol until several months after the end of the illness. Alcohol can easily damage the liver when the liver cells have been damaged already by infection.

5. Refer to hospital

   Refer the patient to the hospital if his condition worsens. Look for drowsiness and severe jaundice. These are signs of very severe liver disease.

Prevention

Boil or chlorinate drinking water to destroy the hepatitis virus which is spread through stool.

Tell the patient's family to give the patient his own eating utensils. Others in the family should not use them.

Tell the patient's family to put the patient's stool a safe distance from gardens and sources of water. The stool contains hepatitis virus.

5.2 CIRRHOSIS

Cirrhosis is a chronic disease which destroys liver cells. Cirrhosis most often develops when a person drinks large amounts of alcohol during a long time. Alcohol poisons the liver cells. Patients who drink heavily also do not eat properly.

Clinical Picture

a. Presenting complaint

Patients often do not seek help until their disease is far advanced. They will come to the clinic because of a *swollen abdomen* and *yellow skin or eyes.* They will have poor appetites. They may have nausea and vomiting. They are very weak and easily tired.

b. Medical history

Ask the patient about the kind and amount of alcohol he has been drinking. Patients often deny that they drink too much. Ask the patient about his usual diet. Ask the patient how long he has noticed his swollen belly or yellow eyes.

c. Physical examination

Patients with cirrhosis look *chronically ill.* Their muscles are wasted and they have *jaundice.* The fleshy parts of the palms of the hands may be bright red. Look for tiny spider-like blood vessels in the skin of the upper part of the body.

The *abdomen will be enlarged.* It contains *excess fluid.* The *liver edge* will be easy to palpate. It will be *firm* and *not tender.* Pitting edema of the ankles is often a sign of cirrhosis.

Course and Complications

The patient's condition may improve and worsen during the months of his illness. His symptoms may improve for a while if he stops drinking and eats properly. However, more drinking often leads to rapid liver failure. The patient becomes confused, drowsy, and

then sinks into a coma. The patient frequently bleeds severely from his digestive tract, vomits large quantities of blood, and dies from blood loss.

Patient Care

The patient must stop drinking alcohol. He must begin to eat a nutritious diet. These are the two most important and difficult parts of caring for the patient with cirrhosis.

If you suspect cirrhosis in a patient who has not already been diagnosed as having the disease, refer him to a hospital.

REVIEW QUESTIONS
Liver Diseases

1. How are hepatitis viruses most often spread?

2. Which of these signs suggest viral hepatitis?
   - ____ Loss of appetite
   - ____ Diarrhea
   - ____ Nausea and vomiting
   - ____ Severe fever
   - ____ Jaundice
   - ____ Pain in the upper right quarter of the abdomen

3. How can people prevent viral hepatitis?

4. What is cirrhosis?

5. TRUE (T) or FALSE (F)
   - ____ Patients with cirrhosis look chronically ill, with muscle wasting and jaundice.
   - ____ Liver failure is often a complication of cirrhosis.
   - ____ Alcohol is not dangerous to the patient with cirrhosis if he is eating a nutritious diet.
   - ____ If you suspect that a patient has cirrhosis, refer him to the hospital so that your diagnosis can be confirmed.

REVIEW EXERCISE

Case Study 25

Name of Patient:	Ibana, Mina	
Sex:	Female	
Date of Birth:	6 June 1949	
Date of Visit:	30 March 1980	
Vital Signs:	Temperature	37.8°C
	Pulse	96
	Respiration	22
	Blood Pressure	120/85
	Weight	57 kg
Presenting Complaint and Medical History:	The patient has been vomiting for about three days. The problem started about one week ago with a loss of appetite. Gradually, the patient developed aches and pains throughout her body with some fever and a general feeling of illness. She saw a doctor five days ago. He prescribed some pills. Then the vomiting started.	
	Past medical history: No previous illness.	
Physical Examination:	The patient is not ill looking. Her mucous membranes are pink. Her sclera are yellow. She has a slight swelling of the thyroid. She has no tremor or protruding eyes. Her breath sounds are normal. On palpation her liver edge was felt about 4 cm below the right costal margin. It is quite tender. No spleen, kidney, or bladder may be felt. She has no ascites or evidence of edema.	

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?

4. How would you treat this patient?
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 26

Name of Patient:	Gani, Gen	
Sex:	Male	
Date of Birth:	21 September 1952	
Date of Visit:	6 October 1982	
Vital Signs:	Temperature	37°C
	Pulse	70
	Respiration	30
	Blood Pressure	100/70
	Weight	80 kg
Presenting Complaint and Medical History:	The patient noticed the gradual swelling of his ankles about three months ago. The swelling is worse when he stands and improves when he lies down. He denies any other symptoms. However, he has noticed some decrease in his appetite recently. He does not think that he has lost any weight. He has no shortness of breath, although he gets short of breath when he exercises. Past medical history: No serious illness. He smokes about a pack of cigarettes a day. He drinks up to one bottle of whiskey on a weekend.	

Physical Examination:	The patient is a very talkative male in no acute distress. His mucous membranes are pink. His sclera are slightly yellow. His tonsils are not inflamed. He has no goiter or distended jugular veins in his neck. His breath sounds are normal. His abdomen is slightly distended. His liver is firm and palpable about 2.5 cm below the right costal margin. The liver is not tender. No spleen, kidney, or other masses may be felt. He has no evidence of ascites.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 31

Name of Patient:	Hatch, D. David	
Sex:	Male	
Date of Birth:	3 December 1922	
Date of Visit:	17 September 1981	
Vital Signs:	Temperature	37°C
	Pulse	62
	Respiration	34
	Blood Pressure	110/65
	Weight	58 kg

Presenting Complaint and Medical History:	The patient's abdomen has been swollen and painful for the last six months. The condition is worsening. The patient has had severe pain for the last week. He described it as a pulling feeling across the belly. He says he gets short of breath when he lies down and has to sit up to catch his breath. He drinks whiskey daily. The patient also says that he hasn't had any chest pain or palpations. He hasn't had a cough or a fever. He's noticed some swelling in his ankles and he's had a poor appetite. He thinks he has lost fifteen pounds in the last three months.
Physical Examination:	The patient is an ill looking man. His mucous membranes are pink. He has very yellow sclera. His tongue is moist and his tonsils are not inflamed. His neck veins are flat. His breath sounds are normal. He has no sign of a heart murmur. His abdomen is distended. His liver is 8 cm below the right costal margin. His liver is firm but not tender when palpated. No spleen may be felt. There is much fluid in the patient's abdomen, and he has severe edema of the ankles.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give the patient?

Unit 6

Assessing and Caring for the Patient with an Acute Abdomen

STUDENT GUIDE

OBJECTIVES

1. Describe the clinical picture of these gastrointestinal problems:

   Acute abdomen
   Acute appendicitis
   Intestinal block

2. Describe the abnormal physical signs associated with these problems.
3. Demonstrate how to interview and examine patients to identify these problems.
4. Provide treatment and care for patients suffering from these problems, including the special patient care procedure of passing a nasogastric tube.
5. Counsel patients and family members about the patient care for these problems.

LEARNING ACTIVITIES

1. Listen to a presentation on the signs and symptoms of acute appendicitis, an intestinal block, and an acute abdomen.
2. Participate in a class discussion about these signs and symptoms.
3. Work in a small group to create a "patient" role for a particular acute abdominal problem.
4. Observe a demonstration of the procedure for passing a nasogastric tube in a patient.
5. Interview and examine patients. Provide patient care, including passing a nasogastric tube, and deliver health messages concerning acute abdominal problems to patients in a clinic or a hospital.

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6.1 ACUTE ABDOMEN

An acute abdomen is any abdominal problem that may require hospital care and surgery. Many problems can cause an acute abdomen. The most common examples of acute abdomen are acute appendicitis and intestinal block. You may not be able to determine the cause of every case of acute abdomen. You should treat any person you suspect with an acute abdomen as a medical emergency. Arrange immediate transportation to a hospital. Start the initial care of the patient and prepare him for the trip.

Clinical Picture

The clinical picture of a patient with an acute abdomen will depend on the cause of the problem. Although you will see many cases where the cause is unknown, these are the most important symptoms and signs to look for.

a. Presenting complaint

The patient will present with *severe abdominal pain.*

b. Medical history

The onset of abdominal pain can be *sudden or gradual.* Gradual onset usually occurs with other symptoms related to a gastrointestinal upset, such as nausea, vomiting, diarrhea, constipation, or fever. Suspect internal bleeding with any history of *recent trauma to the abdomen.*

c. Physical examination

The patient will *look very ill.* He may not be able to walk or talk. He will be very anxious and restless. He will not be able to take a deep breath because of the abdominal pain.

Record the patient's vital signs. He may have a fever and *signs of shock.* When you see signs of shock, start treatment immediately. Diarrhea and frequent or severe vomiting will cause signs of dehydration.

Look for ***swelling of the abdomen*** or signs of trauma during your general examination. Gently palpate the abdomen. Note any ***tenderness*** or ***rebound tenderness.*** Watch for ***guarding*** against pain. Percuss the abdomen. Any ***abnormal percussion note*** is a danger signal.

Auscultate the abdomen. Any ***increase, decrease,*** or ***absence of bowel sounds*** indicates a serious problem.

Course and Complications

The acute abdomen is a complication of some underlying problem. Without immediate hospital care and possible surgery, the patient usually will die.

Patient Care and Prevention

a. Treat for shock

The patient with acute abdomen soon develops signs of shock. You must prevent shock if possible, and care for shock when you diagnose it. Start an intravenous infusion. Use .9% normal saline in dextrose or Ringer's lactate solution. Place the patient in the shock position with his legs slightly raised above his abdomen. Keep the patient warm. Keep the infusion running while the patient is transferred to the hospital. See Patient Care Guide for shock.

b. Treat for dehydration

Do not give a patient with an acute abdomen anything by mouth. Treatment for shock will help rehydrate a dehydrated patient.

c. Refer

Have someone arrange for the immediate transfer of the patient to a hospital while you treat the patient for shock.

d. Treat the infection

Give the patient intramuscular penicillin and streptomycin if you suspect an infection inside the abdomen. See Patient Care Guides.

e. Relieve the pain

Do not give any strong pain medication. The severity and location of the pain are good diagnostic signs. You must also consider the comfort of the patient during referral. Give the patient intra-

muscular pethidine if travel to a hospital will take more than four hours. See Patient Care Guides.

Never give any patient with an acute abdomen a laxative, even if he complains of constipation. A laxative makes the bowels more active. The increased activity may cause a perforation or other complication.

6.2 ACUTE APPENDICITIS

Acute appendicitis is a common form of acute abdomen. The appendix is a small tube attached to the beginning of the large intestine. The appendix is in the right lower quarter of the abdomen. The appendix has no known function. It causes no problems except when it is inflamed. The inflammation is often caused by food the size of a pea which gets caught in the appendix.

Acute appendicitis often causes serious complications. The appendix swells and bursts. The contents of the intestines spill into the abdominal cavity, and infection spreads.

A person of any age can develop acute appendicitis, but it rarely occurs in children younger than two years old. Most cases of appendicitis occur in teenagers.

Clinical Picture

a. Presenting complaint

The patient with acute appendicitis will complain of ***severe abdominal pain.***

b. Medical history

Ask the patient if his appendix has been removed. If he answers yes, he cannot have acute appendicitis. Check for other causes of an acute abdomen.

Ask the patient how the problem began. The first symptom of acute appendicitis often is the slow onset of some ***colicky pain around the navel.*** The patient will lose his appetite and feel nauseated. Vomiting follows. The person will develop a mild fever.

Constipation is more common than diarrhea in cases of acute appendicitis. Symptoms may occur two to three days before serious pain develops.

The abdominal ***pain gradually worsens and moves to the right lower quarter of the abdomen.*** This movement may take between two hours and twenty-four hours.

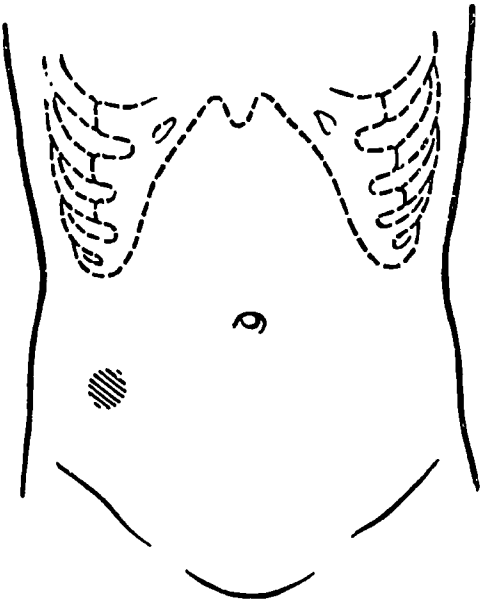
c. Physical examination

The patient will have acute abdominal pain. The patient will look ill. He will have great difficulty walking, or will be unable to walk. He will look distressed, anxious, or unable to talk.

Assess his vital signs. The patient will usually have a ***mild fever*** of 38°C to 38.5°C in the ***early stages*** of acute appendicitis. His respiration rate and pulse will increase slightly because of anxiety. His blood pressure should be within normal limits. His fever and pulse will increase. His blood pressure will start to drop if infection spreads or shock sets in.

Carefully examine the abdomen. Be gentle. Auscultate the abdomen. Listen for bowel sounds. Infection of the abdominal wall will decrease or stop bowel sounds.

Palpate the abdomen. Start at the farthest point from the patient's pain. Check for abdominal tenderness over the lower right quarter. The point of greatest tenderness will frequently be found on a line between the navel and the top of the right front ilium.



LOCATION OF GREATEST TENDERNESS FROM APPENDICITIS

Rebound tenderness is the most certain sign of acute appendicitis. Check for rebound tenderness. Gently push your fingertips into the abdomen. Then quickly release the pressure. Pushing down will cause some pain, but releasing the pressure will cause severe pain.

Relieve some of the patient's voluntary guarding by asking him to take a deep breath. This will not relieve involuntary guarding. Involuntary guarding is a sign of inflammation of the abdominal wall.

Course and Complications

Inflammation quickly swells the appendix. The appendix may burst after two or three days, or sooner. That is, the wall of the appendix will perforate. Pus and blood will spill into the abdominal cavity. This inflames the abdominal lining. Next, one of two things will happen. The body will seal off the infection and form an abscess on the appendix, or the inflammation will spread through the abdominal lining and cause peritonitis. Severe inflammation will lead to dehydration and shock. A patient with acute appendicitis needs hospital care and surgery.

Patient Care and Prevention

Acute appendicitis is not a problem you can prevent. You can only prevent serious complications by treating the patient for shock and transporting him to a hospital for surgery.

a. Prevent shock

Start an intravenous infusion to prevent shock. Use .9% normal saline in dextrose or Ringer's lactate solution. Put the patient in shock position with his legs slightly elevated above his abdomen. Keep the patient warm. Keep the infusion running while the patient is transferred to the hospital. The IV will also keep the patient hydrated. See Patient Care Guide for shock.

b. Refer the patient

While you care for the patient to prevent shock, tell someone else to make arrangements for the immediate transfer of the patient to a hospital.

c. Prevent the spread of infection

Start the patient on antibiotics to prevent the spread of infection

if the appendix ruptures. Give the patient intramuscular penicillin and streptomycin. See Patient Care Guides.

d. Relieve the pain

Do not use a strong pain medicine for the patient with an acute appendicitis. The severity and location of the pain are good diagnostic signs. But you must consider the patient's comfort during referral. Give the patient intramuscular pethidine if the hospital is more than four hours away. See Patient Care Guides.

6.3 INTESTINAL BLOCK

An intestinal block stops the contents of the intestines from passing through the digestive tract. The most common cause of an intestinal block in an adult male is an inguinal hernia. Other intestinal blocks are caused by twisting of the bowel on itself or an abdominal surgical scar. Surgical scars can make the intestine stick to the wall of the abdomen. Intestinal blocks can also be caused by roundworms, hard stool, or a tumor.

The symptoms and signs of an intestinal block can vary, depending on its location. The higher in the intestines the block occurs, the more severe and sudden is the onset of the symptoms and signs. The further down the intestines the block occurs, the more gradual is the onset of the symptoms and signs.

A patient with an intestinal block loses a lot of water and body salts into his digestive tract. He vomits water and body salts and quickly becomes dehydrated.

Clinical Picture

a. Presenting complaint

Adult patients with intestinal blocks most often present with ***severe abdominal pain and vomiting.*** The pain comes in waves or ***spasms.*** Muscular movement of the intestines trying to overcome the block causes this type of pain.

A newborn who vomits within forty-eight hours after birth

probably has a blocked upper intestine. A gradual swelling of the abdomen, absence of stools, and vomiting are signs of a blocked lower intestine in a newborn or infant.

b. Medical history

The onset of an adult's symptoms of an intestinal block may be sudden or gradual. Adults often report having *constipation*. A gradual onset of colicky abdominal pain sometimes occurs, but the onset of the pain is usually more sudden and severe. Vomiting follows. The vomit is usually *yellow-green*, the color of bile. *Green-brown vomit* which smells like stool indicates a block of the large intestines.

c. Physical examination

A patient whose upper intestines are blocked will present with the signs of an acute abdomen. The patient will look *very ill*. He will have great difficulty walking, or will be unable to walk. He will look distressed and anxious and may be unable to talk.

Assess the patient's vital signs. An infection will cause a fever of 38.5°C or higher. Anxiety may increase the patient's respiration rate. The patient often shows signs of *shock and dehydration*.

Look for *surgical scars* on the abdomen. The scar may indicate that an adhesion is causing the block. Trapped air, water, and stool will swell the abdomen.

Percuss the abdomen. Listen for a *high pitched percussion note*. The note sounds as if you were tapping on a drum. Fluid and air which are trapped in the abdomen make this sound.

Auscultate the abdomen. Listen for *increased bowel sounds*. Abdominal muscles cause increased bowel sounds when working to force intestinal contents past the blockage.

Gently palpate the abdomen. Start at the farthest point from where the patient locates his pain. The tenderness is commonly located in one specific area. This is where the block is located. Infection in the abdominal cavity causes *guarding* or *rebound tenderness*.

Always examine male patients for a *hernia in the groin*. A very painful hernia may indicate the cause of the block.

Examine and smell the patient's vomit. Green-brown vomit which smells like stool indicates a block in the large intestine.

Course and Complications

The patient's dehydration becomes worse with vomiting. Severe dehydration and shock occurs. The patient will die unless you replace the water which he lost.

An intestinal block can perforate the intestinal wall. The perforation will spread infection. Patients who have a perforation in their intestinal wall will present with the signs of an acute abdomen.

Without hospital care and surgery, the patient with an intestinal block will die.

Patient Care and Prevention

a. Treat for shock

Start an intravenous infusion. Use .9% normal saline in dextrose or Ringer's lactate solution. Place the patient in the shock position with his legs raised slightly above his abdomen. Keep him warm. Keep the infusion running while the patient is transferred to the hospital. See Patient Care Guides for shock.

b. Treat for dehydration

Do not give a patient with an intestinal block anything by mouth. Treatment for shock will rehydrate the patient.

c. Refer

While you are treating the patient for shock, have someone arrange the immediate transfer of the patient to a hospital.

d. Empty the stomach

Pass a nasogastric tube. Empty the food and fluids from the stomach. Leave the nasogastric tube in place. Empty the stomach contents every fifteen minutes. This prevents vomiting and makes the patient more comfortable.

e. Treat for signs of a perforation in the intestinal wall

A perforation in the intestinal wall will allow the contents of the intestine to flow into the abdominal cavity. Infection will start. Treat the infection. Give the patient intramuscular penicillin and streptomycin. Relieve pain by giving the patient intramuscular pethidine. See the Patient Care Guides for acute abdomen.

REVIEW QUESTIONS

Assessing and Caring for the Patient with an Acute Abdomen

1. What causes acute appendicitis?

2. Acute appendicitis may cause an infection of the abdominal lining. Explain how this happens.

3. Explain how to identify pain caused by acute appendicitis.

4. TRUE (T) or FALSE (F)
   ____ Pain on palpation is usually a sure sign of acute appendicitis.
   ____ Mild fever usually occurs in the early stages of acute appendicitis.
   ____ Involuntary guarding is a sign of inflammation of the abdominal lining.
   ____ Inflammation of the appendix progresses slowly. After two to three weeks, the patient's appendix will rupture.

5. A burst appendix will inflame the abdominal lining. One of two things will then happen. Briefly describe these.

6. A patient comes into the clinic with severe abdominal pain. After a history and physical examination you determine that the patient has a ruptured appendix. How would you manage this situation?

7. When the contents of a person's digestive tract do not pass freely down the tract the person is said to have an intestinal block. What causes such a block?

8. Why does the abdominal pain which accompanies an intestinal block come in waves or spasms?

9. The presence of green-brown vomit which smells like stool is a sign of a blocked:

   ____ Small intestine

   ____ Large intestine

   ____ Anus

10. Without hospital care and surgery, a patient with an intestinal block will die. What can you do to help the patient before he is transferred to a hospital?

11. Which of the following are part of the clinical picture of a patient with an acute abdomen:

    ____ Severe abdominal pain

    ____ A pulse of more than ninety beats per minute

    ____ Pale, cool, and damp skin

12. No patient with an acute abdomen should ever be given a laxative, even if they complain of constipation? Why?

REVIEW EXERCISE

Case Study 27

Name of Patient:	Terrell, Ernest	
Sex:	Male	
Date of Birth:	19 September 1957	
Date of Visit:	12 July 1977	
Vital Signs:	Temperature	37.5°C
	Pulse	86
	Respiration	20
	Blood Pressure	110/80
	Weight	55 kg

Presenting Complaint and Medical History:

The patient complains of pain in his belly and loss of appetite for two days. He has had no bowel movement today and felt nauseated when he woke up this morning. He did not go to work today. About an hour ago he vomited. The material which he threw up was slimy and bitter. He has not eaten any solid food since yesterday. The pain is not very severe. It is not colicky. At first, it was in the middle of the belly. Now it is a little lower down and more on the right.

Past medical history: The patient has had no hospitalizations. He had measles and chicken pox as a child. Last year he passed some roundworms and was treated for it. He has not passed any worms since then.

Physical Examination:

The patient is a well-built, muscular young man who looks distressed. His mucous membranes are pink and his tongue is coated. His breath smells foul. Percussion of his chest causes a resonant note. His breath sounds are clear. He has no murmurs.

Inspection of the abdomen reveals that the abdomen is flat. The percussion note is resonant.

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Bowel sounds may be heard. He has guarding and rebound tenderness in the right lower quadrant. No organs may be felt. The patient also has tenderness on the right side with no masses felt in a rectal examination.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 28

Name of Patient:	Myers, James	
Sex:	Male	
Date of Birth:	23 July 1954	
Date of Visit:	1 June 1982	
Vital Signs:	Temperature	37.3°C
	Pulse	84
	Respiration	28
	Blood Pressure	100/20
	Weight	56 kg

Presenting Complaint and Medical History:	The patient had a sudden onset of vomiting two days ago. He has noticed that the material he has been vomiting is greenish. He says a pain in his belly began about four days ago and has been getting constantly worse. He has not had a bowel movement for the last four days. He also has not passed any gas through his anus for four days. He hasn't experienced any weight loss or fever. Past medical history: The patient was operated on for a stomach ulcer about one year ago. He feels like the ulcer must have returned.
Physical Examination:	The patient is an ill looking man with sunken eyes. His mucous membranes are pink and dry. His tongue is dry and coated. His neck veins are flat. His breath sounds are clear and his heart sounds are normal. Inspection of the abdomen reveals a five inch, vertical scar down the right side of the belly. Percussion of the abdomen reveals a high pitched percussion note. Auscultation of the abdomen reveals that the patient's bowel sounds are very active. No organs may be felt on palpation. No sign of fluid in the abdomen was found. The patient does not guard his abdomen but has generalized tenderness. The abdomen is moderately distended, with no rebound tenderness.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 29

Name of Patient:	Turner, Lani	
Sex:	Female	
Date of Birth:	12 March 1964	
Date of Visit:	3 April 1982	
Vital Signs:	Temperature	37.9°C
	Pulse	96
	Respiration	22
	Blood Pressure	96/60
	Weight	57 kg

Presenting Complaint and Medical History:

The patient has been vomiting for the last twenty-four hours and has had pain in her upper belly for the same amount of time. The pain came suddenly in the upper right side of her belly. She has not been able to eat anything since the pain began and feels sick to her stomach. She says that she had not eaten anything unusual before the attack. The pain is made worse on deep breathing and when she vomits. She feels a little better if she lies down flat.

Past medical history: The patient had two previous episodes in which she had nausea and abdominal pain. The first time she did not vomit. The second time she had some fever and vomited once. These episodes were about six months apart. The first occurred one year ago.

Physical Examination:

The patient is a well developed, intelligent woman who looks tired. Her tongue is dry and coated. Her throat is clear and her sclera are white. Her breath sounds are clear. On deep inspiration, she complains of pain in the right upper quadrant. She does not have a heart murmur. Her abdomen is slightly distended. She has a resonant percussion note. She

experiences pain on deep palpation and rebound tenderness in the right upper quadrant. No organs may be felt and her bowel sounds are decreased.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

SKILL CHECKLIST
Passing a Nasogastric Tube

This checklist has two purposes:

1) Students shoud use it as a guide for checking their own skills or other students' skills.
2) Supervisors should use it when they evaluate how well students can pass a nasogastric tube.

After observing a student, enter a rating in the appropriate column.

Rating: 1 = Inadequate
2 = Needs improvement
3 = Satisfactory
4 = Above average
5 = Excellent

When passing a nasogastric tube:	YES	NO	RATING	COMMENTS
1. Gather these supplies: rubber or plastic nasogastric tube, water soluble lubricant jelly, clamp, towel, basin, glass of water, straw, and a large syringe				
2. Inspect the tube. Make sure it is clean and not blocked				
3. Tell the patient the purpose of this procedure and how it will be done. Help the patient relax. Support him in a semi-reclined or sitting position. Inspect his nose. Choose the side which has the largest opening. Tell the patient that you will pass the tube through that side				

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	YES	NO	RATING	COMMENTS
4. Hold the tip of the tube near the patient's navel. Stretch the tube to the ear and forward to the nose. Place a clamp on the tube at the point where it is next to the nose. When the tube passes through the nose, and the clamp is near the nose, the tip should then be in the stomach				
5. Put some lubricant on the tip of the tube. Inform the patient that you are ready to begin the procedure. Pass the tip of the tube through the side of the nose which has the largest opening				
6. Gently push the tube into the nose until it is in the back of the throat				
7. Ask the patient to swallow. Have him suck some water through a straw, take small sips of water, or simply swallow while you pass the tube down into his stomach				
8. As the patient swallows, quickly advance the tube a short distance. If you are successful, the tube will pass into the esophagus				
9. If the patient chokes, gags, or turns blue, pull the tube out 2 cm to 4 cm. The tube probably passed into the windpipe instead of the esophagus. Wait a minute for the patient to recover. Then try again				

	YES	NO	RATING	COMMENTS
10. Continue to advance the tube a few centimeters each time the patient swallows. When the clamp reaches the nose, the tip of the tube should be inside the stomach				
11. Attach the large syringe to the tube. Place your stethoscope on the patient's abdomen. Push air through the tube while you listen to the abdomen. You should hear the air enter the stomach. If stomach juice comes through the tube, this step is not necessary				
12. Put some water or saline solution into the syringe and flush this through the tube. Then withdraw the fluid. You should withdraw stomach contents when you do this				
13. After you have sucked out the contents of the stomach, you should push some water through the tube to keep the tube cleaned out. Sometimes the material in the stomach must be diluted to be sucked back through the tube				

Unit 7

Anal Problems

STUDENT GUIDE

OBJECTIVES

1. Describe the clinical picture of these anal problems:
   Hemorrhoids
   Anal fissures
2. Describe and recognize the abnormal physical signs of these anal problems.
3. Demonstrate how to interview and examine patients to identify these problems.
4. Provide treatment and care for patients suffering from these anal problems.
5. Counsel patients and family members about home care, medications, and the prevention of these anal problems.

LEARNING ACTIVITIES

1. Listen to an instructor's presentation on the abnormal physical signs of anal problems.
2. Participate in a class discussion of these signs and symptoms.
3. Participate in a class review of the procedures in an anal examination.
4. Work in small groups to take turns role-playing a patient with hemorrhoids or anal fissures, a health worker, or an observer.
5. Practice providing advice to a role-play "patient" about the home care of hemorrhoids and anal fissures.
6. Participate in a class discussion of anal problems and how to care for them.
7. In a clinic or hospital, practice interviewing and examining patients with anal problems, providing care for patients with anal problems, and advising patients about home care.

7.1 HEMORRHOIDS

Hemorrhoids, or piles, occur when veins near the anus become swollen. Two rings of veins are located near the anus. The outer ring is easy to see when it is enlarged. The inner rings is more difficult to see unless it swells and protrudes down through the anus.

Clinical Picture

a. Presenting complaint

A person with hemorrhoids will most often complain of ***pain in his anus.*** The pain grows ***worse when the person passes stool.*** He may notice ***bright red blood*** when he cleans himself after passing stool. The blood is a common sign of internal hemorrhoids.

b. Medical history

Women often develop ***hemorrhoids during pregnancy*** because of congestion in their pelvis. Patients with hemorrhoids complain of ***constipation.*** The hard stool aggravates the problem.

c. Physical examination

Spread the cheeks of the buttocks so you can examine the anus. You may note ***large, bluish blood vessels under the skin.*** Palpate them. Feel for a hard clot of blood inside the vessel.

Course and Complications

Hemorrhoids cause severe itching. The internal hemorrhoid can reach out of the anus. Some patients may push internal hemorrhoids back into the anus. Patients lose blood from their hemorrhoids.

Patient Care

a. Rectal suppository

Give the patient a rectal suppository. The suppository must be inserted into the rectum. It will relieve some pain. Tell the patient to use two to three suppositories daily. See Patient Care Guides.

b. Stool softener

Hard stools make hemorrhoids worse. The patient can soften his stools by taking mineral oil by mouth. Tell the patient to use one to two teaspoons of mineral oil twice a day. Urge the patient to drink extra water.

If the hemorrhoids continue to cause pain and discomfort, refer the patient to the hospital. A doctor may have to remove the hemorrhoids.

7.2 ANAL FISSURES

The mucous membrane of the digestive tract meets the outside skin at the anal opening. Sometimes a deep crack forms in the mucous membrane where it joins the skin. This crack is a fissure. The crack can become infected. Infection makes the anal muscles contract, causing more pain and discomfort.

Clinical Picture

a. Presenting complaint

The common complaint is usually ***severe pain***, especially when ***passing stool***.

b. Medical history

Patients often have a history of severe constipation. They pass very hard stools.

c. Physical examination

Spread the cheeks of the buttocks. Examine the margin of the mucous membrane around the anus. You will see a ***deep crack in the membrane*** if a fissure is present. The crack is often inflamed.

Course and Complications

Anal fissures will not usually heal without treatment. The patient continues to have itching, pain, and discharge until the fissure heals.

Patient Care

Tell the patient to sit in a tub of warm water for thirty minutes three times a day. The patient should apply warm, moist soaks for thirty minutes three times a day if a tub is not available. Soaking relieves spasms in the anal muscle and helps healing of a fissure. It also decreases congestion.

Have the patient take one or two tablespoons of mineral oil twice a day to soften his stool.

Refer the patient to a hospital if the fissures last more than a week. He may need surgery.

REVIEW QUESTIONS
Anal Problems

1. What are hemorrhoids?

2. What are the most common presenting complaints of patients with hemorrhoids?

3. Describe what care you would give a patient with hemorrhoids.

4. What is an annal fissure?
   ____ An anal muscle spasm
   ____ A crack in the anal mucous membrane
   ____ Inflammation of the anal muscles

5. What are the best ways to care for an anal fissure?

REVIEW EXERCISE

Case Study 30

Name of Patient:	Bissett, Henry	
Sex:	Male	
Date of Birth:	16 October 1948	
Date of Visit:	12 May 1981	
Vital Signs:	Temperature	37°C
	Pulse	80
	Respiration	22
	Blood Pressure	130/90
	Weight	85 kg
Presenting Complaint and Medical History:	The patient has had constipation off and on for three years. He has experienced very painful bowel movements. With medicine, he has a bowel movement every three days. His problem seems to be getting worse. He has had blood in his stools for one week. He feels as though something is coming out of his rectum. The patient says he is unable to sit properly.	
Physical Examination:	The patient is an obese man who sits on the edge of his chair in great pain. His tongue is moist and his tonsils are normal. His mucous membranes are pink. His neck veins are not distended. His breath sounds are normal and his heart sounds show a normal rhythm. He does not have a murmur. His abdomen is fatty and soft and non-tender. No organs may be felt on palpation. He has no peripheral edema. An anal examination reveals a large bluish mass extending down through the anus.	

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?

3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

Unit 8

Assessing and Caring for Patients with Gastrointestinal Problems; Skill Development

STUDENT GUIDE

OBJECTIVES

1. Interview and examine patients with gastrointestinal problems.
2. Provide treatment and care for patients diagnosed as having gastrointestinal problems.
3. Counsel patients with gastrointestinal problems and their families about the home care, and prevention of gastrointestinal problems.

LEARNING ACTIVITIES

1. Participate in one and a half days of clinical practice in a hospital ward or outpatient clinic. During that time, you will have the opportunity to:

   Interview and examine patients

   Present a health message

   Provide patient care

2. Participate in two weeks of general skills development practice in a hospital ward or outpatient clinic.

Unit 9

Caring for Patients with Gastrointestinal Problems; Clinical Rotation

STUDENT GUIDE

ENTRY LEVEL

Before starting your clinical experience, you must:

1. Pass a test of your knowledge about gastrointestinal problems with a score of at least 80%.
2. Earn at least two Satisfactory ratings on how you:

   Take and record a medical history of a gastrointestinal problem

   Do the physical examinations for gastrointestinal problems

   Identify the physical signs associated with the gastrointestinal problems

   Counsel patients about gastrointestinal problems

   Present health messages about gastrointestinal problems

OBJECTIVES

1. Diagnose all the gastrointestinal problems described in this module with the help of Diagnostic Guides.
2. Properly record information about medical history, physical examination, and patient care.
3. Provide correct patient care, using the treatments described in this module.
4. Pass a nasogastric tube.
5. Counsel patients about the home care and prevention of gastrointestinal problems.

LEARNING ACTIVITIES

You will provide patient care, under supervision, for one month in a hospital ward or outpatient clinic.

During that time, your supervisor will help you identify and treat patients with gastrointestinal problems. You will be expected to use Diagnostic and Patient Care Guides. You will have the chance to practice the patient care procedures that were introduced in class.

EVALUATION Level II

When you feel that you have had enough experience, ask your supervisor to evaluate you. He will do this using a log book. This log book contains a list of the problems you will work with during your clinical experience. It also shows how many patients with gastrointestinal problems you should see. As your supervisor watches you deal with a problem, he will write his rating in the log book. He will rate you in the following way for diagnosis and patient care.

1 = Diagnosis incorrect
2 = Diagnosis correct, treatment incorrect
3 = Diagnosis and treatment correct, no patient advice given
4 = Diagnosis, treatment, and patient advice correct

You will be expected to get two ratings of 4.

During the clinical experience described in this unit, you will be expected to receive at least two Satsifactory ratings on your skill in passing a nasogastric tube.

Unit 10

Helping a Community Prevent and Care for Gastrointestinal Problems; Community Phase

STUDENT GUIDE

ENTRY LEVEL

Before you start your community experience, you must:

1. Pass a test of your knowledge about gastrointestinal problems with a score of at least 80%.
2. Complete a month of clinical experience in a hospital ward or outpatient clinic.
3. Score two ratings of 4 on diagnosis, treatment and patient counseling.
4. Earn at least two Satisfactory ratings on:

   Your ability to pass a nasogastric tube

   Teaching methods for community health workers

   Presenting community health messages

OBJECTIVES

1. Provide clinical services to people with gastrointestinal problems.
2. Identify infectious gastrointestinal problems and plan a program to prevent them from occurring and spreading.
3. Advise the community about its role in preventing gastrointestinal problems.
4. Identify other members of the health team who can assist in prevention.

LEARNING ACTIVITIES

Your community experience will last three months. During that time, in addition to providing clinical services you should:

1. Survey the community to identify the most common gastrointestinal problems.
2. Identify any local customs that increase or decrease the occurrence of gastrointestinal problems.
3. Hold meetings with community members and obtain their help in preventive activities.
4. Prepare a community health worker to assist you in community education.

EVALUATION Level III

During your community experience, your supervisor will evaluate you. To do this, he will use the standards set out in the log book.

Common Problems

GENITOURINARY

The MEDEX Primary Health Care Series

Common Problems
GENITOURINARY

Student Text

Health Manpower Development Staff
John A. Burns School of Medicine
University of Hawaii, Honolulu, Hawaii, U.S.A.

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TASK ANALYSIS TABLE

Diagnosing, treating, and preventing genitourinary problems.

Work Requirements *DUTIES*	Training Requirements *SKILLS*	 *KNOWLEDGE*
The MLHW will:	The MLHW trainee will show that he is able to:	The MLHW trainee will show that he knows:
1. Take and record the medical history of all patients presenting with a genitourinary complaint	1.1 Record the patient's presenting complaint	
	1.2 Question a patient about his genitourinary problem	1.2.1 How to question a patient about a genitourinary problem
		1.2.2 Information needed to complete the medical history of a patient's genitourinary problem: Colicky pain in the loin or flank Loin or flank pain that radiates to the lower abdomen or groin Burning pain on urination Frequent urination Trouble starting and stopping the flow of urine Need to pass urine during the night Loss of weight Urgency to urinate Recent bacterial infection Feeling of fullness in the bladder Pain in the penis

Work Requirements *DUTIES*	Training Requirements *SKILLS*	 *KNOWLEDGE*
2. Give patients presenting with a genitourinary complaint a physical examination	1.3 Record a patient's medical history	1.3.1 How to use medical history forms
	2.1 Identify and describe these signs of genitourinary problems: Blood in the urine Protein in the urine Swelling of the face and legs Urethral discharge Fever and chills High blood pressure Enlarged and tender bladder Pleural effusion Ascites Pitting edema of the arms and legs Enlarged prostate gland Soft, tender prostate associated with urethral discharge Vaginal discharge Generalized body rash Lesions on the external genitals	2.1.1 The anatomy and physiology of the male and female genito-urinary systems 2.1.2 The definition of common physical signs associated with genitourinary problems
	2.2 Give a physical examination for genitourinary problems and record the findings with special emphasis on: Palpation and percussion of the loin for kidney pain	2.2.1 How to use forms for writing down the findings of a physical examination

Work Requirements *DUTIES*	Training Requirements *SKILLS*	 *KNOWLEDGE*
	Palpation and percussion of the lower abdomen and bladder Examination of the external genitalia Examination of the rectum	
3. Diagnose genitourinary problems: Urinary tract infection Urinary tract stone Nephritis Nephrotic syndrome Enlarged prostate gland Prostatitis Scrotal swelling Gonorrhea Syphilis	3.1 Use the Student Text and Diagnostic Guides to assist in identifying genitourinary problems	3.1.1 The clinical picture of genitourinary problems and the course and complications of the problems
4. Treat and care for patients with genitourinary problems	4.1 Use the Student Text, the Formulary, the Patient Care Procedures, and the Patient Care Guides to decide how to treat patients with genitourinary problems	4.1.1 Where to find reference manuals and how to use them
	4.2 Decide how to treat a patient with genitourinary problems	4.2.1 The correct medical treatment for each genitourinary problem 4.2.2 The properties of drugs and medicines for genitourinary problems

Work Requirements *DUTIES*	Training Requirements *SKILLS*	 *KNOWLEDGE*
		4.2.3 The side effects and contraindications of drugs used in the treatment of genitourinary problems
	4.3 Catheterize patients who cannot pass urine	4.3.1 How to pass a catheter
5. Share with patients ideas on how to prevent and care for genitourinary problems	5.1 Counsel patients about home care, medication, and prevention of genitourinary problems	5.1.1 Recommended home care procedures
		5.1.2 The prescribed drugs and dosage for each genitourinary problem
		5.1.3 How to prevent genitourinary problems
6. Give health workers, patients' families, and others advice on how to care for and prevent genitourinary problems	6.1 Tell a patient's family and community groups about genitourinary problems and how to prevent them	6.1.1 How to tell groups of people about genitourinary problems using various methods to make your message clear
	6.2 Teach community health workers about genitourinary problems	6.2.1 The content of the community health worker modules
	6.3 Contact a health office for assistance	6.3.1 When and how to ask other members of the health team for help

SCHEDULE

Common Problems - GENITOURINARY

DAY 1	DAY 2	DAY 3	DAY 4
Introduction to Genitourinary module Recognizing the signs and symptoms of genitourinary problems History taking and physical examination of a patient with genitourinary problems	Diagnosing urinary tract infections and stones and caring for patients	Diagnosing problems of the prostate and scrotum and caring for patients Enlarged prostate gland Prostatitis Scrotal swelling	Sharing health messages about the prevention and care of diseases spread by sexual contact
Interviewing and examining patients with genitourinary problems	Diagnosing nephritis and nephrotic syndrome and caring for patients	Diagnosing problems spread by sexual contact and caring for patients Gonorrhea Syphilis	Diagnosing genitourinary problems and caring for patients; Clinical practice Group A - Interviewing and examining patients Group B - Presenting health messages Group C - Patient care

DAY 5			
Diagnosing genitourinary problems and caring for patients; Clinical practice: Group A - Patient care Group B - Interviewing and examining patients Group C - Presenting health messages			
Diagnosing genitourinary problems and caring for patients; Clinical practice Group A - Presenting health messages Group B - Patient care Group C - Interviewing and examining patients			
Posttest			

Skill development: two weeks
Clinical rotation: one month
Community phase: three months

Introduction

You already have studied the Anatomy and Physiology, Medical History, and Physical Examination modules. What you learned in these clinical knowledge and skills modules has prepared you for the study of genitourinary problems. So, before you start this module, be sure you know:

The normal anatomy and physiology of the genitourinary system
How to take a medical history
How to give a physical examination
How to present health messages

If you are not sure how well you know this information or can do these procedures, review the clinical knowledge and skills modules before you go on.

Activities in this module will help you learn how to properly diagnose and care for genitourinary problems. These activities will take place in the classroom and in a hospital clinic or health center.

Your schedule shows you when the learning activities will occur. Student Guides in front of each unit tell you more about what you will be expected to do. The units will be taught in order, from Unit 1 to Unit 6. Your teacher will make special arrangements for Units 7, 8, and 9 which will take place in a clinic and a community.

This training program can succeed only if you take an active part. This means you must prepare for each session. Before each session:

Read the Student Text and answer the review questions that go with it

Read Patient Care Guides and study the drugs you will be using

Write down questions to ask your teacher about any part of the lesson you do not understand

The teacher will answer the review questions and any other questions you have in class.

This training program will help you build your knowledge and skills. Regular evaluations will allow your teacher to watch your progress. If

your progress does not meet the standard, you will be given more time to learn the subject. Your teacher will use the clinical and community performance records to measure your progress. Look at these performance records to prepare for your evaluations.

EVALUATION Level I

After five days of classroom and clinical experiences related to the diseases of the genitourinary system, you must be able to pass a written test of knowledge about genitourinary problems with a score of 80% or higher.

After another two weeks of clinical experience, you must receive two satisfactory ratings on your ability to:

Recognize the abnormal physical signs of genitourinary problems

Interview patients about their genitourinary problems

Examine people with complaints of genitourinary problems

Provide patients with advice about the prevention and home care of genitourinary problems

Present health messages about the prevention of diseases spread by sexual contact

EVALUATION Level II

You will have one month of clinical practice. To satisfy the requirements of this clinical evaluation, you must correctly diagnose, treat, and advise two patients for each of these problems:

Urinary tract infections
Urinary tract stones
Nephritis
Nephrotic syndrome
Enlarged prostate gland
Prostatitis
Scrotal swelling
Gonorrhea
Syphilis

During the clinical practice you must also perform each patient care procedure listed on your clinical performance record. You must earn at

least two Satisfactory ratings for each procedure. The patient care procedures listed on your clinical performance record for this module are testing urine for protein and bladder catheterization of males.

EVALUATION Level III

During the three-month community phase of your training, a supervisor will observe your performance and rate your skill in:

- Diagnosis and treatment of patients for each of the genitourinary problems
- Providing patients and their families advice about home care and ways to prevent spread of genitourinary problems spread by sexual contact
- Conducting community meetings to discuss the prevention and care of genitourinary problems
- Training a community health worker to assist with the community health program

The clinical and community performance records list the number of acceptable ratings you must earn for each activity.

Unit 1

Assessing Patients with a Genitourinary Problem

STUDENT GUIDE

OBJECTIVES

1. Describe the abnormal processes occurring in the kidneys, ureter, bladder, urethra, and prostate gland that cause these signs and symptoms of genitourinary problems:

   Blood in the urine
   Protein in the urine
   Swelling of the face and legs
   Urethral discharge
   Fever and chills
   High blood pressure
   Enlarged and tender bladder
   Colicky pain in the loin or flank
   Loin or flank pain that radiates to the lower abdomen or groin
   Burning pain on urination
   Frequent urination
   Trouble starting and stopping the flow of urine
   Need to pass urine during the night
   Loss of weight

2. Describe and demonstrate the history taking and physical examination procedures for a patient who complains of a genitourinary problem.

3. Correctly record the history and physical examination findings of a patient with a genitourinary complaint.

LEARNING ACTIVITIES

1. Participate in a review of the Task Analysis Table that describes your work in caring for patients with genitourinary problems.

2. Review and discuss the anatomy and physiology of the genitourinary system.
3. Discuss the signs and symptoms of genitourinary problems.
4. Observe and comment on a demonstration of the history and physical examination of a patient who complains of a genitourinary problem.
5. Practice taking and recording a medical history during a role-play based on case studies 41, 42, 43, and 44.
6. Practice physical examination procedures for genitourinary problems.

1.1 SIGNS AND SYMPTOMS OF GENITOURINARY PROBLEMS

Review the normal anatomy and physiology of the urinary and genital tracts. The following paragraphs provide a brief discussion of the abnormal processes which can occur in these organs. You must understand the normal process before you learn about the abnormal process.

The Kidneys

The kidneys receive about 20% of the blood which is pumped from the heart. Nearly all of the water passes through the capillaries of the kidneys and into tiny kidney tubes, or tubules. Many of the chemicals which are dissolved in the blood also pass through the walls of the capillaries and into the kidney tubules. This process is the first step in the production of urine.

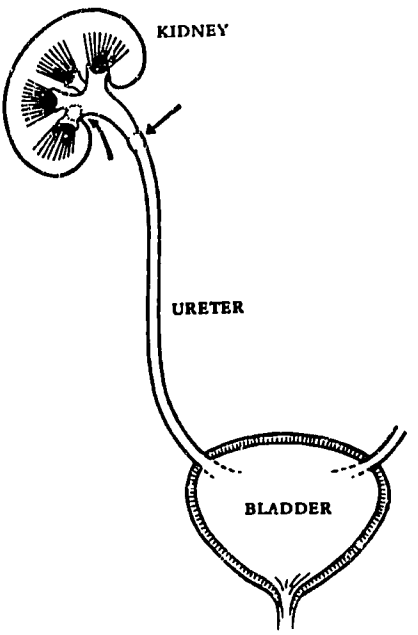
Then, most of the water is reabsorbed into the circulatory system. It passes into the veins within the kidney and back to the heart. Many of the chemicals are also reabsorbed. But waste materials remain in the kidney tubules. In this way, a large volume of blood is cleaned of poisons and waste products.

Most diseases of kidneys interfere with this process. But the kidneys are very efficient. Our bodies can remain healthy with only one half of one kidney at work. For this reason, you will not often see patients with kidney failure. The signs and symptoms of kidney failure are not described here.

The abnormal processes which cause the signs and symptoms of kidney disease are described below:

a. Formation of stones
   The chemicals which are dissolved in the blood pass into the kidney tubules. Sometimes these chemicals form solid crystals in the urine. Day by day, the crystals become larger. They turn into small stones. The stones can grow until they take up a large portion of the kidney. Or, the stones can pass down into the ureters. Sometimes they pass right down through the bladder and out of the urethra. Sometimes, they get stuck and obstruct the

flow of urine. The stones are often sharp. So they cause bleeding when they scratch the lining of the urinary tract. When they get stuck, the muscles of the urinary tract try to force the stones down the tract. This can cause terrible pain referred to as colicky pain.



STONES IN THE URINARY TRACT

b. Infections

The kidneys, like other areas of the body, can become infected. The bacteria may reach the kidneys through the blood stream. Or the infection may start in the bladder and move upward through the ureters. When the kidneys are infected, they become inflamed and swollen. The swelling stretches the membranes around the kidney. This causes a great deal of pain in the area over the kidney referred to as the loin. The infection also causes fever and chills. The bacteria and the pus cells are present in the urine when the kidneys are affected.

c. Inflammation of the kidneys

Kidneys infected with bacteria are swollen and inflamed. The process is exactly like infections in the skin. However, the kidneys can also become inflamed without any bacteria. A kind of allergy known as nephritis causes the inflammation. The tiny kidney tubules become filled with blood cells. The kidney stops making urine properly. When you examine the urine, it contains red blood cells and protein. Urine that contains blood cells is often red or coffee colored. Sometimes the amount of blood cells in the urine is not large enough to change the color.

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d. Loss of protein into the urine

The blood normally contains special blood proteins. Most of these proteins are made by the liver. The kidneys sometimes develop a problem that causes protein from the blood to pass through the kidney and into the urine. The urine thus contains large amounts of blood protein. The liver cannot make protein fast enough to replace the protein that is lost in the urine. This results in a low level of protein in the blood.

One of the important functions of blood protein is to hold water inside the circulatory system. When the level of blood protein falls very low, water leaks out of the capillaries and into the body tissues. This is why people with large amounts of protein in their urine develop swelling of their face and legs. The kidney disease which causes this is called nephrotic syndrome.

When you encounter a person with swelling around his eyes or in his legs, you must think about the blood proteins. They may be spilling into the urine. The patient may have nephrotic syndrome.

The Ureters

The ureters are hollow, muscular tubes which carry urine from the kidneys down to the bladder. They can also carry bacteria from the bladder upward into the kidneys.

The most important abnormal process which involves the ureters is obstruction. Obstruction, or blockage of urine, can occur when a stone moves down from the kidneys into the ureters. When this happens, the muscular walls of the ureters begin to contract. The contractions force the stone downward. But they also cause severe flank pain. The pain is mostly in the back, but it can travel or radiate around to the lower abdomen and into the groin. The pain may be so severe that the patient vomits. Like obstruction in the intestines, obstruction of the ureter causes colicky pain.

The Bladder

The bladder is a sac with thick, muscular walls. Urine made in the kidneys flows down the ureters and gradually fills up the bladder. When the walls of the bladder are stretched by the presence of urine, the nerves in the bladder wall send a signal to the brain. Then the person empties his bladder. There is no pain or discomfort.

The most important disease process which involves the bladder is

bacterial infection. An infection in the lining of the bladder causes tenderness in the lower abdomen. The infection also causes the muscles of the bladder wall to contract. This muscle spasm causes the patient to urinate very frequently. Bacteria and pus cells are present in the urine when the bladder is infected.

Infections in the bladder and urethra are lower urinary tract infections. This distinguishes them from infections in the kidney and ureters which are upper urinary tract infections.

The Urethra

The urethra in women is very short. This is one of the reasons why women have far more bladder infections than men have. The bacteria that cause infection travel up the urethra in order to reach the bladder. When the urethra is inflamed and irritated by infection, the patient will feel burning and pain during urination.

Like the ureters and the bladder, the urethra also has muscular walls. Inflammation and infection in the walls of the urethra irritate the muscles. The irritated muscles cause the patient to urinate very frequently.

Sexually transmitted diseases cause most infections of the male urethra. The infection causes the lining of the urethra to produce a large amount of pus. The pus, a urethral discharge, is an important sign of gonorrhea.

The Prostate

Infection can spread very easily from the urethra upward and into the prostate gland. Often, when patients have inflammation of the urethra, they also have inflammation in the prostate gland.

1.2 TAKING THE MEDICAL HISTORY OF A PATIENT WITH A GENITOURINARY PROBLEM

Ask your patient these questions when you suspect a problem of the genitourinary system.

"Do You Have Any Trouble or Pain When You Urinate?"

An inflammation of the bladder or urethra irritates the mucous membrane lining these organs. Passing urine causes a burning pain.

"How Often Do You Urinate? Do You Feel a Strong Need to Urinate Even When You Do Not Have Much Urine?"

Infection irritates the muscles of the urethra and bladder. The patient feels as if he must urinate very frequently, but he passes very little urine.

"Do You Get Up at Night to Pass Urine? How Often?"

Most people do not get up at night to pass urine. Old men, however, often need to get up once or twice. Patients with diabetes pass a lot of urine.

"Do You Have Any Trouble Starting or Stopping Your Urine?"

Normally, the bladder empties quickly. Only a drop or two remains at the end of urination. The patient who dribbles or wets himself at the end of urination has a problem.

"Do You Have Any Pain in Your Back or Stomach? Can You Describe It?"

The patient with a genitourinary problem may have three types of pain. A kidney infection will give him severe loin pain. A bladder infection will cause lower abdominal pain. A blocked ureter will cause colicky pain in the side, or flank. This pain may radiate into the lower abdomen or groin.

"Have You Noticed the Color of Your Urine? Can You Describe It?"

Urine usually is clear and light yellow. If the patient does not drink enough fluid, the urine may become dark yellow. Urine will be

cloudy during infection. Red or pink urine indicates that fresh blood is present in the urine. A brown or coffee color is a sign of old blood.

"Have You Had Swelling of Your Face, Ankles, or Legs?"

The first sign of kidney disease is puffiness around the eyes in the early morning or swelling of the lower legs.

"Have You Had Any Fever or Chills?"

Infections which involve the genitourinary tract, like infections elsewhere, cause fever and chills.

1.3 ADDITIONAL QUESTIONS FOR MEN

Ask men who you suspect may have a genitourinary tract problem these additional questions.

"Have You Noticed Any Sores on Your Penis?"

The most important sore on the penis is the lesion associated with syphilis.

"Have You Had Any Discharge from Your Penis?"

Healthy males normally have no discharge. An infection in the urethra will produce a white or yellow material which drips from the end of the penis.

"Have You Ever Had a Sexual Disease? Have You Had Intercourse With Anyone Who Might Have an Infection?"

Men who have had a sexually transmitted disease often are reinfected. Always ask about past history of sores or swelling or discharge from the penis.

"Have You Noticed Any Change in the Strength or Size of Your Stream of Urine?"

A man's stream of urine weakens when something blocks his urethra. An enlarged prostate weakens the stream over a period of several years.

1.4 AN ADDITIONAL QUESTION FOR WOMEN

Ask women who you suspect may have a genitourinary tract problem this additional question.

"Have You Had Any Vaginal Discharge?"

Several kinds of infection cause vaginal discharges. Ask the woman whether she has any itching or pain. Ask her the color of her discharge. Ask her how much discharge she has.

1.5 EXAMINING THE PATIENT WITH A GENITOURINARY PROBLEM

Examine every patient who you suspect may have a genitourinary tract problem.

Check General Appearance

Note the patient's sex and apparent age

Note the patient's approximate weight and height. Does he look look undernourished or overweight?

Note any signs of chronic disease or wasting. Many serious kidney kidney problems cause weight loss and other signs of chronic illness.

Note any sign of acute distress. Is the patient in apparent pain or discomfort?

Record Vital Signs

Note the patient's temperature, pulse, and respiratory rate. Take his blood pressure. High blood pressure is a complication of nephritis.

Inspect the Skin

Note the color of the patient's skin. Look for signs of anemia. Note any swelling of the patient's ankles or puffiness around his eyes. Such swelling occurs in patients with nephrotic syndrome.

Examine the Abdomen and Loin

Ask the patient to lie down on his back. Gently palpate his abdomen for any sign of an enlarged kidney. Percuss and palpate above the pubic bones for any sign of an enlarged bladder. Ask the patient to sit. Firmly tap his back over the lower rib cage with your fist. Determine whether this causes pain. Pain in this area, the loin, is an important sign of an inflammation of the kidney.

Examine the Male Genitals

a. Inspect the penis

Inspect the penis. Its skin is normally loose and soft. Look for lumps or sores. Pull the foreskin back from the tip of the penis. The foreskin sometimes sticks tightly to the penis. You may not be able to pull it back. Tell the patient whose foreskin is tight to gently pull it back several times a day until he can pull it completely back. Tell him to wash his penis daily.

b. Palpate the groin

Gently palpate the skin in the groin. Look for signs of swelling. Lymph glands in the groin can grow large and tender when disease infects the genitals or legs.

c. Palpate the scrotum

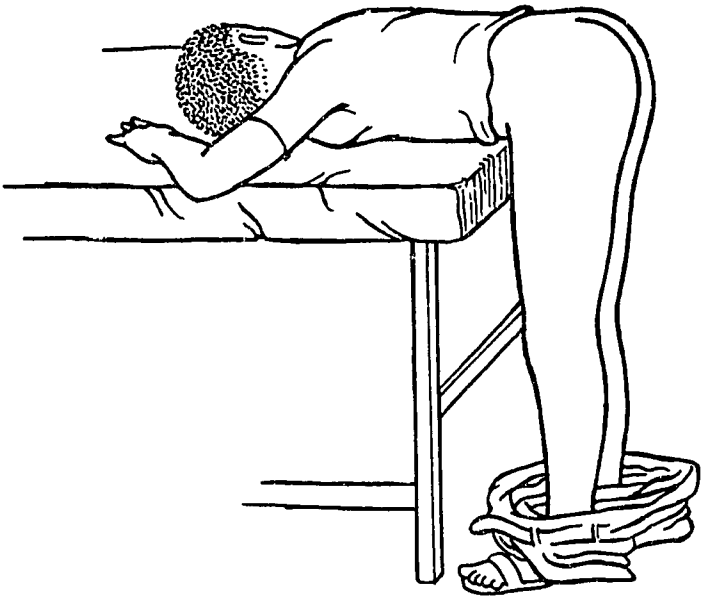
The normal scrotum contains two egg-shaped organs, the testes. Feel them. They should be firm. They should not be tender. Infection swells the testes and makes them very tender.

Palpate and look for any small sacs of fluid inside the scrotum. If you see one, ask the patient whether he has noticed it and whether it has changed. Refer the patient who has a sac which is growing larger to the hospital.

d. Palpate the prostate gland

Give a rectal examination to men who have a urethral discharge, a burning pain on urination, or difficulty in starting or stopping their urinary stream. These signs may indicate an enlarged or infected prostate gland.

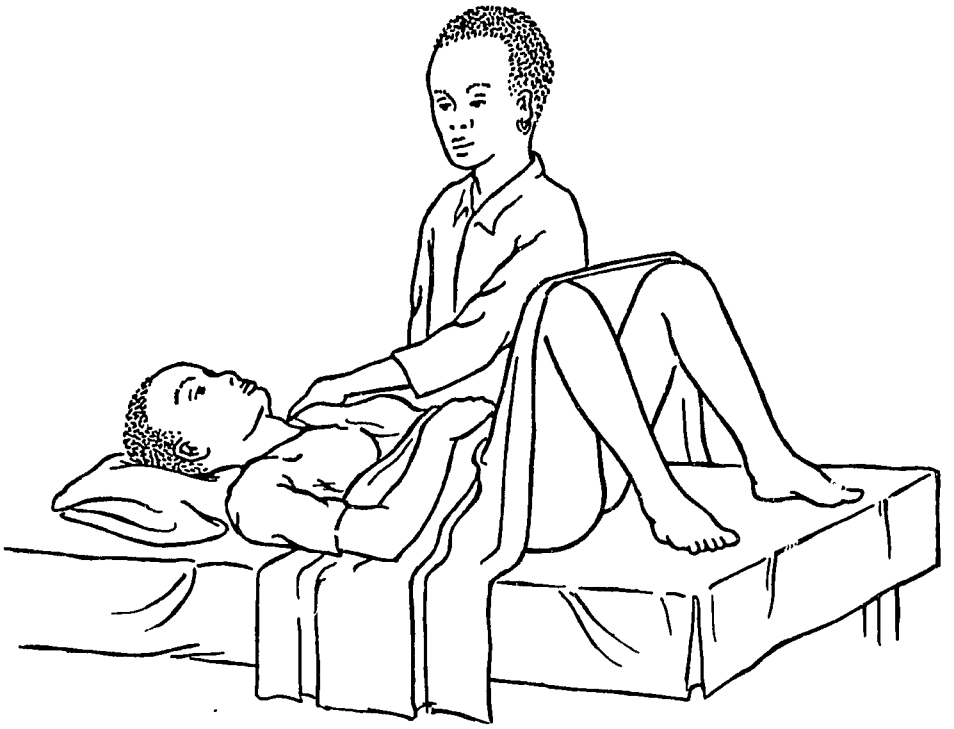
Ask the patient to lean over a table and lower his pants when you are ready to examine his rectum. Put on a glove or finger cot and lubricate it. Then gently push the end of your finger against his anus. Ask the patient to push down as if he were moving his bowels. Your finger should slip smoothly into the rectum.



Feel the prostate gland on the anterior wall of the rectum. Palpate it gently. It should feel smooth and firm. An infected prostate gland will be tender and soft. Check the prostate gland's size. Old men's prostate glands may be larger than normal.

Examine the Female Genitals

Prepare your patient for this examination. Explain your purpose. Ask her to remove her clothes. Give her a sheet to cover herself. Ask her to lie on the examining table on her back. Use a good source of light.



Examine the labia on either side of the vagina. Spread the labia apart. Inspect the urethral opening. Check for pink mucous membranes. Look for any inflammation or redness.

The small glands in the inner folds of skin around the vagina sometimes become infected, swollen, and tender. Note any vaginal discharge. Look for signs of skin rashes on the skin surrounding the vaginal opening.

REVIEW QUESTIONS
Assessing Patients with Genitourinary Problems

1 Patients with stones in their urinary tract will often complain of severe colicky pain in the flank. Explain why stones cause this pain.

2. Blood in the urine is a common sign of urinary tract stones. Describe how stones cause bloody urine.

3. An infected kidney will cause loin pain. Describe other signs or symptoms of an infected kidney that are common to all infections.

4. If the kidneys become inflamed without infection, as in nephritis, you should expect to see changes in the patient's urine. Describe the urine of a patient with nephritis.

5. Patients with nephrotic syndrome have protein in their urine. This protein is normally found in the blood. Lack of protein in the blood causes another sign of nephrotic syndrome. Name this sign and describe how it occurs.

6. Explain why patients with bladder infections complain of the need to urinate frequently.

7. Why does a bladder infection cause pain during urination?

8. The location of a genitourinary tract pain can help you identify the cause of the problem. Fill in the location of pain caused by each genitourinary problem.

PROBLEM	LOCATION OF PAIN
a. Kidney infection	a.
b. Bladder infection	b.
c. Stone in the ureter	c.

9. Blood does not always change the color of normal urine from clear yellow to red or pink. What other color of urine can indicate blood? Why?

10. The important steps in the physical examination procedure for patients with genitourinary problems are given below. After each major step, fill in at least one abnormal finding that could indicate a genitourinary problem.

EXAMINATION PROCEDURE	ABNORMAL FINDING
a. Check the general appearance	a.
b. Record the vital signs	b.
c. Inspect the skin	c.
d. Examine the abdomen	d.
e. Examine the genitals	e.
f. Palpate the prostate gland	f.

Unit 2
Urinary Tract Infections and Stones

STUDENT GUIDE

OBJECTIVES

1. Describe the signs of:
   Urinary tract infections
   Urinary tract stones
2. Describe how complications of urinary tract diseases can block the urinary tract and cause infections.
3. Interview and examine patients to identify these signs and symptoms of urinary tract infections and stones:
   Burning pain on urination
   Frequent urination
   Urgency to urinate
   Colicky pain in the loin or flank
   Loin or flank pain that radiates to the lower abdomen or groin
   Enlarged and tender bladder
4. Treat and care for patients suffering from urinary tract problems.
5. Tell patients and their families how to care for urinary tract problems at home.

LEARNING ACTIVITIES

1. Review the text discussions of urinary tract infection and stones.
2. Practice the interview and examination procedures in the classroom using case studies for role-play.
3. Complete history and physical examination records during case study role-play.
4. Write patient care recommendations using the Formulary and Diagnostic and Patient Care Guides for reference.
5. In a clinic, observe and practice how to interview, examine, and care for patients with urinary tract infections and stones.

2.1 URINARY TRACT INFECTION

Urinary tract infections usually occur when an abnormal amount of bacteria invade the urinary tract. Many kinds of bacteria can cause urinary tract infections. Bacteria from stool, however, cause most urinary tract infections. The bacteria from stool enter the urinary tract when stool touches the urethral opening. Because a woman's urethra is very short and close to the anus, urinary tract infections are more common in women than in men.

Most urinary tract infections involve the bladder and urethra. These are called lower urinary tract infections. Upper urinary tract infections involve the ureters and kidneys and usually are complications of lower urinary tract infections.

CLINICAL PICTURE

a. Presenting complaint

Your patient will most often be a woman. The woman complains of a *burning pain* while *passing urine*. She must *pass urine often*, as soon as she feels the urge. Children with urinary tract infections usually *cry when passing urine*.

b. Medical history

The patient may have had other urinary tract infections before this complaint. Women often develop urinary tract infections during pregnancy. She may now complain of pain or burning while passing urine. An urgent need to urinate and frequent urination are common symptoms. The patient often reports that her urine is cloudy. Children may have a history of bedwetting, dripping urine, wetting their pants, fever, or vomiting.

c. Physical examination

Palpate the lower abdomen. The patient may feel *tenderness* when you palpate *over the bladder*. Examine women's external genitals. Look for vaginal discharge. A vaginal infection may cause symptoms of itching and pain when urine contacts the inflamed vaginal mucosa.

Urinary tract infections are not common in men. When you see a urinary tract infection in men, suspect some kind of urinary tract block. Examine the prostate gland of men who have signs of urinary tract infection. The prostate gland may be enlarged and may block the flow of urine.

Course and Complications

Urinary tract infections frequently recur. The symptoms of urinary tract infection clear up with adequate treatment. The infection returns if there is no treatment or if the treatment did not completely cure the infection. Infections that recur can spread up the urinary tract and involve the kidneys. Kidney infections cause high fever, severe chills, and backache. Patients with kidney infections may have blood in their urine. They may complain of tenderness when you palpate or percuss the kidneys. Suspect diabetes if the patient has had repeated infections of the urinary tract. Check his urine for sugar.

Patient Care and Prevention

a. Increase the flow of urine

The patient should drink at least one glass of liquid every hour to increase the flow of urine and remove bacteria from the urinary tract. A person who has recovered from a lower urinary tract infection should continue to drink more liquids. Increasing the flow of urine may help prevent infection.

b. Give oral sulfadimidine

Give sulfadimidine for ten days. See Patient Care Guides. Allergic reactions can occur. Allergic reactions include rash, itching, pain in the joints, or fever. Warn the patient to stop the drug and return to the clinic if these symptoms develop. Start the patient on an antibiotic such as tetracycline when any of these reactions occur. See Patient Care Guides.

c. Avoid sources of infection

Tell the patient that daily bathing and clean clothing will lower the amount of bacteria on the body. Tell women to wipe or wash themselves from front to back after urinating or passing stool. Mothers should tell their children not to sit in dirt. Children should bathe every day and clean themselves well after passing stool.

d. Refer the patient if signs continue

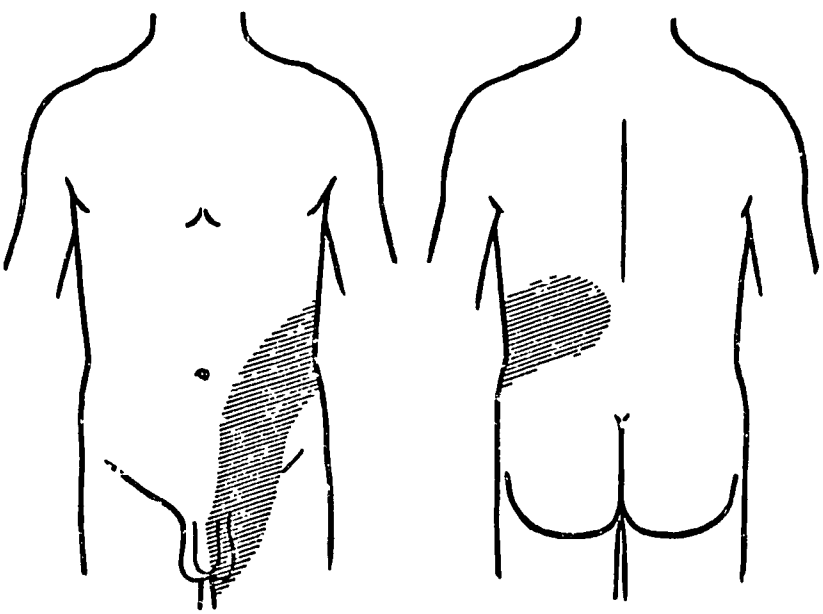
Refer patients with signs of urinary tract infection that involve the ureters and kidneys if the signs remain after one course of treatment.

Refer patients with repeated infections or suspected urinary tract blocks.

2.2 STONES IN THE URINARY TRACT

Stones can form in the kidneys, ureters, or the bladder. Sometimes a stone passes through the system. Many times, the patient with stones in his urinary tract has no complaint because the stones are very small.

Why stones form in the urinary tract is not completely understood. A person with a urinary tract infection has a greater chance of developing stones. Drinking too little water, especially in a hot climate, can also increase the risk of stones. Some families have a higher incidence of stones than others.



Clinical Findings

a. Presenting complaint

A patient with a stone in the narrow passages of his urinary tract will complain of ***sudden, severe pain.*** The location of the pain depends on the location of the stone. Stones in the kidney cause ***severe colicky pain*** in the ***loins*** between the lower rib and the backbone. A stone in the ureter will cause pain that ***radiates across the flank*** into the ***lower abdomen*** or ***groin.*** Stones in the urethra may cause ***pain*** in the ***penis*** or ***vagina.***

b. Medical history

The patient may have had urinary tract stones before. He may have symptoms of a urinary tract infection. He may have ***blood*** in his ***urine,*** since stones can damage the lining of the urinary tract and cause bleeding.

c. Physical examination

Locate the patient's area of tenderness. ***Tenderness in the loins*** between the lower ribs and the backbone may indicate stones in the urinary tract.

Severe pain may cause shock. Examine the patient for cold, clammy, and moist skin.

Check the patient's urine for signs of blood. Blood usually is present in the urine when the patient has stones in his urinary tract.

Course and Complications

Stones will often pass through the urinary tract after the patient drinks a lot of fluid. Relief of pain will reduce muscle spasms and help the stones to pass down the tract.

Urinary tract stones can block the flow of urine. A stone in the ureters will block urine above the stone. The ureters and the collecting system of the kidneys may stretch. The kidney can be destroyed by this stretching if it continues for months.

Patient Care

Urge the patient to drink three or four liters of water per day to help the stone pass and prevent new stones.

Give the patient pethidine every four hours for pain. Relieving pain will reduce muscle spasms caused by the stone. If the muscle spasms are relieved, the stone can move through the urinary tract.

Refer the patient to a hospital if severe pain continues after he takes his pethidine. If the pain can be controlled, observe him for forty-eight hours. The stone may pass down the urinary tract when the patient drinks a lot of fluid. If the pain stops, the stone has moved to another part of the urinary tract or out through the urethra.

Some urinary tract stones require surgical removal.

REVIEW QUESTIONS
Urinary Tract Infections and Stones

1. List the common symptoms of urinary tract infections.

2. Why are urinary tract infections more common in women than men?

3. A woman complains of fever, painful urination, loin pain, and frequency of urination. You suspect an upper urinary tract infection. What care would you give this patient?

4. What good personal health and diet habits help reduce the occurrence of urinary tract infections?

5. What physical examination procedure will give you important information about the severity of a patient's urinary tract problem? What examination procedure would you use and what information would you obtain?

   a. Procedure:

   b. Physical finding:

6. Some patients have repeated urinary tract infections because they have had no treatment or inadequate treatment. What is the danger to a patient who suffers repeated urinary tract infections?

7. A woman comes to the clinic complaining of a body rash that itches. You remember treating her for a urinary tract infection two days earlier. What is a likely cause of her itching skin rash? What care will you give this patient?

8. Several factors seem to increase a person's chance of developing urinary tract stones. Name two of these factors.

   a.

   b.

9. Describe the onset, location, and type of pain associated with stones in the kidney or ureter.

   Onset of pain:

   Location of pain:

   Type of pain:

10. Urinary tract stones can block urine flow. What problems can blocked urine flow create?

11. You advise a patient with stones in his urinary tract to drink three to four liters of water per day as part of his care. He is more likely to drink this amount of water if you tell him how it will help him. What would you tell the patient?

12. Describe what care you would give a patient with urinary tract stones.

13. You diagnose a bladder infection in a three-year-old child. The child weighs 12 kg. Use your Patient Care Guides and Formulary to answer these questions.

    a. What drug do you prescribe?

    b. What dosage and duration of treatment do you recommend?

    c. What instructions do you give the mother?

REVIEW EXERCISE

Case Study 41

Name of Patient:	Bonnet, Sarah	
Sex:	Female	
Date of Birth:	20 January 1963	
Date of Visit:	13 March 1982	
Vital Signs:	Temperature	39°C
	Pulse	94
	Respirations	20
	Blood pressure	120/80
	Weight	52 kg
Presenting Complaint and Medical History:	The patient has had severe back pains for five days. She says the pain is located in the left side of her back. She points to the area below the last rib. The pain is dull and aching. The pain started suddenly five days ago. It seems to be getting worse. The patient also explains that she has had a fever for five days. She says she feels a burning pain when she urinates. She was treated in the hospital after a similar attack last year.	
Physical Examination:	This young woman looks ill and seems to be in pain. Her mucous membranes are pink. Her tongue is moist. Her tonsils are not inflamed. Her breath sounds are normal. No heart murmurs were heard. She has slight tenderness on deep palpation over her pubic bones. She complains of tenderness in her left loin upon percussion.	

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?

3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

Unit 3

Kidney Problems

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of:
   - Nephritis
   - Nephrotic syndrome
2. Describe the complications of nephritis and nephrotic syndrome.
3. Interview and examine patients to identify these signs and symptoms of nephritis and nephrotic syndrome:
   - Blood in urine
   - Swelling of the face and legs
   - Recent bacterial infection
   - Low grade fever
   - Protein in the urine
   - Pleural effusion
   - Ascites
   - High blood pressure
   - Pitting edema of the arms and legs
4. Test urine for protein.
5. Treat and care for patients suffering from nephritis and nephrotic syndrome.
6. Tell patients and their families how to care for nephritis or nephrotic syndrome at home.

LEARNING ACTIVITIES

1. Join the teacher and class in discussions about nephritis and nephrotic syndrome.
2. Watch a demonstration of the procedure for identifying protein in urine. Practice the procedure using the skill checklist as a guide.

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3. Practice interview and examination procedures in the classroom during role-play of case studies 42 and 43.
4. Complete the history and physical examination records during the role-play of case studies 42 and 43.
5. Talk with a person suffering from chronic nephrotic syndrome. Discuss how his life is changed by this illness.
6. Write patient care recommendations using the Patient Care Guides for reference.
7. In a clinic, observe and practice how to interview, examine, and care for patients with nephritis and nephrotic syndrome.

3.1 NEPHRITIS

Acute nephritis is an inflammation of the kidneys caused by an allergic reaction to certain bacteria. Nephritis develops suddenly about two weeks after bacterial tonsillitis or a skin infection such as impetigo. The inflamed kidneys lead to blood in the urine.

Nephritis most frequently occurs in children who have not reached puberty. The disease usually clears up without permanent kidney damage.

Clinical Picture

a. Presenting complaint

The patient often notices that he is *passing red* or *brown urine.* The action of urine on blood cells turns the urine brown.

b. Medical history

The patient usually will have a *recent history* of *bacterial infection.* Snake bite, drugs, and chemicals can also cause nephritis.

The patient may have a slight fever and feel very tired. He often has a headache. He may notice that he is *passing less urine* than *usual.* His *eyelids* may be *swollen* in the morning.

c. Physical examination

A patient with nephritis will have *blood* and some *protein* in his *urine.* The urine often looks red or brown and cloudy. He might have a low fever. His *eyelids* may be *puffy.* Nephritis *increases* the *blood pressure.* Suspect nephritis in any child who has blood in his urine and high blood pressure.

Course and Complications

Serious cases of nephritis can cause heart failure, a rapid heart and respiratory rate, swelling of the ankles, and congestion in the lungs. Acute complications of nephritis include the effects of very high blood pressure on the brain. These effects include drowsiness, mental confusion, and coma.

Eighty to ninety percent of patients with acute nephritis recover without permanent kidney damage. Some patients will die of kidney

failure or heart failure. Some patients will develop signs of chronic inflammation of their kidneys.

PATIENT CARE

Refer patients with suspected nephritis to the hospital.

PREVENTION

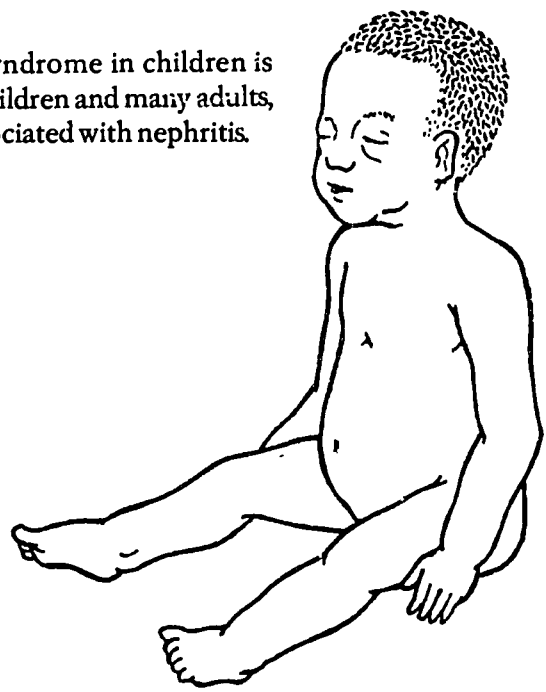
Early treatment of a sore throat and impetigo will help prevent nephritis.

3.2 NEPHROTIC SYNDROME

Nephrotic syndrome is a condition in which the kidneys are damaged. Large amounts of protein pass out of the body in the urine. The amount of protein in the blood falls very low.

As a result, water leaks out of the blood vessels and into the body tissues. The person's arms, legs, and face swell. Water also leaks into the chest cavity, causing a pleural effusion, and into the abdominal cavity, causing ascites.

The cause of nephrotic syndrome in children is rarely known. In some children and many adults, nephrotic syndrome is associated with nephritis.



Clinical Picture

a. Presenting complaint

The patient may have noticed some *swelling around* his *eyes* in the *morning*. The swelling grows during the next few days. The *legs*, *arms*, and *face swell*.

b. Medical history

Nephrotic syndrome most commonly develops in *children younger than three*. It often follows an upper respiratory infection. Older children and adults may have signs and symptoms of some other disease. Fluid in the abdomen and chest may cause difficulty breathing. Free fluid in the abdomen, ascites, will make the abdomen tense and full. The patient loses his appetite.

c. Physical examination

Look for *pitting edema* in the *arms* and *legs*. Examine the chest for signs of *pleural effusion*. Examine the abdomen for signs of *ascites*. Test the urine for protein. Patients with nephrotic syndrome will have a large amount of *protein in their urine*. However, blood will not usually appear in the urine of a patient with nephrotic syndrome. The blood pressure should not be high unless nephritis is also present.

Course and Complications

Most children recover without complications. However, children with signs of nephritis often develop a chronic problem. Nephrotic syndrome is serious in adults, especially if blood is in the urine or blood pressure is high. Infection occurs very easily in patients with nephrotic syndrome. Infections can quickly lead to death.

Patient Care

Look for any signs of infection such as pneumonia. Treat any infection quickly. See Patient Care Guides.

Refer nephrotic syndrome patients to the hospital. Urge the patient to eat food that has little salt but lots of protein. Milk, eggs, meat, and grains contain protein.

REVIEW QUESTIONS
Kidney Problems

1. A six-year-old boy comes to your clinic. His mother says he has a fever. She says his urine looks re ⅄. She notes that he is usually healthy but that about six weeks ago he had a severe skin infection. The infection improved without treatment. You note swelling of the eyelids.

   a. What problem do you suspect?

   b. Should you refer the child?

2. Nephritis is a serious inflammation of the kidneys. Nephritis can occur following a bacterial infection. Give two examples of bacterial infections associated with nephritis.

3. A person of any age can suffer from nephritis. At what age is nephritis most common?

4. The signs of nephritis are caused by inflammation of the kidneys. Explain the link between an earlier skin infection and nephritis.

5. In serious cases of nephritis, the patient will have signs of another serious illness. Name this illness.

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6. Generalized body swelling is a major sign of nephrotic syndrome. Swelling occurs when body fluid normally contained in the circulatory system moves into the body tissues. Explain the role of the kidneys in this process.

7. Describe the physical examination findings that are common in a person with nephrotic syndrome.

   Temperature:

   Urine:

   Blood pressure:

   General appearance:

   Chest examination:

   Abdominal examination:

8. You have diagnosed nephrotic syndrome in a patient but cannot arrange to transfer the patient to the hospital for two weeks. What is your patient care plan during that time?

9. Nephrotic syndrome is a serious disease that can become chronic. Your patient has a history of chronic nephrotic syndrome. What complication of this disease is a constant threat to the health of this patient?

10. Swelling is a physical examination finding associated with kidney disease. Patients with other diseases also develop signs of swelling.

Match the diseases listed below with the physical signs for that disease.

____ Nephrotic syndrome

____ Nephritis

____ Heart failure

1. Bloody urine, swelling of the face, and low grade fever
2. Protein in the urine, generalized swelling
3. Heart murmur, pitting ankle swelling

REVIEW EXERCISE

Case Study 42

Name of Patient:	Williams, Joseph	
Sex:	Male	
Date of Birth:	20 June 1972	
Date of Visit:	10 March 1982	
Vital Signs:	Temperature	38.2°C
	Pulse	110
	Respirations	26
	Blood pressure	105/70
	Weight	25 kg
Presenting Complaint and Medical History:	The mother reports that her child's eyelids have been swollen for the last five days. Today she noticed that his ankles are swollen. The child complains of a headache. He has a fever. His mother reports a normal delivery. The child had no illnesses in infancy. He had measles at the age of five. He has also had scabies. Family history: Joseph is the oldest of three children. The others are alive and well.	
Physical Examination:	The child appears ill and listless. His face is puffy, especially around the eyes. His mucous membranes are pink. His tongue is coated. No glands were felt in his neck. His tonsils are not inflamed. His legs and buttocks show signs of recent sores. His chest is resonant on percussion and his breath sounds are normal. His heart rate is rapid. No murmurs were heard. His abdomen protrudes slightly. His bowel sounds are normal. No free fluid is present in his abdomen. No enlarged organs were felt. His genitals are normal.	

Study the information given above, then answer these questions.

1. What is the diagnosis?

2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 43

Name of Patient:	McAdams, Jo	
Sex:	Female	
Date of Birth:	13 January 1976	
Date of Visit:	14 February 1982	
Urine:	Protein +++	
Vital Signs:	Temperature	37°C
	Pulse	85
	Respirations	28
	Blood pressure	105/70
	Weight	22 kg
Presenting Complaint and Medical History:	The patient's ankles have been swollen for about one month. For the past ten days she has noticed that she runs short of breath when she exercises. The swelling of her ankles and her shortness of breath seems to be worsening. Her mother says she has not had a fever or lost her appetite recently. She has no other complaints. Several years ago she was admitted to a hospital because her face was swollen and she had a fever. She stayed in the hospital for about three weeks. She felt fine afterwards.	

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Physical Examination: The patient is pale and she has rapid respirations. Her mucous membranes are pink. Her tongue is clean and her throat is not inflamed. She has no enlarged glands. A chest examination revealed decreased movement of the right lower chest and dullness to percussion in the same area. No breath sounds are present in the area of dullness. Her left chest is normal. Her heart rate is rapid. No murmurs were heard. Her abdomen is slightly distended and she has signs of shifting dullness. No organs were palpable. Examination of her arms and legs revealed pitting edema half way up both legs. Both hands are swollen.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

SKILL CHECKLIST
Testing Urine for Protein

This checklist has two purposes:

1) Students should use it as a guide for checking their own skills or other students' skills.
2) Supervisors should use it when they evaluate how well students test urine for protein.

After observing a student, enter a rating in the appropriate column.

Rating: 1 = Inadequate
2 = Needs improvement
3 = Satisfactory
4 = Above average
5 = Excellent

When testing urine for protein, you should:	YES	NO	RATING	COMMENTS
1. Obtain test paper				
2. Carefully read directions for using the test paper				
3. Collect urine in a jar or tube				
4. Dip a piece of test paper into the urine and note the paper's change of color. The color will tell you how much protein is present in the urine				
5. Use + signs to record how much protein is present in the urine. More than one + sign means a greater amount of protein is present. The scale ranges from small amounts (+) to great amounts (++++)				

Unit 4

Problems of the Prostate and Scrotum

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of:
   - Enlarged prostate
   - Prostatitis
   - Scrotal swelling
2. Describe the complications of an enlarged prostate, prostatitis, and scrotal swelling.
3. Interview and examine patients to identify the signs and symptoms of an enlarged prostate, prostatitis, and scrotal swelling:
   - Trouble starting and stopping the flow of urine
   - Feeling of fullness in the bladder
   - Need to urinate at night
   - Enlarged bladder
   - Enlarged prostate gland
   - Pain in the penis
   - Soft, tender prostate associated with urethral discharge
4. Catheterize the bladder of a man who is unable to pass urine.
5. Provide treatment and care for patients suffering from an enlarged prostate, prostatitis, and scrotal swelling.
6. Tell patients and their families how to care for an enlarged prostate, prostatitis, and scrotal swelling.

LEARNING ACTIVITIES

1. Students and instructor discuss prostate and scrotal problems.

2. Instructor uses a manikin to demonstrate catheterization. Students practice the procedure.
3. Identify the signs and symptoms of prostate and scrotal problems in role-play using case studies 44, 45, and 46.
4. Write patient care recommendations for the case study problems using the Patient Care Guides for reference.
5. In a clinic, observe and practice how to interview, examine, and care for patients with prostate problems and scrotal swellings.

4.1 ENLARGED PROSTATE GLAND

Many times, a man's prostate gland will grow larger as he grows older. An enlarged prostate gland constricts the urethra and blocks the flow of urine. A prostate gland grows slowly during the course of many years. A man often does not realize his prostate gland is constricting his urethra until the blockage becomes severe.

Clinical Picture

a. Presenting complaint

Early in the course of an enlarged prostate gland's effects on a man's urethra, the man will complain that he cannot start his urine stream or that he *dribbles* and *wets himself* at the *end of urination.* He will often complain that his *bladder constantly feels full.* He may complain that he *cannot pass any urine.* He will say he is in great pain.

b. Medical history

Men in their forties and fifties begin to develop symptoms of an enlarged prostate. They notice the urine *stream* is *less forceful* and the *stream* is *smaller.* The man must get up at night to urinate once or twice. Because his bladder does not empty completely, stale urine increases his risk of urinary tract infection. The patient with a urinary tract infection may complain of burning pain during urination.

The bladder remains full of urine in severe cases of an enlarged prostate. Small amounts of urine flow through the urethra when the pressure of urine is great enough to pass the block. However, the bladder remains full. The man will *continually dribble urine* because of the urine overflow.

c. Physical examination

Palpate and percuss the lower abdomen for an *enlarged bladder.* Examine the rectum. Palpate the prostate gland. You will usually find the *prostate* gland rubbery, smooth, and *larger than normal.*

The prostate gland sometimes enlarges only in the area surrounding the urethra. The prostate gland may be blocking the urethra even though the prostate does not feel enlarged during a rectal examination. Palpate the abdomen for enlarged kidneys. In severe cases of an enlarged prostate, urine can dilate the ureters and kidneys.

Course and Complications

When the prostate gland blocks the flow of urine, the bladder gradually becomes larger. The ureters stretch. The urine backs up into the kidneys. The pressure can destroy the kidneys.

Patient Care

If the patient has early signs of an enlarged prostate and has no urinary tract infection, tell him how the problem gradually worsens. Explain that he will eventually require surgery. Tell him to return to the clinic if he develops a urinary tract infection or if any of the signs and symptoms become worse.

Refer any patient with an enlarged prostate to the hospital for surgery if he has a urinary tract infection or trouble starting his stream of urine, or if he is constantly wetting himself.

Tell a patient whose bladder is distended and who cannot pass any urine to sit in a warm tub at the health center and then to try to urinate again. If he still cannot pass urine, catheterize his bladder.

When you catheterize a patient, slowly remove 1,000 cc of urine. Never remove more than 1,000 cc of urine at one time. When the bladder has been very dilated, removing more than 1,000 cc of urine at one time can cause shock.

4.2 PROSTATITIS

Clinical Picture

a. Presenting complaint

The prostate gland in men of any age can become infected. Patients with bacterial infection in their prostate gland will complain of *pain* at the *base* of the *penis*, and in the surrounding muscles between the penis and the anus. They often feel a burning pain and frequently urinate.

b. Medical history

The patient with prostatitis may have a history of gonorrhea and urinary tract infection which can lead to infection in the prostate gland.

c. Physical examination

Examine the *prostate gland*. It will be very *soft* and very *tender*. If you press on the prostate, it will cause a *discharge from* the *penis*.

Course and Complications

Acute prostatitis may develop into a chronic problem. Infection in the prostate gland increases the chance of urinary tract infection.

Patient Care

Give the patient with acute infection of the prostate gland a course of tetracycline for two weeks. Encourage him to drink extra fluids and rest. See Patient Care Guides.

Give the patient with chronic prostatitis a course of tetracycline. In addition, massage his prostate gland vigorously once a week until the gland feels firm and is no longer tender. Massaging the prostate will help drain the gland of small areas of pus.

4.3 SCROTAL SWELLING

Males of any age may suffer scrotal swelling. The swelling may be caused by a collection of fluid in sacs surrounding the testes. It may be caused by a loop of intestines slipping into the scrotum. This is called a hernia. The swelling may be the result of an injury. Infection in scrotal structures may also cause swelling.

Clinical Picture

a. Presenting complaint

A patient with scrotal swelling will complain of ***swelling*** in his groin or ***scrotum***. He may complain of pain.

b. Medical history

The ***swelling may come and go or it may gradually increase.***

c. Physical examination

You will notice that the ***scrotum*** is ***enlarged***. The swelling may be firm or soft.

Course and Complications

The most common complication is caused by swelling due to hernias. A small loop of intestine can become caught in the scrotum. Sometimes the intestine's blood supply is cut off. The patient will die unless an operation corrects his problem.

Patient Care

Refer all patients with scrotal swelling to a hospital.

REVIEW QUESTIONS
Problems of the Prostate and Scrotum

1. What group of men most commonly suffer enlarged prostates?

2. The enlarged prostate narrows the urethra and can block urine flow. The urine left in the bladder is easily infected. What additional complication can occur if the blockage is not relieved?

3. A seventy-year old man arrives at the clinic complaining about his inability to control his urine. He says he dribbles urine onto his clothing. He complains of always feeling that his bladder is full. The bladder is palpable at 2 cm above the pubic bone after urination. What is the likely diagnosis?

4. What is your recommended treatment for a patient with an enlarged prostate who also has signs and symptoms of urinary tract infection?

5. When a patient comes to the clinic because of an enlarged prostate, what symptoms will he describe?

6. Describe your physical examination findings for a patient with advanced prostaste enlargement.

   Palpation and percussion of the bladder:

   Palpation of the prostate:

7. An enlarged prostate is a problem that gradually worsens and will require surgery. Explain how you decide when a person needs to be referred.

8. Catheterization is a simple procedure for emptying the bladder of urine. When you catheterize a patient, you must avoid damaging the tissues or causing shock. What three rules should you follow to avoid injuring your patient?

   a.

   b.

   c.

9. Describe the presenting complaint of a man with prostatitis.

10. Describe the physical examination procedure and the findings that will help you diagnose prostatitis.

11. How would you treat a patient with prostatitis?

12. How would you treat a patient with a scrotal swelling?

REVIEW EXERCISE

Case Study 44

Name of Patient:	Courtney, M. James	
Sex:	Male	
Date of Birth:	12 January 1919	
Date of Visit:	29 December 1981	
Vital Signs:	Temperature	37°C
	Pulse	72
	Respirations	22
	Blood pressure	160/90
	Weight	65 kg
Presenting Complaint and Medical History:	This man has been unable to pass urine for the last six hours. He has had some trouble passing urine for the last two years. He says that he has to strain to make it come. He has no complaints of burning pain. He has not noticed blood in his urine. He gets up about four times during a night to pass urine and passes urine about six times during the day.	
	Past medical history: The patient has no history of high blood pressure or diabetes. He has not been hospitalized. He denies that he has had any discharge from the urethra or any history of sexually transmitted diseases.	
Physical Examination:	This man is in distress. He paces up and down and is restless. His mucous membranes are pink and healthy. His tongue is moist. He shows no sign of dehydration. His breath sounds are normal. His heart sounds are normal. No murmurs are heard. The liver, spleen, and kidneys are not enlarged. He has signs of a mid-line mass in the lower abdomen on palpation. Rectal examination reveals a firm and enlarged prostate gland.	

Study the information given above, then answer these questions.

1. What is the diagnosis?

2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 45

Name of Patient:	Rudolf, James	
Sex:	Male	
Date of Birth:	1 April 1926	
Date of Visit:	14 January 1982	
Vital Signs:	Temperature	37°C
	Pulse	75
	Respirations	18
	Blood pressure	140/85
	Weight	77 kg
Presenting Complaint and Medical History:	The patient has had a swelling in the left side of his scrotum for six months. Since the patient noticed the swelling six months ago, it has been growing larger. It does not cause any pain. He has no urinary complaints. The patient has a good appetite, he sleeps well, and passes stool regularly.	
Physical Examination:	This patient is a healthy looking adult male. His mucous membranes are pink. Nothing abnormal	

was found during a chest examination. His heart sounds are normal. No masses or organs were felt in his abdomen. The left side of his scrotum looks larger than the right side. The swelling is oval and non-tender. His testicles feel normal.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 46

Name of Patient:	Samuels, Collin	
Sex:	Male	
Date of Birth:	13 November 1967	
Date of Visit:	15 March 1982	
Vital Signs:	Temperature	37.5°C
	Pulse	96
	Respirations	28
	Blood pressure	110/80
	Weight	40 kg
Presenting Complaint and Medical History:	While playing soccer, the patient was kicked in the scrotum. The pain has grown worse over the last twelve hours. He has vomited. No other symptoms	

are apparent. The patient says he has never had sexual intercourse.

Past medical history: The patient has no history of burning or frequency of urination or urethral discharge.

Physical Examination: The examination is normal except for the genitourinary examination. The left side of the scrotum appears larger than the right side. On palpation, the entire left testicle feels swollen and very tender. Some inflammation is evident on the left side of the scrotum. The right testicle is of normal size.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

SKILL CHECKLIST
Catheterizing the Bladder of a Male

This checklist has two purposes:

1) Students should use it as a guide for checking their own skills or other students' skills.
2) Supervisors should use it when they evaluate how well students catheterize a man's bladder.

After observing a student, enter a rating in the appropriate column.

Rating: 1 = Inadequate
2 = Needs improvement
3 = Satisfactory
4 = Above average
5 = Excellent

When catheterizing the bladder of a male, you should:	YES	NO	RATING	COMMENTS
1. Collect equipment and materials				
2. Sterilize the catheter and clamp				
3. Explain the procedure to the patient				
4. Position and drape the patient				
5. Wash your hands thoroughly and put on sterile gloves				
6. Expose and clean the tip of the penis				
7. Insert the catheter. Do not try to force the catheter past any block				
8. Maintain the sterility of the catheter				
9. Collect no more than 1,000 cc of urine				
10. Remove the catheter				

Unit 5

Problems Spread by Sexual Contact

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of:
   Gonorrhea
   Syphilis
2. Describe the complications of gonorrhea and syphilis.
3. Interview and examine patients to identify these signs and symptoms of gonorrhea and syphilis:
   Burning pain during urination
   Urethral discharge
   Vaginal discharge
   Generalized body rash
   Lesions on the external genitals
4. Provide treatment and care for patients suffering from gonorrhea and syphilis.
5. Tell patients how gonorrhea and syphilis are spread and how to avoid getting these diseases.

LEARNING ACTIVITIES

1. Before class, discuss with a friend or neighbor how widespread sexually transmitted diseases are and how to decrease the number of times these diseases occur in the community. Note the reactions of the other person to discussing this problem and be prepared to share your experience with class members.
2. Listen to a presentation by the instructor on gonorrhea and syphilis. Join the instructor and class in a discussion of these problems.

3. Review the case studies that are provided in the unit, then complete the patient care section for each of the case studies.
4. In small groups, role-play the patient education discussion following your diagnosis of gonorrhea or syphilis.

5.1 GONORRHEA

Gonorrhea is a very common bacterial infection which spreads from person to person through sexual intercourse. The symptoms develop from two to eight days after sexual intercourse with an infected partner.

CLINICAL PICTURE

a. Presenting complaint

Men with gonorrhea will complain of pain or ***burning*** on ***urination*** and a ***white discharge*** from the ***penis***. After several days, the pain in the penis becomes worse, the discharge becomes yellow, and the volume of discharge increases.

Women sometimes develop a ***discharge*** from their ***vagina***. They may have ***pain during intercourse*** and ***irritation*** in the ***vulva*** caused by the discharge. More often, however, the woman has no symptoms.

b. Medical history

Ask the patient about ***recent sexual intercourse***. Ask the patient whether he has ever had similar infections before. Ask a woman about any history of vaginal discharge or lower abdominal pain. Ask whether she is using any contraceptives.

c. Physical examination

Examine a ***male*** patient's penis. Check the color and consistency of any discharge from the penis. The ***gonorrheal discharge*** is ***thick*** and ***yellow***. It may include some blood. A ***female's discharge*** may be ***white*** or ***yellow***. Her cervix may be inflamed.

Other sexually transmitted diseases may occur with gonorrhea. These can cause ***swelling*** and ***tenderness*** of the ***lymph glands*** in the ***groin*** or lesions on the genitals. Look carefully at the genitals for signs of skin lesions and enlarged lymph glands which may be caused by syphilis.

Course and Complications

Gonorrhea can cause a chronic urethral infection if it is not treated. Scar tissue can block a man's flow of urine. Gonorrhea can also cause infection in the testicles or prostate gland.

A gonorrheal infection in a woman can reach her fallopian tubes and cause an infection or abscess in her pelvis. A gonorrheal infection can scar the fallopian tubes and lead to a tubal pregnancy or block the fallopian tube and cause sterility.

Patient Care

Penicillin often cures the patient. However, if the patient is allergic to penicillin, use tetracycline. See Patient Care Guides. Check the patient after three or four days. Refer patients whose symptoms continue after treatment. Also refer any patient with signs or symptoms of complications.

Prevention

Gonorrheal infections are difficult to control. Sexual partners often do not protect themselves from the disease. For example, men often do not use condoms although condoms could prevent them from giving or receiving an infection from their partner.

Prevention of gonorrhea depends on protection from the bacteria. A man should always wear a condom when he has sexual intercourse with a partner who may be infected. Treat both the man and his sexual partner if either person is infected. Treat women even if they do not have symptoms.

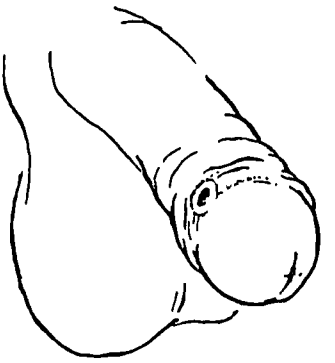
5.2 SYPHILIS

Syphilis is a bacterial infection which spreads through sexual contact. People often ignore the early signs and symptoms of syphilis. Frequently they do not know that they have the disease. Complications can affect the heart or the brain twenty years after a syphilis infection if the syphilis is not diagnosed and treated.

Clinical Picture

a. Presenting complaint

The earliest symptom of syphilis is a ***small, painless sore.*** In ***males,*** the sore is often on the ***penis.*** In ***females,*** it may be on the ***external genitals*** or in the ***vagina.*** The ***sore*** can also be ***on the lips*** or ***breasts*** of either sex.



b. Medical history

The early syphilis sore is a chancre. The chancre develops within three months of contact with an infected person. The chancre does not hurt. Patients may ignore it. The chancre may be inside the vagina. The female may not know that she has the infection. The chancre heals by itself. After the chancre heals, the patient usually develops a generalized rash. Both men and women may have a history of ***painless, enlarged lymph glands*** in the ***groin.***

c. Physical examination

Look for chancres, ***painless sores*** with ***rolled edges.*** A syphilis rash can look like the rash of almost any other skin disease. The ***rash*** often occurs on the palms of the hands and the soles of the feet. The lesions may be ***flat, raised,*** or ***papular.*** Examine the ***groin*** for ***enlarged lymph glands.***

Course and Complications

Syphilis bacteria spread very easily during the early stages of the disease. Signs and symptoms of the disease disappear, but bacteria remain in the body. The bacteria can attack the brain, heart, bones, and other organs. The patient may develop symptoms of heart disease or mental illness two years to twenty years later. No treatment can help the person with these late complications.

Patient Care

Give the patient with a chancre an injection of benzathine penicillin. See Patient Care Guides. Refer any patient you suspect has a late stage of syphilis to the hospital for evaluation.

Prevention

Syphilis is not usually diagnosed in its early, infectious stage. You must, therefore, locate and treat all the patient's sexual partners so they do not spread the disease.

REVIEW QUESTIONS
Problems Spread by Sexual Contact

1. Describe the usual complaint of a male patient with gonorrhea.

2. Explain why many women who have gonorrhea do not seek treatment.

3. Gonorrhea that is not treated can cause chronic genitourinary tract infections. What complications of chronic infections occur?

   In men:

   In women:

4. What advice should you give patients to decrease their chances of becoming infected with gonorrhea or syphilis?

5. What is the drug of choice, recommended dosage, and course of treatment for gonorrhea and syphilis infections?

   Gonorrhea:

   Syphilis:

6. What drug should be used to treat gonorrhea and syphilis if the patient is allergic to penicillin?

7. What abnormal physical examination findings are most common in a man with gonorrhea?

8. Syphilis is not often diagnosed in its early stages because patients ignore or do not notice chancres. Another sign of the disease might bring the patient to your clinic for treatment after the chancre has healed.

   a. Describe this late sign of syphilis.

   b. Why is this sign of syphilis often missed?

9. Syphilis that is not treated in its early stages will often cause problems many years later. What is the treatment for syphilis in its late stages?

REVIEW EXERCISE

Case Study 48

Name of Patient:	Gibb, Aubrey	
Sex:	Male	
Date of Birth:	6 March 1957	
Date of Visit:	17 March 1982	
Vital Signs:	Temperature	37.5°C
	Pulse	76
	Respirations	13
	Blood pressure	120/80
	Weight	62 kg

Presenting Complaint and Medical History: This man complains of a small sore on his penis. He noticed the sore about one week ago. The sore has been draining a small amount of clear fluid. He has no discharge from his urethra and does not complain of burning or frequency of urination.

When questioned about his sexual contacts, the patient explained that he occasionally has sex with women he meets at the social club.

Past medical history: He has been treated for urethral discharge in the past, but has never had a sore like this on his penis.

Physical Examination: The patient appears healthy. His mucous membranes are pink. His throat is clear. His chest sounds are normal. His heart sounds are normal. No enlarged organs were identified during an abdominal examination. A small raised lesion with some clear discharge coming from the center is on the penis. The lesion is about 1 cm across. The patient has several enlarged and firm lymph glands in the right groin. They are not tender.

Study the information given above, then answer these questions.

1. What is the diagnosis?

2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

REVIEW EXERCISE

Case Study 49

Name of Patient:	Ellis, Albert	
Sex:	Male	
Date of Birth:	29 December 1957	
Date of Visit:	31 January 1982	
Vital Signs:	Temperature	36.5°C
	Pulse	80
	Respirations	14
	Blood pressure	90/60
	Weight	56 kg
Presenting Complaint and Medical History:	The patient says he has felt pain in the right testicle for three days. He had a discharge from his urethra last week. He visited the health center and received a shot. The discharge cleared. He started feeling pain in his right testicle about three days ago. The pain has been growing steadily worse. The pain is worse when he walks. He has been feeling feverish. He does not complain of burning or frequency of urination.	

Past medical history: He reports no previous history of urethral discharge or pain in his testicles. He has no recollection of trauma to his genitals.

Physical Examination: This man appears healthy. His mucous membranes are pink. His tongue is moist. His tonsils are not enlarged. His breath sounds are normal. His heart sounds are normal. His abdomen is soft. He has no sign of enlarged organs. No abdominal masses were felt. Examination of his genitals reveals a swollen, warm, and tender right testicle. The left testicle feels normal. No lesions were seen on the penis. No discharge comes from the urethra.

Study the information given above, then answer these questions.

1. What is the diagnosis?
2. What information in the case study was most helpful to you when you made your diagnosis?
3. Was any information missing from the case study that would have helped you make the diagnosis?
4. How would you treat this patient?
5. What advice would you give this patient?

Unit 6

Sharing Health Messages about the Prevention and Care of Diseases Spread by Sexual Contact

STUDENT GUIDE

OBJECTIVES

1. Describe some of the social and cultural factors that cause diseases spread by sexual contact in a community.
2. Decide which community groups might benefit from health messages about diseases spread by sexual contact.
3. Identify health messages about diseases spread by sexual contact that you would share with a community.
4. Choose a method of sharing health messages about diseases spread by sexual contact that is appropriate for an audience you have selected.
5. Share health messages about the prevention and care of diseases spread by sexual contact with patients and the community.

LEARNING ACTIVITIES

1. Join in small group and class discussions about the social and cultural factors which cause diseases spread by sexual contact. Also, discuss health messages related to these diseases that you would share with patients and the community.
2. Work in a small group to develop a presentation or discussion on diseases spread by sexual contact.
3. Join a presentation of your group's work.
4. Join a class discussion of the groups' presentations.
5. Practice sharing health messages about the prevention and care of diseases spread by sexual contact during your clinical practice.

6.1 SHARING INFORMATION ABOUT DISEASES SPREAD BY SEXUAL CONTACT

Diseases spread by sexual contact are difficult to control. Many people do not like to talk about their sexual activities. They will not go to a health center even when they suspect they have a disease spread by sexual contact. Other people may not know that they have a problem. Some people may not be aware of the complications of these diseases. They will not seek care even when they know they have a problem. Many people do not take measures which could protect them from such diseases. All of these factors make control of these diseases difficult.

Telling patients and the community about diseases spread by sexual contact can help control the problem. People will recognize the symptoms and signs of these diseases. They will know how the diseases spread to partners. They will know the complications of these diseases. They will know how to prevent them.

Use more than one teaching method to share these health messages with the community.

Preparing to Share Your Health Messages

Learn about why sexual diseases occur in a community before you speak to people about them. The sexual diseases may occur because prostitution is an accepted activity in the community. Men may stay away from the community in search of work and bring back sexual diseases from distant places. These are the kinds of social and cultural factors you should understand before making plans to share health messages on sexual diseases with a community.

What social and cultural factors cause diseases spread by sexual contact in a community you know? List three of these factors here.

a.

b.

c.

Once you know these factors, you can decide what health messages would suit the problem. Then you can begin thinking about what methods you might use to share these health messages.

Who would you want to share health messages with? List your ideas here.

a.

b.

c.

d.

Now list which health messages on diseases spread by sexual contact you would want to share with these people:

a.

b.

c.

d.

Now you have an idea of what health messages you want to share and who you want to share them with. You can begin thinking about the methods of sharing health messages you would like to use.

Methods of Sharing Health Messages

Study the information you have listed so far. Consider these when you decide what methods of sharing health messages you might use. List your ideas here.

Methods of Sharing Health Messages

a.

b.

c.

d.

One method of sharing health messages on diseases spread by sexual contact usually will not be enough. Using two or more methods is more likely to be useful.

Following are some brief discussions about possible methods of sharing health messages about diseases spread by sexual contact. You may have already listed some of these methods. If not, add them to your list and think about how you might use them.

Talk with Patients

Talking with your patients may be the easiest and most direct way of sharing health messages. You can share health messages with patients who present with a disease spread by sexual contact. For example, you can tell the patient that his recent sexual contacts should be reached and treated. You can tell him that even though his contacts may not have symptoms, they could still have the disease. The patient's help in reaching his sexual partners is very important. You may tell the patient of the complications of the disease which he has avoided by seeking care.

Can you think of other health messages that may be shared with the patient? List your ideas here.

a.

b.

c.

Talk with Groups

Every community usually has groups with whom you could share health messages about diseases spread by sexual contact. These groups might be a mother's club, farmer's club, men's club, or service club. These groups could be very helpful in spreading information about these diseases.

Select your health message to fit the people you talk to. For example, a woman may be interested in learning that a woman who has a disease spread by sexual contact may not show any symptoms of the disease during its early stages.

You could also tell women that sexual diseases during pregnancy and delivery of a child may cause serious problems for the mother and the newborn. A child may be born with gonococcal conjunctivitis which can cause blindness. Or the child may be born with syphilis which can cause serious illness and retardation.

You could tell men's groups about the benefits of using a condom as protection against gonorrhea and syphilis. This kind of health message would be best suited for a community where prostitution is accepted. You could also tell men's groups about the serious complications of sexual diseases.

Are there any other health messages that you would share with community groups? List your ideas here.

a.

b.

c.

d.

Sharing Health Messages in the School

Another way to share health messages about sexual diseases is through the school. Work with teachers. Include information about diseases spread by sexual contact in one of the school classes. Students would learn about such diseases and pass the information to friends and families.

What health messages would you share with students? List your ideas here.

a.

b.

c.

d.

Using Local Media, Your Own Written Information, and Visual Aids

You may use local radio and news services as well as your own written information and visual aids to share health messages about diseases spread by sexual contact. A small story in a newspaper or newsletter will pass on important information to many people. You could also write some short announcements that could be read over a radio station.

Written information and posters about sexual diseases may be used at a health center and other places where people in the community meet. Keep your health messages simple and to the point. Consider social and cultural factors which cause the spread of these diseases.

What health messages could you share through visual aids and written information? List your ideas here.

a.

b.

c.

d.

There are several ways you can share health messages about the prevention and care of diseases spread by sexual contact. The ways

you choose will depend on what is available in your community, the extent of the problem in your community, the social and cultural factors which affect the spread of these diseases, the groups that would benefit from health messages, and the health messages that you want to share.

Whatever method you choose, begin by outlining your health messages. Keep your message simple and suited for the group. Keep in mind the social and cultural factors which cause diseases spread by sexual contact. When your health messages are outlined, build your presentation around them. When you have shared the health messages, find out whether the audience understood. Ask questions or have people repeat the health messages.

REVIEW QUESTIONS

Sharing Health Messages About the Prevention and Care of Diseases Spread by Sexual Contact

1. Explain why diseases spread by sexual contact are difficult to control.

2. Describe two health messages you could share with a patient who presents with symptoms of a disease spread by sexual contact.

3. You should pick your health messages to suit your audience. Describe some messages on diseases spread by sexual contact that would best suit certain groups.

4. Health messages about diseases spread by sexual contact may be shared with patients and the community many ways. Briefly describe four of these ways.

5. How should you begin to prepare a presentation or discussion to share health messages with the community?

6. List at least six important health messages related to diseases spread by sexual contact that you would share with the community.

   a.

   b.

   c.

   d.

   e.

   f.

SKILL CHECKLIST

Sharing Health Messages About the Prevention and Care of Diseases Spread by Sexual Contact

This checklist has two purposes:

1) Students should use it as a guide for checking their own skills or other students' skills.
2) Supervisors should use it when they evaluate how well students share health messages about diseases spread by sexual contact.

After observing a student, enter a rating in the appropriate column.

Rating: 1 = Inadequate
2 = Needs improvement
3 = Satisfactory
4 = Above average
5 = Excellent

When sharing health messages about diseases spread by sexual contact, you should:	YES	NO	RATING	COMMENTS
1. Learn about the social and cultural factors which cause diseases spread by sexual contact in the community				
2. Select an audience with which you would share health messages about diseases spread by sexual contact				
3. Outline health messages that would be suited for this audience				
4. Choose a method of sharing these health messages with the audience you have selected				
5. Decide whether the audience understood the messages by asking them questions or by having them repeat the messages to others				

Unit 7

Diagnosing Genitourinary Problems and Caring for Patients; Skill Development

STUDENT GUIDE

OBJECTIVES

1. Take medical histories, examine patients, and diagnose diseases of the genitourinary tract.
2. Recognize and identify the physical signs of genitourinary problems listed on the Clinical Performance Records Evaluation Level I.
3. Analyze urine for protein and catheterize male patients.
4. Advise patients and families about the home care and prevention of genitourinary tract diseases.

LEARNING ACTIVITIES

1. Participate in one and a half days of clinical practice in a hospital ward or outpatient clinic. During that time, you will have the opportunity to:

   Interview and examine patients

   Provide patient care and practice patient care procedures for analyzing urine samples and catheterizing male patients

   Deliver health messages to patients and their families

2. Participate in two weeks of general skills development practice in a hospital ward or outpatient clinic.

Unit 8

Caring for Patients with Genitourinary Problems; Clinical Rotation

STUDENT GUIDE

ENTRY LEVEL

Before starting your clinical experience, you must:

1. Pass a test of your knowledge about genitourinary problems with a score of 80% or higher.
2. Earn at least two Satisfactory ratings on how you:

   Recognize and identify the abnormal physical signs associated with genitourinary problems

   Take a medical history of a genitourinary problem

   Do the physical examination for a genitourinary problem

   Give patient education for genitourinary problems

   Present health messages about genitourinary problems

OBJECTIVES

1. Diagnose all the genitourinary problems described in this module.
2. Record information about medical history, physical examination, and patient care.
3. Provide correct patient care using the treatments described in this module and in the Patient Care Guides.
4. Advise patients and their families about the home care and prevention of genitourinary problems.
5. Properly perform the patient care procedures for analyzing urine for protein and bladder catheterization.

LEARNING ACTIVITIES

1. You will provide patient care, under supervision, for one month in a hospital ward or outpatient clinic.
2. During your clinical practice, your supervisor will help you identify and treat patients with genitourinary problems. You will be expected to use the Diagnostic and Patient Care Guides to correctly identify problems and care for patients.
3. During the clinical rotation, you will also practice the Patient Care Procedures introduced in the class.

EVALUATION Level II

When you feel that you have had enough experience, ask your supervisor to evaluate you. He will use a log book to guide him during the evaluation. This log book contains a list of the problems that you will see in the hospital or outpatient clinic. It also shows how many patients with genitourinary problems you should see. His log book contains the same information as your clinical experience log. He will only evaluate you on those problems that are contained in the log. As your supervisor watches you deal with problems, he will write his rating in the log book. He will rate you and he will also comment on your performance if it is not satisfactory.

The supervisor will use the following rating scale to evaluate your performance:

1 = Diagnosis incorrect
2 = Diagnosis correct, treatment incorrect
3 = Diagnosis and treatment correct, but no patient advice given
4 = Diagnosis, treatment, and patient advice correct

You will be expected to get two ratings of 4.

You will be expected to get two Satisfactory ratings for your skill in testing urine for protein and in catheterizing the bladder of a male.

Unit 9

Helping a Community Prevent and Care for Genitourinary Problems; Community Phase

STUDENT GUIDE

ENTRY LEVEL

Before you start your community experience, you must:

1. Score at least 80% on a test of your knowledge about genitourinary problems.
2. Complete four to six weeks of clinical experience in a hospital or outpatient clinic.
3. Score 4 on diagnosis, treatment, and patient advising for each of the problems.
4. Earn Satisfactory ratings on patient care skills.
5. Earn Satisfactory ratings on methods for teaching community health workers.
6. Earn Satisfactory ratings for presenting community health messages.

OBJECTIVES

1. Provide clinical services to people who suffer from genitourinary problems.
2. Determine whether gonorrhea and syphilis are problems in the community and, if needed, plan a program to decrease the occurrence of these diseases.
3. Advise the community about its role in preventing diseases that are spread by sexual contact.
4. Identify other members of the health team or interested community members who can assist in prevention programs.

LEARNING ACTIVITIES

Your community experience will last three months. During that time, in addition to providing clinical care for patients with genitourinary problems, you should:

1. Survey the community to identify the most common genitourinary problems.
2. Identify any local customs that increase or decrease the occurrence of infectious genitourinary problems.
3. Meet with community members to obtain their help in preventive activities.
4. Prepare a community health worker to assist you in community education.

EVALUATION Level III

During your community experience, your supervisor will evaluate you. To do this, he will use the standards set out in the Community Experience Log Book.