

MID-LEVEL
HEALTH WORKER
TRAINING MODULES

GENERAL
CLINICAL:

PH 444-912

Common Problems
INFECTIOUS DISEASES

UNIVERSITY OF HAWAII JOHN A. BURNS SCHOOL OF MEDICINE
DR. TERENCE A. ROGERS, DEAN

The Health Manpower Development Staff 1978-83

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SUNIL MEHRA, B. A.

Evaluation

ROBERT W. MACK, M. D., M. P. H.

Project Coordinators

MARIAN DE WALT MORGAN, B. A., M. A., M. P. H.
ROSEMARY A. DESANNA, B. S., M. P. H.

Production

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RICHARD D. MUNRO-McNEILL, B. A.
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Guyana

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EDWARD MARGULIES, M. D., M. P. H.

Principal Program Collaborators

Pakistan

DR. MUSHTAQ A. CHAUDHARY, DEPUTY DIRECTOR
GENERAL, MINISTRY OF HEALTH, ISLAMABAD
DR. NAZIR-UL-HAQUE, NWFP
DR. ZAHUR A. KHAN, BALUCHISTAN
DR. NISAR A. SIDDIQUI, SIND
DR. KHALID M. SULARI, PUNJAB

Lesotho

M. T. THABANE, PERMANENT SECRETARY
MINISTRY OF HEALTH, MASERU
NTHUNSE T. BOROTHO, R. N., B. S., M. P. H.
CHIEF PLANNING OFFICER
MINISTRY OF HEALTH, MASERU
NTSIENG RANKHETHOA, P. H. N., N. C.

Guyana

FRANK M. W. WILLIAMS, M. B. B. S., M. R. C. P.
DIRECTOR, MEDEX PROGRAM, GEORGETOWN
JAMES J. ROSE, M. B. B. S.
HUGH F. OLDER, M. B. B. S.
MELISSA HUMPHREY, ADMINISTRATOR
SASENARINE SINGH, NURSE DISPENSER, Mx.
YVETTE THOMAS-MOORE, P. H. N., Mx.

MEDEX Network Staff

University of Washington

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WILLIAM B. CALLEN, M. S., B. M. E., Ph. D.
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University of North Dakota

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MERRILL M. SHUTT, M. D., M. P. H.

The MEDEX Primary Health Care Series

Common Problems
INFECTIOUS
DISEASES

Student Text

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

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4

TABLE OF CONTENTS

TASK ANALYSIS TABLE	7
SCHEDULE	12
INTRODUCTION	15

UNIT 1

Assessing a Patient with an Infectious Disease

Student Guide	18
Signs and Symptoms of Infectious Diseases	20
Taking a Medical History of the Patient with an Infectious Disease	27
Examining the Patient with an Infectious Disease	29
Review Questions	33

UNIT 2

Infectious Diseases Commonly Spread Through the Soil or Water

Student Guide	39
Typhoid Fever	40
Tetanus in Children and Adults	42
Review Questions	46
Review Exercise	48

UNIT 3

Infectious Diseases Commonly Spread by Animals or Insects

Student Guide	50
Rabies	51
Malaria	53
Louse-Borne Typhus	59
Review Questions	62

6 INFECTIOUS DISEASES

Review Exercise	65
Skill Checklist	67

UNIT 4

Infectious Diseases Commonly Spread from Person to Person

Student Guide	70
Meningitis	71
Diphtheria	75
Leprosy	76
Review Questions	84
Review Exercises	87

UNIT 5

Sharing Health Messages about Leprosy

Student Guide	90
Sharing Health Messages about Leprosy	92
Review Exercise	98
Skill Checklist	99

UNIT 6

*Assessing and Caring for Patients with Infectious Diseases
Skill Development*

Student Guide	100
---------------	-----

UNIT 7

Caring for Patients with Infectious Diseases, Clinical Rotation

Student Guide	101
---------------	-----

UNIT 8

*Helping a Community to Prevent and Care for Infectious
Diseases, Community Phase*

Student Guide	103
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<p style="text-align: center;">Work Requirements</p> <p style="text-align: center;"><i>DUTIES</i></p>	<p style="text-align: center;">Training Requirements</p>	
	<p style="text-align: center;"><i>SKILLS</i></p>	<p style="text-align: center;"><i>KNOWLEDGE</i></p>
<p>2. Give a physical examination to the patient with an infectious disease</p>	<p>2.1 Identify the signs of infectious diseases listed in Level 1 of the clinical performance record:</p> <p>High, constant fever Up and down pattern of fever Step ladder pattern of fever Low pulse rate and high fever Convulsions Neck stiffness Leg response when neck is bent Tight or bulging anterior fontanelle Rigid smile Throat spasms Bright red throat with gray membrane covering the tonsils and pharynx Unusually large, swollen lymph glands on both sides of the neck Enlarged and tender spleen Light colored skin patch with loss of sensation Loss of sensation in the hands and feet Enlarged and tender nerves Flat, red rash on the abdomen Very red face</p>	<p>2.1.1 The anatomy and physiology of the skin, skull, brain, eyes, throat, neck, abdomen, and nervous system</p> <p>2.1.2 The definition of common signs associated with infectious diseases</p>

Work Requirements DUTIES	Training Requirements	
	SKILLS	KNOWLEDGE
<p>3. Diagnose infectious diseases: Typhoid fever Tetanus in children and adults Rabies Malaria Louse-borne typhus Meningitis Diphtheria Leprosy</p> <p>4. Treat and care for patients with infectious diseases</p>	<p>Bright red, inflamed conjunctivae Jaundice Abdominal swelling and tenderness</p> <p>2.2 Give a physical examination for infectious diseases and record the findings</p> <p>3.1 Use the Student Text and Diagnostic Guides to identify infectious diseases</p> <p>4.1 Use the Student Text, the Formulary, the Patient Care Procedures, and the Patient Care Guides to treat patients with infectious diseases</p> <p>4.2 Decide how to treat a patient with an infectious disease</p>	<p>2.2.1 How to use forms for recording the findings of a physical examination</p> <p>3.1.1 The clinical picture of infectious diseases and the course and complications of the diseases</p> <p>4.1.1 Where to find reference manuals and how to use them</p> <p>4.2.1 The correct medical treatment for each common infectious disease</p>

Work Requirements DUTIES	Training Requirements	
	SKILLS	KNOWLEDGE
<p>5. Share with patients ideas on how to care for and prevent infectious diseases</p> <p>6. Advise health workers, patients' families, and others about the care and prevention of infectious diseases</p>	<p>4.3 Prepare blood smears for diagnosis of malaria</p> <p>5.1 Counsel patients about the care and prevention of infectious diseases</p> <p>6.1 Tell a patient's family and community groups about infectious diseases and how to prevent them</p>	<p>4.2.2 The properties of drugs and medicines used to treat infectious diseases</p> <p>4.2.3 The side effects and contraindications of drugs and medicines used to treat infectious diseases</p> <p>4.3.1 How to prepare blood smears for diagnosis of malaria</p> <p>5.1.1 Recommended home care procedures, especially for patients with leprosy</p> <p>5.1.2 The prescribed drugs and dosages for each infectious disease</p> <p>5.1.3 How to prevent infectious diseases, with special emphasis on immunizations</p> <p>6.1.1 How to tell groups of people about infectious diseases</p> <p>6.1.2 How to talk with people about their attitudes towards people with leprosy</p>

Work Requirements DUTIES	Training Requirements	
	SKILLS	KNOWLEDGE
	<p>6.2 Teach community health workers about infectious diseases</p> <p>6.3 Contact a health office for assistance</p>	<p>6.2.1 The content of the community health worker' modules</p> <p>6.3.1 When and how to ask other members of the health team for help</p>

SCHEDULE

Common Problems – INFECTIOUS DISEASES

DAY 1	DAY 2	DAY 3	DAY 4
<p>Introduction to Infectious Diseases module</p> <p>Recognizing the signs of infectious diseases</p>	<p>Interviewing and examining patients with infectious diseases; Clinical practice</p>	<p>Diagnosing infectious diseases commonly spread by animals or insects</p> <p>Rabies Malaria Louse-borne typhus</p>	<p>Diagnosing infectious diseases commonly spread from person to person</p> <p>Meningitis Diphtheria Leprosy</p>
<p>Taking a medical history of the patient with an infectious disease</p>	<p>Diagnosing infectious diseases commonly spread through the soil or water</p> <p>Typhoid fever Tetanus in children and adults</p> <p>Treating and caring for patients with infectious diseases commonly spread through the soil or water</p>	<p>Treating and caring for patients with infectious diseases commonly spread by animals or insects</p>	<p>Treating and caring for patients with infectious diseases commonly spread from person to person</p>

DAY 5	DAY 6		
Sharing health messages about leprosy	Assessing and caring for patients with infectious diseases; Clinical practice Group A - Patient care Group B - Presenting health messages Group C - Interviewing and examining patients		
Assessing and caring for patients with infectious diseases; Clinical practice Group A - Interviewing and examining patients Group B - Patient care Group C - Presenting health messages	Assessing and caring for patients with infectious diseases; Clinical practice Group A - Presenting health messages Group B - Interviewing and examining patients Group C - Patient care		
	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 infectious diseases. Before you start this module, be sure you know:

The normal anatomy and physiology of the skin, skull, brain, eyes, throat, neck, abdomen, and nervous 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 infectious diseases. 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 instructor will make special arrangements for Units 6, 7, and 8 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 Diagnostic Guides for the diseases discussed in the module

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

Read the Patient Care Procedure for preparing blood smears for diagnosis of malaria

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

In class, the instructor 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 instructor 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 study of infectious diseases, 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 signs of infectious diseases

- Interview patients about their infectious diseases

- Examine patients with infectious diseases

- Advise patients about the prevention and home care of infectious diseases

- Present health messages about the prevention of infectious diseases

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:

- Typhoid fever

- Tetanus in children and adults

- Rabies

- Malaria

Louse-borne typhus
Meningitis
Diphtheria
Leprosy

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 Preparing Blood Smears for Diagnosis of Malaria.

EVALUATION Level III

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

Diagnosing and treating patients with each of the infectious diseases

Advising patients and their families about home care and ways to prevent the spread of infectious diseases

Conducting community meetings to discuss the care and prevention of infectious diseases

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 a Patient with an Infectious Disease

STUDENT GUIDE

OBJECTIVES

1. Describe these signs of infectious diseases:

- High, constant fever
- Up and down pattern of fever
- Step ladder pattern of fever
- Low pulse rate and high fever
- Convulsions
- Neck stiffness
- Leg response when neck is bent
- Tight or bulging anterior fontanelle
- Rigid smile
- Throat spasms
- Bright red throat with gray membrane covering the tonsils and pharynx
- Unusually large, swollen lymph glands on both sides of the neck
- Enlarged and tender spleen
- Light colored skin patch with loss of sensation
- Loss of sensation in the hands and feet
- Enlarged and tender nerves
- Flat, red rash on the abdomen
- Very red face
- Bright red, inflamed conjunctivae
- Jaundice
- Abdominal swelling and tenderness

2. Recognize the signs of infectious diseases when you see or feel them in a patient.
3. Interview a patient with an infectious disease.
4. Examine a patient with an infectious disease.
5. Record your findings on official forms.

LEARNING ACTIVITIES

1. Join the instructor and class in presentations, demonstrations, and discussions of infectious diseases.
2. Practice taking a medical history of the patient with an infectious disease using role-plays based on case studies.
3. In the classroom, interview and examine patients with infectious diseases.
4. In the clinic, ask questions about patients' problems, examine patients with infectious diseases, and write down your findings.

1.1 SIGNS AND SYMPTOMS OF INFECTIOUS DISEASES

Diseases that are caused by viruses, bacteria, or other living disease agents are called infectious diseases. Infectious diseases attack many body systems. To diagnose an infectious disease, you must learn to recognize its particular combination of signs and symptoms.

Pattern of Fever

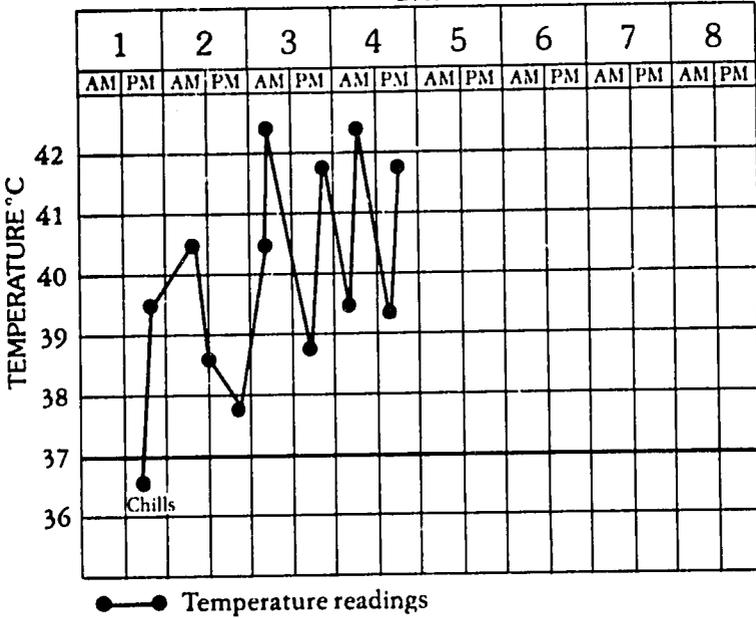
When a patient has a fever you should look for inflammation or infection somewhere in his body. But the pattern of a patient's fever, how it goes up and down, is also a helpful diagnostic sign. The pattern of a fever can be especially helpful when a diagnosis is not clear from the medical history and physical examination.

For this reason, you should not give aspirin to every adult patient with a fever. By giving a patient aspirin to reduce his fever, you will lose a helpful diagnostic sign.

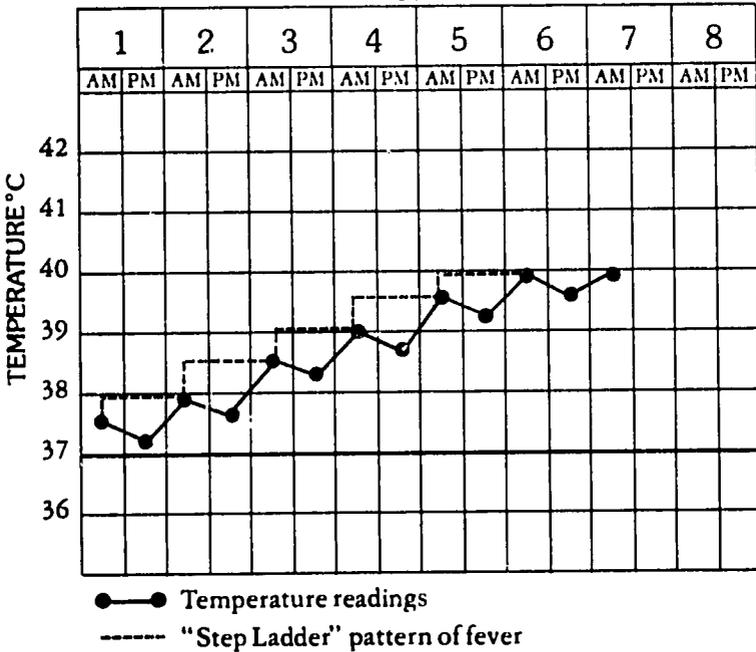
A fever can show many patterns. For example, a patient's temperature can rise quickly and stay at this high level. Or, a patient's temperature can rise slowly and steadily. Patients with malaria have an up and down pattern of fever. Malaria begins with chills. Then the patient's temperature rises quickly, often to 40°C or more. Soon after, his temperature drops one or two degrees, only to rise again sharply a few hours later.

Typhoid fever also shows a particular pattern of fever. When a patient has typhoid fever, his temperature can go up to 40°C on the first day of illness. More commonly, however, the fever has a step ladder pattern. Look at the typhoid graph. Notice the highest temperature reading for each day. This shows the step ladder pattern. A typhoid fever patient's temperature usually increases $.5^{\circ}\text{C}$ each day until it reaches 40°C on the sixth day of the illness. Without treatment, the fever will stay around 40°C for several days.

PATTERN OF FEVER FOR MALARIA
DAY

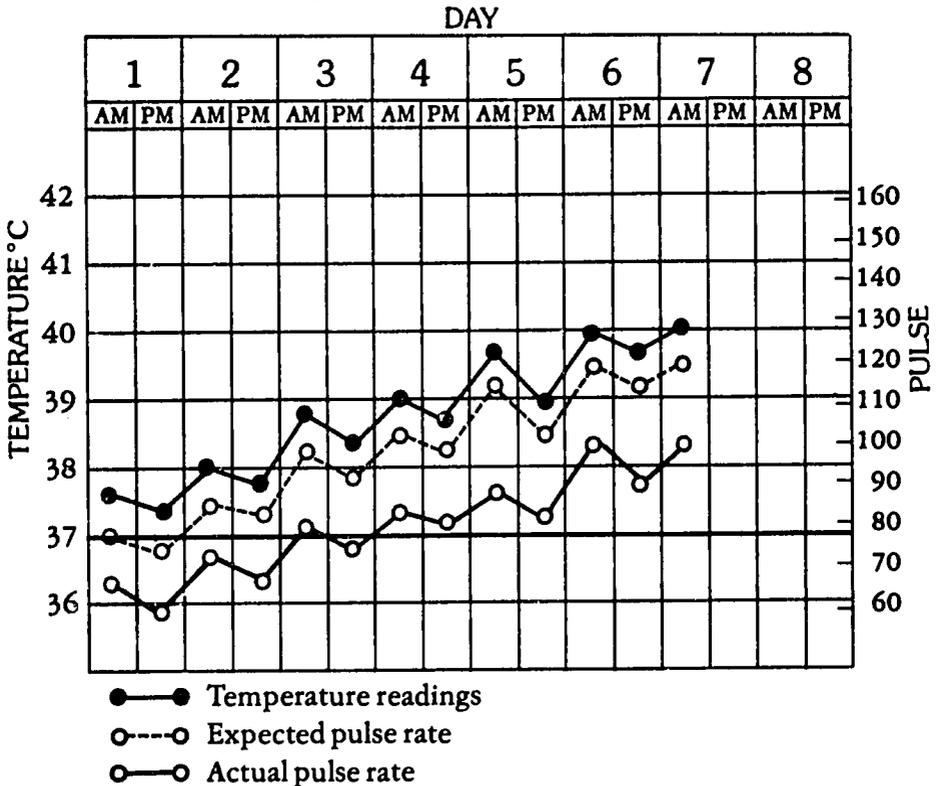


PATTERN OF FEVER FOR TYPHOID
DAY



A typhoid fever patient's pulse rate does not increase at the expected eighteen beats for each 1°C increase in temperature, however. With typhoid fever, a patient's pulse rate is twenty to forty beats per minute slower than you would expect for the increase in temperature. Suppose the following graph illustrates a patient whose normal pulse rate is seventy beats per minute. With typhoid's step ladder fever pattern, you would expect his pulse rate to look like that plotted on the graph as the expected pulse rate. But his actual pulse rate is twenty beats per minute slower, considerably lower than what you would expect.

COMPARING THE PULSE RATE OF A PATIENT WITH TYPHOID TO HIS DEGREE OF FEVER



Convulsions

Convulsions are sudden, repeated, involuntary contractions and relaxations of many of the large muscles of the body at once. A convulsion is also called a seizure or a fit. A convulsion is a very serious sign. Treat a convulsion as a medical emergency.

A convulsion is caused by a problem in the part of the brain that controls the large muscles. Some of the causes of a problem in this part of the brain are infections, pressure, and fever.

One type of infection of the brain and spinal cord which causes an infant to have a convulsion is meningitis. Meningitis increases the pressure of the spinal fluid on the brain, causing a convulsion.

Fever also causes convulsions in infants and young children. An infant with an infectious disease that makes his temperature go above 39° C can have a convulsion.

Tetanus causes convulsions in infants, children, and adults. A tetanus patient can have a convulsion when he hears a loud noise or is touched or moved suddenly. Normally the brain reacts to sudden noise and movement without a problem. But tetanus bacteria produce a toxin that affects the brain's normal ability to react to sudden noise or movement. When the brain overreacts, the patient has a convulsion.

A convulsion can also happen when malaria parasites infect red blood cells. The infected red blood cells clog the blood vessels in the brain. Oxygen cannot reach the brain and waste gases cannot escape. This causes brain damage. The brain damage causes convulsions in a patient with cerebral malaria.

Neck Stiffness

A patient with an infectious disease that attacks the brain and spinal cord will have difficulty bending his neck. The infection irritates the membranes that cover the brain and spinal cord. Moving the neck causes more irritation and terrible pain. When you try to bend a patient's head toward his chest, his neck muscles will tighten and his neck will become stiff. Neck stiffness in children and adults is a sign of meningitis.

Leg Response When Neck is Bent

You will often see another sign in a patient with a stiff neck from meningitis. When you try to bend the patient's head forward he

will bend his legs and draw them up towards his chest. This leg response releases the pressure on his painful neck muscles.

Tight or Bulging Anterior Fontanelle

The anterior fontanelle is the diamond-shaped soft opening between the bones of a baby's skull found on the top, front part of the head. The anterior fontanelle is large and easily palpated for the first six to twelve months of life.

The anterior fontanelle works like a pressure gauge. You can use the anterior fontanelle to measure the amount of pressure the spinal fluid is placing on the brain. When a healthy baby cries or coughs, the anterior fontanelle will bulge. This is normal. But, if the membrane covering the brain is infected, the spinal fluid pressure will increase. You will feel tightness or bulging when you palpate the anterior fontanelle. This increased pressure in the head is an important sign of meningitis in infants.

Rigid Smile

The toxin produced by tetanus bacteria makes a patient's face and jaw muscles tighten. This tightening causes a rigid smile often called lock jaw.

Throat Spasms

A patient with rabies suffers spasms of the throat muscles when he swallows. The throat spasms are very painful. To find out if a patient has throat spasms, look for other signs. The patient has a fear of water and food. He will not even swallow his own saliva. These are all serious signs of rabies, a fatal infectious disease which attacks the brain.

Bright Red Throat with Gray Membrane Covering the Tonsils and Pharynx

A red throat and swollen lymph glands in the neck are signs of a throat infection. When a patient has diphtheria, his throat is very red and the lymph glands on both sides of his neck are swollen to an unusually large size. The most distinguishing sign of diphtheria, however, is a gray membrane that covers the tonsils and pharynx. This sign should always make you think of diphtheria.

Enlarged and Tender Spleen

The spleen is an organ of the circulatory system. One function of the spleen is to remove infected red blood cells from the circula-

tory system. Infected red blood cells can make the spleen congested, swollen, and tender. This is particularly true when malaria parasites infect the red blood cells. An enlarged and tender spleen is a sign of malaria.

Light Colored Skin Patch with Loss of Sensation

Leprosy attacks the small nerves of the skin and skin tissue. A patient with leprosy develops skin patches or lesions. The skin patches are usually light colored and flat, with clear edges. Because the nerves are damaged, the patient cannot feel anything on these patches of skin. He has a loss of sensation. A light colored skin patch with loss of sensation is an early sign of leprosy.

Loss of Sensation in the Hands and Feet

Leprosy also attacks the nerves in the hands and feet, causing a loss of sensation. A patient with leprosy can injure his hands, fingers, feet, or toes without knowing it. Think about leprosy whenever you see a patient who has a loss of sensation in his hands or feet, or who has injured his hands or feet without knowing or feeling it.

Enlarged and Tender Nerves

Like other parts of the body, nerves become enlarged and tender when they are inflamed. You can see and feel enlarged nerves that lie near the surface of the skin. Enlarged and tender nerves are also a sign of leprosy.

Flat, Red Rash on the Abdomen

A patient with typhus has a flat, red rash that spreads from the abdomen to the inside of the arms, across the trunk, and onto the chest, back, and legs. Later in the illness the rash looks like many small, round bruises. This rash, in combination with a very red face and bright red, inflamed conjunctivae of the eyes, should make you think of typhus.

1.2 TAKING A MEDICAL HISTORY OF THE PATIENT WITH AN INFECTIOUS DISEASE

Infectious diseases involve many body systems. A patient with an infectious disease will have symptoms which are associated with these body systems. Therefore, you must take a very complete medical history to find out if a patient has an infectious disease.

Be sure to ask these questions.

“What Immunizations Have You Had and When?”

An immunization history is particularly important when your patient is a child. Immunizations can help prevent many infectious diseases. Immunizations can help prevent diphtheria, tetanus, or tuberculosis which can cause meningitis in children. Ask about the patient's DPT and BCG history. Has the patient received a tetanus booster? When?

If you have no accurate record of a patient's immunizations and the patient cannot remember, assume that he has not been immunized. Remember, even if the patient has had BCG immunization, the vaccine may have spoiled. Look for a BCG scar to confirm that the vaccine was good.

“Can You Tell Me Anything About Your Fever?”

Try to find out the pattern of a patient's fever. Think of malaria if the patient describes an up and down pattern of fever. He may tell you that he has chills, then feels very hot, and then starts to sweat before getting chills again. He may tell you that his fever goes up and down. Or, he may tell you that he feels cold, then hot, and then cold again. All of these symptoms suggest the up and down fever pattern of malaria.

Then again, a patient may say that his temperature got higher and higher every day. This might be the step ladder pattern of typhoid fever.

“Tell Me How You Were Injured and What Has Happened Since Then?”

Learn all you can about a patient's soft tissue injury. Think about rabies if the patient says he was attacked by a dog or other animal which was acting strangely.

Tetanus bacteria can enter the body through puncture wounds or other soft tissue injuries caused by a nail, a piece of wire, or any other dirty object. Suspect tetanus especially if the patient has not been immunized against tetanus. Tingling or muscle spasms around an injury should definitely make you suspect tetanus.

Whenever a patient comes to see you with an injury to the foot, toe, hand, or finger, ask him about pain. Find out if it hurt when he injured himself. Anyone who cannot remember when or how he was injured or who felt no pain when he was injured may have leprosy.

“Did You Have Any Problems During the Delivery of Your Baby?”

If a baby is sick, irritable, unusually sleepy, or not sucking well, ask the mother to tell you about her labor and delivery. Complications during the delivery such as her membranes rupturing more than twelve hours before the baby was born may mean that the baby has meningitis.

“Is Anyone Else in Your Family Sick?”

Always find out if anyone else in a patient's family is sick. Asking questions about family members might help you diagnose a patient with an infectious disease. But even if the questions do not help you make a diagnosis, the questions will help you find out if other people in a patient's family are sick. You will need to examine any sick family members, especially if your patient is diagnosed as having an infectious disease.

“Where Do You Get Your Drinking Water? Where Do You Work? Have You Had a Problem With Lice or Mosquitoes?”

Find out about where your patient lives and works. Typhoid fever patients often drink water from unsafe water sources and do not boil the water before drinking it. Malaria patients often live or work in areas where mosquitoes are common. A typhus patient might remember being bothered or bitten by lice.

1.3 EXAMINING THE PATIENT WITH AN INFECTIOUS DISEASE

The answers to the medical history questions should make you suspect one or more of the infectious diseases in this module. Look for signs of these infectious diseases as you examine your patient.

Check General Appearance

- a. Note the patient's level of consciousness.

A patient's consciousness can vary from fully alert to comatose. A person is normally awake and alert. He responds to what is going on around him and can answer questions clearly and quickly. A drowsy, or sleepy, patient is not awake or alert. He responds slowly to what is going on around him. A patient in a coma is not aware of his surroundings at all.

Notice your patient's level of consciousness. Unusual sleepiness or a coma can be signs of problems in the brain caused by an infectious disease. A convulsion is an early sign that a patient's normal level of consciousness is upset.

- b. Note the expression on the patient's face.

A sick patient does not smile. A rigid smile is a sign of tetanus.

Take and Record Vital Signs

Always take and record the temperature, pulse and breathing rates, and blood pressure of an acutely ill patient.

- a. Take and record the patient's temperature.

If the patient has a fever, try to find out the pattern of the fever. An infectious disease patient often has a fever of 39°C or more. Sometimes the high fever is constant. The temperature does not go up and down very much. An up and down pattern of fever is a sign of malaria. A step ladder pattern, with about 0.5°C

increase per day, is a sign of typhoid fever, especially if the pulse rate is lower than would be expected for the degree of increase in temperature.

A pattern of fever can be determined only if you record the temperature every few hours. Other signs of a disease may help you diagnose the problem before you can determine a fever pattern.

- b. Take and record the patient's pulse rate.

If the patient's pulse rate is increased and the patient has a fever, compare the increased pulse rate to the degree of temperature. For each 1°C that the temperature increases, the pulse usually increases eighteen beats per minute. Think of typhoid fever if the patient's pulse rate is twenty to forty beats per minute slower than you would expect for the degree of temperature.

Examine the Skin, Head, Eyes, Throat, and Neck

- a. Examine the patient's skin.

Note the color of the patient's skin. A patient with unusually yellow skin has jaundice. Malaria can cause jaundice. A very red face can be a sign of typhus.

Look for skin patches, lesions, or rashes. Test any light colored skin patch for loss of sensation. Ask the patient to close his eyes. Lightly stroke the skin patch with a piece of cotton wool. Lightly stroke a normal looking area of skin with a piece of cotton wool. Compare the two. A loss of sensation on or around a skin patch or lesion is an early sign of leprosy.

Check the skin on the patient's abdomen. A flat, red rash that has spread to the inside of the arms, across the trunk, and onto the chest, back, or legs is a sign of typhus.

- b. Examine the anterior fontanelle of an infant.

The anterior fontanelle stays open wide enough for examination until an infant reaches the age of six to twelve months. It is usually completely closed by the age of eighteen months. Always examine the anterior fontanelle of a sick infant. Normally, the scalp over the anterior fontanelle sinks in with gentle pressure from the finger tips. The scalp returns to its normal position when the pressure is released. A tight scalp or a bulging anterior fontanelle is a sign of meningitis.

- c. Note the color of the conjunctivae of the eyes.

Normally the conjunctivae of the eyes are white. Yellow conjunctivae, or jaundice, is a sign of malaria. Bright red, inflamed conjunctivae in combination with a bright red face is a sign of typhus.

- d. Note the color of the throat, tonsils, and pharynx.

Normally the throat is pink. A red throat is a sign of infection. A bright red throat with a gray membrane covering the tonsils and pharynx is a sign of diphtheria. Moving this membrane often causes bleeding.

- e. Note the patient's ability to swallow.

Normally a person can swallow without difficulty or pain. Pain with swallowing is an early sign of a throat infection. But the fear of water, in a patient who will not even swallow his own saliva, tells you that the patient is having severe and painful throat spasms. Painful throat spasms are a sign of rabies.

- f. Note the patient's ability to bend his neck.

Normally a person can move his neck in all directions and can touch his chin to his chest without pain or difficulty. A patient with meningitis has a stiff neck. It hurts him when you try to bend his head toward his chest.

With this sign, you will notice a leg response. When you bend the patient's head forward he will also bend his legs and pull them towards his chest. This leg response is another sign that a patient may have meningitis.

- g. Note any swelling of the lymph glands in the neck.

Normally you cannot feel a patient's lymph glands. Unusually large, swollen lymph glands on both sides of the neck are a sign of a very serious throat infection. This condition is most commonly seen with the gray membrane in the throat that is a sign of diphtheria.

Examine the Abdomen

Always examine the abdomen of a patient who has nausea, vomiting, diarrhea, or any type of abdominal discomfort. Inspect, palpate, percuss, and auscultate the patient's abdomen.

- a. Note any swelling or tenderness when palpating the abdomen.

Swelling and tenderness of the abdomen are signs of typhoid fever.

- b. Note any enlargement or tenderness when palpating the spleen.

The spleen lies under the lower left ribs. A healthy spleen is usually difficult to feel during palpation. Standing on the right side of the patient, place the palm of your left hand on the left lower part of the patient's rib cage. Gently press this part of the rib cage towards you.

Next place the palm and fingers of your right hand below the edge of the left rib cage. Press inward towards the spleen as the patient takes a deep breath. An enlarged and tender spleen is a sign of malaria.

Remember to palpate the spleen gently. The spleen is very delicate. If you are not careful, you can injure or even rupture an enlarged spleen.

Examine the Nervous System

Test the hands and feet for sensation. Also examine the nerves which lie near the surface of the skin for enlargement and tenderness.

- a. Note sensation in the hands and feet.

Test the hands and feet for sensation. Normally the hands, fingers, feet, and toes are very sensitive to light touch. Any loss of sensation in these areas is a sign of nerve damage which may be caused by leprosy.

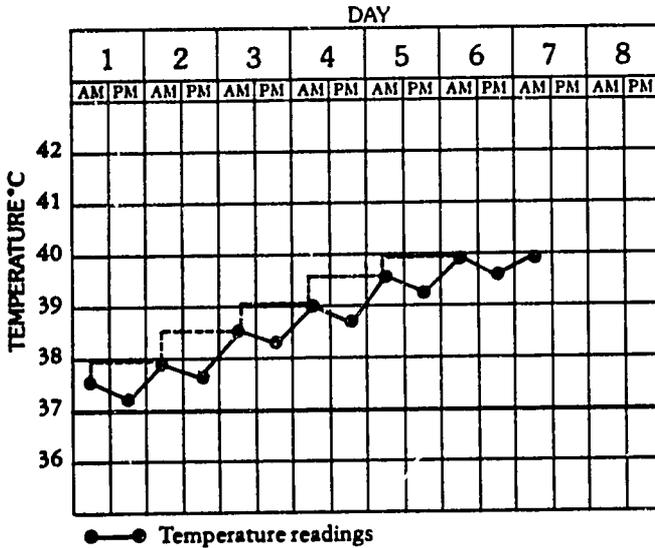
- b. Note the size of the large nerves.

Normally you cannot see or feel the large nerves which lie near the surface of the skin in the neck and on the arms and legs. But if these nerves become inflamed, they also become enlarged and are easier to locate and palpate. Enlarged nerves are tender when palpated. Enlarged and tender nerves are signs of leprosy.

- a. What is the pattern of this fever?

- b. What common infectious disease has this pattern of fever?

3. The pattern of fever can be different with different infectious diseases. Study the graph below. Answer the questions following the graph.



- a. What is the pattern of this fever?

- b. What common infectious disease has this pattern of fever?

4. A convulsion is a sign of an abnormal condition. Explain what you might see if a patient was having a convulsion.

5. A convulsion is a very serious sign. A convulsion is a medical emergency. A convulsion is caused by a problem in the _____

6. Fever is a common cause of convulsions in infants. If an infant's temperature rises above _____ °C, he may have a convulsion.

7. Sometimes a patient bends his legs and draws them up towards his chest. You will notice this sign when you test a patient for _____ .

8. An anterior fontanelle of a sick infant which feels _____ or _____ when palpated is a sign of increased spinal fluid pressure.

9. The toxin produced by tetanus bacteria can cause a patient to have a convulsion. What other sign does the tetanus poison cause?

10. Spasms of the throat muscles can be caused by an infectious disease which attacks the brain. What behaviors would make you suspect that the patient is having painful throat spasms?

11. With any throat infection, you will see the signs of a red throat and swollen lymph glands in the neck. With one infectious disease the throat is very red and the lymph glands on both sides of the neck are swollen to an unusually large size. Another sign which is important to note is a _____ which forms over the tonsils and pharynx.

12. The spleen is an organ of the circulatory system. One function of the spleen is to remove infected red blood cells from the circulatory system. When infected red blood cells enter the spleen, the spleen will feel _____ and _____ when palpated.

13. The spleen is a very delicate organ. You must palpate the spleen carefully or you can _____ or even _____ the spleen.

14. Leprosy is an infectious disease which attacks the nerves. What are three important signs of leprosy?
 - a.

 - b.

 - c.

15. A patient's face is bright red. The conjunctivae of his eyes are also very red. What other sign of an abnormal condition would you look for and where?

16. Why is it important to find out a patient's immunization history?

17. Why is it important to ask a patient to tell you about his fever?

18. A patient has suffered a soft tissue injury. What else would you want to know?

19. A mother brings in a sick newborn. What would you ask about the mother's labor and delivery?

20. Why is it important to find out if anyone else in a patient's family is sick?

21. What would you want to find out about where a patient lives and works?

Briefly describe the signs of abnormal conditions which you would look for in these physical examination procedures.

22. Examine the patient's general appearance.

a. Note the patient's level of consciousness.

b. Note the expression on the patient's face.

23. Take and record the patient's vital signs.

a. Note the patient's temperature.

b. Note the patient's pulse rate.

24. Examine the patient's skin, head, eyes, throat, and neck.

a. Examine the patient's skin.

b. Examine the anterior fontanelle of an infant.

- c. **Note the color of the conjunctivae of the eyes.**
 - d. **Note the color of the throat, tonsils, and pharynx.**
 - e. **Note the patient's ability to swallow.**
 - f. **Note the patient's ability to bend his neck.**
 - g. **Inspect and palpate the lymph glands in the neck.**
- 25. Examine the abdomen.**
- a. **Palpate the abdomen.**
 - b. **Palpate the spleen.**
- 26. Examine the nervous system.**
- a. **Test the hands and feet for sensation.**
 - b. **Palpate the nerves which lie near the surface of the skin in the neck and on the arms and legs.**

Unit 2

Infectious Diseases Commonly Spread Through the Soil or Water

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of
Typhoid fever
Tetanus in children and adults
2. Interview and examine patients and diagnose typhoid fever and tetanus.
3. Provide treatment and care for patients with typhoid fever and tetanus.
4. Tell people how to prevent typhoid fever and tetanus from spreading.

LEARNING ACTIVITIES

1. Join the teacher and class in presentations and discussions of the diagnosis of typhoid fever and tetanus.
2. Practice diagnosing one of these infectious diseases using an example from a case study.
3. Practice using the Diagnostic and Patient Care Guides, the Patient Care Procedures, and the Formulary.
4. During skill development in a clinic, practice identifying typhoid fever and tetanus, and providing treatment and care.

2.1 TYPHOID FEVER

Typhoid fever is a bacterial infection of the intestines that affects the entire body. Typhoid fever infects the body when a person drinks water or eats food that has been contaminated by the stool of an infected person.

Sometimes a person recovers from typhoid fever but continues to carry the bacteria in his intestines for many months or years. Such a person is a typhoid carrier. If a typhoid carrier does not practice good health habits before preparing food, he can contaminate the food that other people eat.

Typhoid fever bacteria attack the intestines during their first week in the body. During their second week in the body, they pass through the lining of the intestines and enter the blood stream. Then, the typhoid fever bacteria spread throughout the body.

CLINICAL PICTURE

a. Presenting complaint

A patient will complain of a mild *fever with headache, weakness, cough, sore throat, or loss of appetite.*

b. Medical history

The patient has had weakness, cough, sore throat, or loss of appetite for one week. His fever has increased daily. The patient *gradually developed a headache, nausea, vomiting, abdominal pain, diarrhea, or constipation.*

c. Physical examination

Take and record the patient's temperature and pulse rate. A *step ladder fever pattern* and an unusually *low pulse rate for a patient with a fever* are common signs of typhoid fever. A typhoid fever patient's temperature can go up to 40°C the first day of illness. More commonly, however, the patient's fever rises in a step ladder pattern. The temperature rises some each day for six or seven days. Then the temperature reaches about 40°C and stays at this level for the next week.

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
37.5°C	38.0°C	38.5°C	39.0°C	39.5°C	40.0°C	40.0°C	40.0°C

A typhoid fever patient's pulse rate is also unusual. When a person has an infection, his pulse rate usually increases about eighteen beats per minute for each degree of increase in his centigrade temperature. A typhoid fever patient's pulse rate is twenty to forty beats per minute slower than you would expect.

A typhoid fever patient will be weak and exhausted. Check for dehydration caused by a continued high fever with vomiting or diarrhea. Palpate the patient's *abdomen*. Note any *swelling* or *tenderness*.

COURSE AND COMPLICATIONS

The patient's temperature gradually drops during the third week of illness. Still, a typhoid fever patient may develop serious complications and die quickly. The patient may bleed severely from an ulcer in his intestines. He may lose so much blood that he dies from shock. Another serious complication is perforation of the intestines. A patient with a hole in his intestines will develop an acute abdomen.

PATIENT CARE

- A patient with typhoid fever may become very ill. Transfer your patient to the hospital if you suspect typhoid fever.
- Give the patient antibiotics before you transfer him to the hospital. Chloramphenicol is the most effective antibiotic to use. Tell the patient to take chloramphenicol four times a day for at least two weeks. See Patient Care Guides.
- Treat the patient for dehydration if necessary. Do not give oral fluids if you suspect a hole in the intestines.

PREVENTION

A patient with typhoid fever has typhoid fever bacteria in his stool. Unless the stool is disposed of in a safe way, the stool may contaminate the drinking water supply. Stool may also contaminate food or milk. Work with the community to control these sources of infection. Teach families how typhoid fever is spread. Help people think of ways to keep their food and water supplies clean and safe.

2.2 TETANUS IN CHILDREN AND ADULTS

Tetanus is caused by bacteria which are found in the soil and in animal dung. These bacteria get into the body when a dirty object punctures or cuts a person's skin. The bacteria can also get into the body when a wound, cut, or ulcer of the skin touches contaminated soil. Tetanus bacteria grow in the wound or ulcer. As the bacteria grow, they produce a poison, or toxin. The toxin travels quickly through the blood stream and attacks the nervous system. This toxin causes the painful muscle spasms that are an important sign of tetanus.

Tetanus can be prevented by immunization in all age groups. Tetanus is the "T" in the DPT immunization series. Young children are protected against tetanus after they have received the initial three-shot DPT series. A booster shot ten years after the initial three-shot series protects older children and adults.

CLINICAL PICTURE

a. Presenting complaint

Early in the illness, a patient will complain of *tingling and muscle spasms* around a *cut, wound, or ulcer of the skin*. A patient's *jaw muscles* will *tighten* later in the illness. He will complain of *difficulty opening his mouth, chewing, and swallowing*.

b. Medical history

The patient suffered a *cut, wound, or ulcer of the skin* within the last two weeks.

Ask whether the patient has been immunized against tetanus and has completed the three-shot DPT series. Ask if he has had a tetanus booster within ten years of the initial three-shot DPT series. Do not rule out tetanus even if the patient tells you he has been completely immunized. He may not remember correctly. Or, the vaccine may have spoiled.

c. Physical examination

A tetanus patient will be awake and alert, but will look ill. Look for a **cut, wound, or ulcer of the skin**.

Watch how the patient moves. Watch how he reacts to sudden movement and noise. The tetanus toxin makes the nerves in the area of the wound very sensitive. The sensitive nerves cause the muscles to tighten suddenly. This is a muscle spasm. Look for **muscle spasms near the wound** or in the **patient's neck or jaw**. Touching these areas, moving the patient, or making a **loud noise** near the patient can **cause painful muscle spasms** or a **convulsion**. The patient may have difficulty opening his mouth or swallowing. His muscles may have tightened, forcing his **face into a rigid smile**.

COURSE AND COMPLICATIONS

Treatment of tetanus is long and difficult once the muscle spasms have started. The patient is in terrible pain. He cannot breathe easily or swallow saliva. He can choke on saliva or food. Breathing saliva or food into his lungs can cause pneumonia. His back arches and his arms and legs become stiff. He has a moderate to high fever. Without treatment, tetanus patients usually die.

PATIENT CARE

- a. Most patients with tetanus will die unless they receive tetanus antitoxin and good nursing care. Transfer your patient to the hospital quickly.
- b. Give the patient antibiotics before you transfer him to the hospital. Use penicillin intramuscularly. Use erythromycin or tetracycline for patients who are allergic to penicillin. See Patient Care Guides.
- c. Clean the wound or ulcer before you transfer the patient to the hospital. Remove any dead or dirty tissue right away. See Patient Care Procedures.
- d. If the patient is having muscle spasms, give him valium intravenously every six hours. See Patient Care Guides.
- e. If the patient is having convulsions, give him amobarbital. See Patient Care Guides.

PREVENTION

Active immunization is the only way to prevent tetanus.

- a. Give all babies a series of four DPT injections. Give the injections at three months, five months, seven months, and eighteen months. Give the child a DT injection when he enters primary school.
- b. If a pregnant woman has been immunized against tetanus, give her a tetanus booster during the seventh month of pregnancy.
- c. If a pregnant woman has not been immunized, give her a series of three tetanus toxoid injections. Give the first injection at the beginning of the seventh month of pregnancy. Give the next two injections at the beginning of the eighth and ninth months.
- d. Give a booster shot every ten to fifteen years to men and women who work outside and are at risk of wounds and injuries. See Patient Care Guides.
- e. Tetanus can affect patients with any of these:

An infected wound or wound more than twenty-four hours old

A puncture wound

A skin ulcer with dead tissue

Recent surgery, if unsterile instruments were used

Gangrene

A recent abortion or miscarriage followed by fever or foul discharge

An infant whose mother did not receive tetanus immunization

To prevent tetanus in a patient with a wound, evaluate the patient and take the action indicated in the following chart. See Patient Care Guides and Patient Care Procedures.

Preventing Tetanus in a Patient With a Wound

WOUND	TETANUS IMMUNIZATION	ACTION
Fresh wound, minor	Active immunization and/or booster in last ten years	Clean wound and remove dead tissue.
Fresh wound, minor	Active immunization, but no booster or does not remember	Clean wound and remove dead tissue. Give tetanus booster.
Fresh wound, minor	No immunization, or does not remember	Clean wound and remove dead tissue. Start tetanus immunization series.
Old wound, or more serious wound	Active immunization and/or booster in last ten years	Clean wound and remove dead tissue. Treat with penicillin.
Old wound, or more serious wound	Active immunization, but no booster or does not remember	Clean wound and remove dead tissue. Treat with penicillin. Give tetanus booster.
Old wound, or more serious wound	No immunization, or does not remember	Clean wound and remove dead tissue. Treat with penicillin. Start tetanus immunization series.

REVIEW QUESTIONS
Infectious Diseases Commonly Spread
Through the Soil or Water

1. TRUE (T) or FALSE (F)

- Typhoid fever is a bacterial infection of the intestines that affects the entire body.
- Typhoid fever bacteria are spread through drinking water which has been contaminated by the stool of an infected person.
- An infected person can also spread typhoid fever bacteria to other people by handling the food that others will eat.
- Usually during the first week a person is infected with typhoid, he has a very high fever.
- A person with typhoid fever has a pulse rate that increases eighteen beats per minute for each 1° C increase in temperature.

2. What antibiotic would you give a suspected typhoid fever patient before transferring him to the hospital?

3. Use your Formulary to answer the next questions. Suppose your patient is a pregnant woman at term. You suspect that she has typhoid fever. Would you give her the drug that you recommended above?

Yes No

4. Explain your answer.

5. TRUE (T) or FALSE (F)

- Tetanus is caused by bacteria which are found in the soil and in animal dung.

- ___ Tetanus bacteria can get into the body when a dirty object punctures or cuts a person's skin or when a wound, cut, or ulcer of the skin touches contaminated soil.
 - ___ As tetanus bacteria grow, they produce a toxin.
 - ___ Tetanus travels through the respiratory system.
 - ___ Tetanus attacks the central nervous system.
6. What is the most important step a person can take to be protected against tetanus?
7. If a patient has tetanus, you would notice that making noises near the patient, touching him, or moving him would cause what reaction?
8. Tell how you would care for a patient with tetanus or suspected tetanus.
- a. Tetanus is suspected early in the course of the disease.
 - b. Tetanus has developed and the patient is having convulsions.
9. A mother brings in her seven-year-old daughter with an infected wound. The daughter cannot remember when she hurt herself. She says it was a few days ago. With questioning, the little girl says she feels a funny tingling sensation around the wound. The child has no history of DPT immunization. Her vital signs are normal. The wound is on the outer part of the girl's right lower leg. The area around the wound is swollen, red, and warm. You note some muscle spasms around the wound. The little girl reports this has been happening for one day. The lymph glands in her right groin are swollen and painful. The rest of the physical examination is normal. Other than a secondary infection of the wound to the leg, what problem do you suspect?

REVIEW EXERCISE

Case Study 61

Name of Patient: Williams, Elma
Sex: Female
Date of Birth: 21 July 1947
Date of Visit: 4 December 1979
Vital Signs: Temperature 39.5°C
Pulse 78
Respirations 22
Blood Pressure 110/70
Weight 62 kg

Presenting Complaint and Medical History: The patient has had a fever for ten days. The patient's fever began slowly and has been getting higher every day. Aspirin relieves the fever for a while. She has had some loose bowel movements for the last two days. She also complains of a severe headache. She has had no appetite since the fever started. She has some abdominal pain.

Past medical history: She has had no serious illness in the past. Other than aspirin, she has been on no drugs or medications.

Family history: She has two living children. She has never had a miscarriage. She reports that her menstrual periods are normal.

Physical Examination: The woman looks ill. The mucous membranes inside her mouth are pink. Her tongue is coated. Her tonsils are not inflamed or swollen. No neck stiffness, goiter, or distended neck veins are noted. Her breath sounds are normal, with no heart murmurs. Her abdomen is slightly swollen. Her bowel sounds are active. She complains of tenderness and shows slight guarding upon palpation of her abdomen. No cervical tenderness or discharge are noted during the pelvic 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?

Unit 3

Infectious Diseases Commonly Spread by Animals or Insects

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of
Rabies
Malaria
Louse-borne typhus
2. Interview and examine patients and diagnose rabies, malaria, and louse-borne typhus.
3. Prepare thin and thick blood smears for diagnosis of malaria.
4. Provide treatment and care for patients with rabies, malaria, and louse-borne typhus.
5. Tell people how to prevent rabies, malaria, and louse-borne typhus from spreading.

LEARNING ACTIVITIES

1. Join the teacher and class in presentations and discussions of the diagnosis of rabies, malaria, and louse-borne typhus.
2. Practice diagnosing one of these infectious diseases using an example from a case study.
3. Practice using the Diagnostic and Patient Care Guides, the Patient Care Procedures, and the Formulary.
4. During skill development in a clinic, practice identifying rabies, malaria, and louse-borne typhus, and providing treatment and care.

3.1 RABIES

Rabies is an infectious disease caused by a virus. The rabies virus is spread from the bite or the saliva of an infected animal, usually a dog. Bats, cats, rats, jackals, foxes, and other animals can also infect people with rabies. A human infected with rabies can spread the disease through his saliva or body wastes. The virus spreads from the point of infection up the nerves to the brain. A rabies patient who develops the signs and symptoms of rabies always dies.

CLINICAL PICTURE

a. Presenting complaint

The earliest complaint will be that the patient was *bitten* by a *dog* or *other animal known to carry rabies*. Later the patient will complain of *restlessness, depression, or fear*. A rabies patient may also be very excitable and easily upset.

b. Medical history

Most commonly, the patient will report being bitten by an infected animal. But the patient may have only touched an animal which was behaving strangely. The onset of signs and symptoms depends on the location of the bite. Signs and symptoms can develop within ten days if the bite is on the patient's face or neck. If the bite is on another part of his body, signs and symptoms can take from thirty to seventy days to develop.

Ask about restlessness, depression, or fear. These are the early symptoms of rabies. Some people with rabies will also tell you of fever, headache, nausea, and vomiting. The patient will be *excitable* and *easily upset* later in his illness.

c. Physical examination

You will notice only the *bite mark* if the patient comes to you immediately after or within a few days of the attack.

As the disease becomes worse, a patient will have *muscle spasms* of

his *throat*, especially when he swallows. A patient with rabies will be *afraid to swallow because of the painful spasms*. For this reason, he will also be *afraid of water*. Notice if *saliva is dripping from the patient's mouth*. This is another sign that swallowing is painful.

Remember that the patient's saliva and body wastes can spread rabies. Wash your hands with soap and water after examining the patient.

COURSE AND COMPLICATIONS

If you see the patient after the signs and symptoms of rabies have developed, the patient will die within three to five days from exhaustion, inability to breathe, and paralysis.

PATIENT CARE AND PREVENTION

- a. Clean the wound of a recently bitten patient. Remove any dead tissue. See Patient Care Procedures. Do not suture the wound closed. Leave it open. Put a sterile dressing on the wound. Keep the dressing dry. Change the dressing daily.
- b. Many animals have tetanus bacteria in their mouths. A deep wound from an animal bite is a good place for tetanus bacteria to grow. Take steps to prevent tetanus in any patient with an animal bite. See Patient Care Guides.
- c. If possible, tie up or cage the animal which bit the patient. Keep the animal away from people. Watch the animal for ten days. The animal does not have rabies if it remains healthy for at least ten days.
- d. Transfer a patient to the hospital for rabies treatment if he was bitten:
 - By an animal that escaped, was killed, or was known to be sick
 - By an animal that got sick and/or died during the ten days of being watched
 - By an animal that attacked the patient's face or neck
- e. The patient who has developed the signs and symptoms of rabies is going to die. Transfer the patient to the hospital. Make the patient as comfortable as you can.

Give pethidine IM for the pain. See Patient Care Guides. Give phenobarbital IM to sedate the patient. See Patient Care Guides.

Comfort family members. Refer for rabies treatment any family member who has been in close contact with the sick patient.

- f. Protect yourself, other team members, and family members from contact with the patient's saliva or body wastes. Wear gloves when you touch the patient, wipe saliva from his mouth, and dispose of his body wastes. Wash your hands with soap and water after any contact with a rabies patient.
- g. Killing stray dogs, cats, and other animals which are known to carry rabies will help prevent the spread of rabies. Killing the animals, however, is usually not practical. Encourage community members to avoid and report any animal which is acting strangely.

3.2 MALARIA

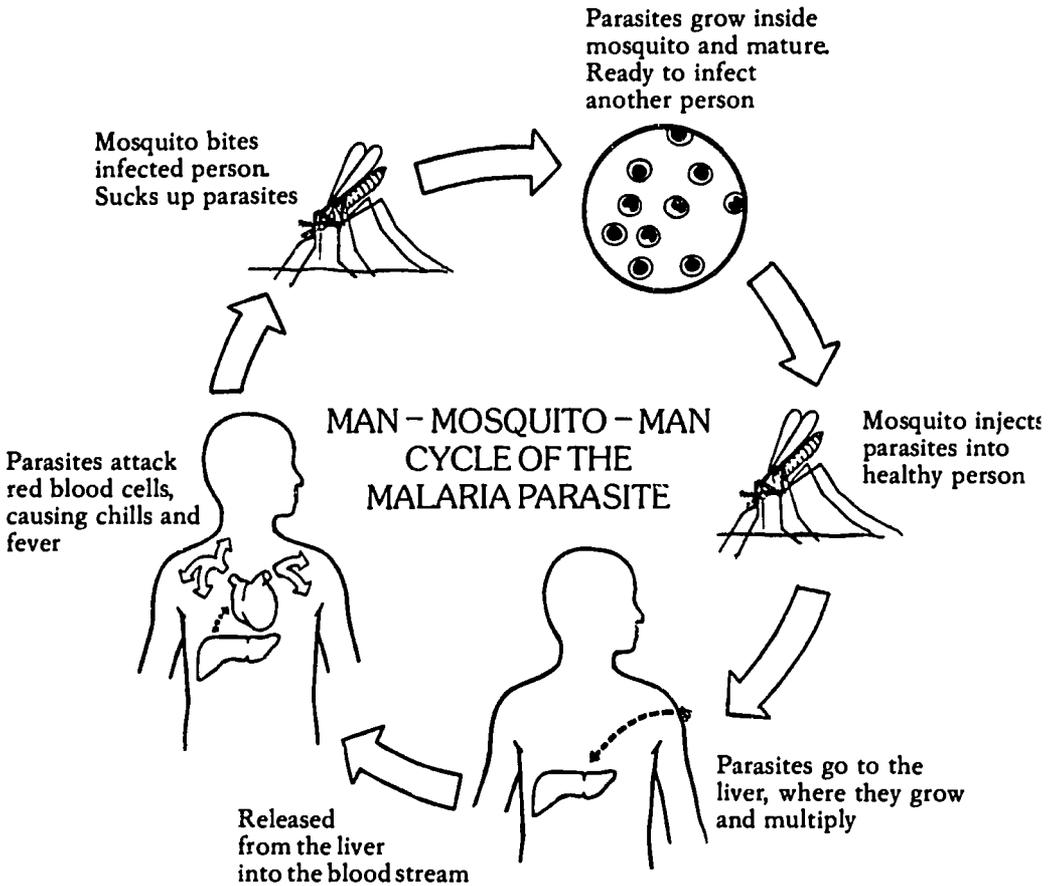
Malaria is a disease of the blood which is spread by mosquitoes. Malaria is one of the most important diseases in the world because it is very common and makes many people sick. Malaria is caused by a tiny one-celled parasite which lives in the liver and blood cells of people. There are several different kinds of malaria parasite. The clinical picture you will see depends on the kind of parasite in your area. But the most common signs and symptoms of malaria are always present, no matter what kind of parasite is infecting the people in your area.

All forms of malaria are spread by infected mosquitoes. The malaria parasites infect the female mosquito. The female mosquito bites a person and injects young forms of the parasite into the person's blood. The young parasites travel through the blood stream to the liver. The parasites grow to their next stage of development in the liver. In six to nine days, the young parasites leave the liver and enter the blood stream again. They invade the red blood cells, finish growing, and multiply quickly.

The parasites increase in number until the red blood cells begin to burst open. This makes the patient feel cold. The parasites then attack other red blood cells. This makes the patient's temperature rise and makes the patient feel hot. The cycle is repeated. After being attacked by malaria

parasites again and again, many red blood cells are infected. They finally burst open and release thousands of parasites into the patient's blood stream. This cycle of infection causes the common signs and symptoms of malaria.

When a noninfected mosquito bites a person who has malaria parasites in his blood, the mosquito sucks up the parasites from the blood. The mosquito is then infected with the malaria parasites. The parasites go through several stages of growth in the mosquito. After about one week, when the mosquito bites someone else it will infect him with the malaria parasites.



In areas where malaria is common, many people develop a limited natural immunity to the disease. This means that even when they are bitten by an infected mosquito, they usually do not develop the signs and symptoms of malaria. Such a person will lose his immunity, however, if he

leaves the area where malaria is common. When he returns, he can become sick with malaria if he is bitten by an infected mosquito.

When a mother has natural immunity to malaria, her infant is born with temporary immunity to the disease. The baby will start to lose his immunity as he reaches the age of four months. After four months these infants can develop malaria. Children of mothers with no immunity can develop malaria at any age.

People moving into an area where malaria is common will have no immunity to the disease. They will develop malaria if they do not protect themselves against the disease.

CLINICAL PICTURE

a. Presenting complaint

The patient usually complains of *shaking chills*, a *high fever*, or a *headache*.

b. Medical history

The patient *lives or works in an area where malaria is common*. He tires easily and has lost his appetite. A low fever comes and goes over several days. The symptoms gradually become worse over two to three days and the patient starts getting headaches. His temperature soon increases, with very high but irregular peaks.

Then the typical cycle of malaria symptoms develops. First, the patient feels cold and has a hard, shaking chill for twenty to sixty minutes. Toward the end of the chill his temperature begins to rise and the patient feels better. Then the patient feels very hot. His temperature goes up to 40°C to 42°C for three to eight hours. Nausea, vomiting, and diarrhea often go along with the fever. Finally, the temperature starts to drop, and the patient begins to sweat heavily. He feels thirsty and very tired.

This up and down cycle of malaria attack symptoms usually occurs every other day. But the cycle can be completed as frequently as daily or as infrequently as every four days. It is the *pattern of fever, the cold then hot then cold cycle*, which is important to recognize.

c. Physical examination

The up and down pattern of a malaria patient's fever is the most important sign to recognize.

Children with malaria feel tired and weak. They lose interest in their surroundings. Infants are too weak to nurse. Older children are too weak to eat.

Infants, children, and adults suffer from *jaundice* because the malaria parasites destroy red blood cells. During acute attacks of malaria, a patient's *spleen* becomes *enlarged* and is *tender* when palpated. Patients become anemic because blood cells are destroyed. Look for signs of *anemia*.

COURSE AND COMPLICATIONS

Malaria treatment can control the parasites and prevent the signs and symptoms of the disease. But it is rare for all of the parasites to be killed. The signs and symptoms can return anytime, even if the patient has not been bitten again by an infected mosquito.

The patient will continue to have a mild fever. He will develop signs of anemia as the malaria parasites continue to destroy red blood cells. The conjunctivae of his eyes, his lips, and his tongue will be pale. The anemia will become more severe over time. The jaundice will continue. The enlarged, tender spleen will lose its tenderness and become small and hard. Signs of dehydration commonly develop in children. Signs of malnutrition can also develop because infants are too weak to nurse, and older children are too weak to eat.

The continuation of malaria symptoms makes patients feel chronically ill and weak. Workers become less productive. Chronic malaria can affect the economy of families and countries. The resulting loss of income also contributes to other health problems, such as malnutrition.

The most serious complication is called malignant malaria. Malignant malaria develops quickly. A patient with malignant malaria can die within twenty-four hours of the onset of symptoms. This severe type of malaria sometimes develops for two reasons. First, more parasites enter the blood than is usually the case with malaria. Second, the malignant type of malaria parasite makes the outer surface of the red blood cells sticky. This stickiness makes the red blood cells clump together and clog the blood vessels throughout the body. Suspect malignant malaria when a patient develops a *very high fever*.

Sometimes a patient suffers a *sudden onset of severe headache, confusion, convulsions, and loss of consciousness*. These signs and symptoms occur when the infected red blood cells clog the blood vessels in the brain. This type of malignant malaria is called cerebral malaria. A

patient with cerebral malaria will first have twitching of the facial muscles. Repeated convulsions develop next. The patient then loses consciousness. He may be in a coma when you see him.

Upon physical examination, the patient's *temperature is 41.5° C or higher*. Convulsions and other signs of *decreased levels of consciousness* are common as the disease progresses. *Shock* is also a *common complication* of cerebral malaria. Shock develops because of the rapid and massive destruction of red blood cells. This destruction of red blood cells causes sudden and severe anemia. The patient may have diarrhea and vomiting. The diarrhea and vomiting cause loss of body fluids which also contributes to the sudden onset of shock. Cerebral malaria progresses quickly. The patient will die in a few hours if treatment is not started right away.

PATIENT CARE

- a. Begin oral chloroquine phosphate treatment for malaria. See Patient Care Guides. Chloroquine tastes bitter. You can give chloroquine with sugar or honey.

If the patient is vomiting, chloroquine phosphate can be given by IM injection to adults and SC injection to children. Do not give chloroquine by IM injection to children. IM injection of chloroquine can cause shock in a child. See Patient Care Guides.

Encourage the patient to drink as much fluid as possible. If the patient vomits, start an IV. See Patient Care Guides.

Bring down the patient's high temperature. Fan the patient, and sponge his entire body with cool water. Check his temperature every ten minutes. You can stop cooling the patient when his temperature has dropped to 39° C. Refer the patient to the hospital if he does not improve within three or four days after you have started treatment.

- b. If your national malaria control program requires blood smears for malaria, do a blood smear on a patient with malaria or suspected malaria. Send the blood smear to the laboratory. See Patient Care Procedures.
- c. Treat a patient with malignant or cerebral malaria as a medical emergency. Prepare the patient for transfer to the hospital. Before referring the patient, start quinine dihydrochloride IV. See Patient Care Guides. Start shock treatment even if the signs and symptoms of shock have not yet developed. See Patient Care Guides.

If you have time before you transfer the patient, bring down the patient's high temperature as discussed above.

- d. If you are working in an area where malaria is common, always think of malaria when a patient comes to you with a fever. If a patient has a high fever, shaking chills, or headache, but you cannot make a definite diagnosis, start the patient on malaria treatment anyway. Follow him closely for three days. Refer the patient to the hospital if he has not improved after three days.

PREVENTION

Malaria can be controlled in three major ways.

- a. The most effective way to control malaria is to kill mosquitoes and to destroy the areas where they live and breed. This mosquito control measure requires the cooperation of the community and of other health team members.

Use an approved insecticide to kill mosquitoes around people's homes. You may need help from another health team member or from members of a malaria control team. Spray the inside of each home, especially where the edges of the roof meet the walls.

Destroying mosquito breeding areas is an even more effective mosquito control measure. Mosquitoes breed in standing water. Empty and bury tin cans, old pots, coconut shells, and other containers that can collect rain water.

Trim weeds and grass near homes and the edges of the community. Work with community members to drain or fill swampy areas, small ponds, and pools of standing water.

Remember to notice and encourage the positive steps the community has already taken to kill mosquitoes and to destroy their breeding areas.

- b. Taking oral chloroquine phosphate on a weekly basis can protect people from malaria. See Patient Care Guides. Teach people how to avoid mosquito bites through the use of mosquito netting, insect repellants, screens, and appropriate clothing.
- c. The early diagnosis and care of malaria patients can help to control the spread of the disease. Teach people the early symptoms of malaria. Emphasize the need for early treatment. Encourage malaria patients to complete their treatment.

In some countries where malaria was under control, efforts towards malaria control became lax. The result has been a steady increase in the number of cases of malaria being seen. Do not become lulled into thinking that, because efforts to control malaria in your area have been successful, malaria is no longer a problem and control measures can be relaxed. If this happens, all your efforts, and the efforts of other health team and community members, have been wasted.

3.3 LOUSE-BORNE TYPHUS

Typhus is a group of infectious diseases that is caused by very small organisms called rickettsia. Lice, fleas, ticks, and mites can spread typhus to people. The most serious type of typhus is louse-borne typhus.

Louse-borne typhus is spread by a louse which has bitten an infected person. Typhus is carried in the stool of the louse. When the louse bites a well person, the person scratches the bite and rubs the infected stool of the louse into the wound. The person then becomes infected with typhus.

Typhus organisms travel through the person's blood stream and inflame the lining of his blood vessels. This inflammation of the blood vessels causes the signs and symptoms of typhus. The signs and symptoms of typhus appear ten to fourteen days after the typhus organisms enter the person's blood stream.

CLINICAL PICTURE

a. Presenting complaint

Flu or cold-like symptoms are the earliest complaints. The patient will have a mild fever, cough, and general pains. He will feel tired and chilled.

b. Medical history

Mild flu or cold-like symptoms last for two to three days. Suddenly on the *third day*, the patient becomes *very ill* with a *severe headache*, a *high constant fever*, and *chills*. A *rash* appears on his *abdomen three to five days later*.

Louse-borne typhus is also called epidemic typhus. This means that louse-borne typhus spreads quickly, especially in areas with

crowded living conditions. Many people will start coming in with the same presenting complaint and medical history.

c. Physical examination

The patient's fever is *high and constant from 39.4 to 40° C*. His face is *bright red*. His eyes are also red. He appears to have conjunctivitis.

The *rash on his abdomen is red and flat*. Later in the illness, the *rash looks like many small bruises*. The rash spreads to the inside of his arms, across his trunk, and onto his chest, back, and legs. The rash spreads to the face only in severe cases.

COURSE AND COMPLICATIONS

Louse-borne typhus can affect many body organs. The affected organs begin to function poorly, causing more signs and symptoms.

Pneumonia is a common complication. You will hear rales at the lung bases. Heart failure is another complication.

A typhus patient will become confused and delirious if his brain is affected by the disease. He will progressively lose consciousness until coma develops.

Few children die from typhus. But most people over the age of fifty will die if they do not receive treatment.

PATIENT CARE

- a. Refer to the hospital any patient you suspect has typhus.
- b. Before referring the patient, give him oral tetracycline. See Patient Care Guides.
- c. Kill the lice which are on the body and in the clothes of the patient and his family. See Patient Care Guides.
- d. Notify your supervisor. Typhus spreads quickly through a community unless control measures are taken to eliminate the lice.

PREVENTION

- a. To control an epidemic of louse-borne typhus, you must kill the lice. Dusting people with an approved insecticide will kill the lice. Bathing with gamma benzene hexachloride will also kill the lice. See Patient Care Guides.

The clothing and bedding of the typhus patient and his family members should be dusted with insecticide or washed, boiled, and hung out in the sun to dry. Contact public health personnel for help if you suspect an outbreak.

- b. Typhus vaccine provides good protection. Protect yourself and other health team members. Immunize yourselves against typhus.
- c. Good health habits can help prevent an outbreak of louse-borne typhus. Encourage people to bathe and wash their clothes and bedding often. Good health habits are especially important for people who live in crowded conditions.

REVIEW QUESTIONS
Infectious Diseases Commonly Spread by
Animals or Insects

1. What early presenting complaint would make you suspect rabies?

2. What is the first thing you would do for a patient with this presenting complaint?

3. Under what circumstances would you transfer a patient to the hospital for rabies treatment?

If the patient was bitten:

- a.
 - b.
 - c.
4. All forms of malaria are spread by infected _____.

 5. You have diagnosed a twenty-three-year-old man as having malaria. He is not vomiting. He is slightly dehydrated. His temperature is 41.5°C.

Use your Patient Care Guides to answer these questions.

- a. What drug would you give this patient? What dosage would you give? How often should he take the drug?

- b. How would you treat the patient's dehydration?

- c. How would you bring down the patient's high fever?

 - d. What drug would you give to prevent the patient from getting another malaria attack? How often should he take the drug?

 - e. What kind of specimen from the patient would you send to the hospital?
6. What three steps can help prevent and control malaria?
- a.
 - b.
 - c.
7. What three points would you make when explaining how to prevent louse-borne typhus?
- a.
 - b.
 - c.
8. A father brings in his fifteen-year-old son and tells you that two weeks ago the boy was bitten by a dog. The dog ran away. In the last couple of days the boy has become restless. He has had a fever, headache, and nausea. The boy is easily upset which is not his normal behavior. The boy will not let you put a thermometer into his mouth. His temperature, taken in his arm pit, is 38.5°C. His respiration is a little labored but is within normal limits. His pulse is ninety-

seven beats per minute. His blood pressure is within normal limits. He gets very upset when you ask him if he wants a drink of water. You notice some saliva in the corners of his mouth, and you suspect he is having throat spasms. What do you suspect the problem is?

9. A forty-year-old woman had a bad flu one week ago. Now she has a severe headache, a high fever, and chills. She has noticed a rash on her abdomen. Her husband is also starting to have the flu. They have no children. She has a temperature of 40°C and a rapid pulse of 124. Her blood pressure is 130/90. Her respirations are 30. She looks ill with a red face and bright red conjunctivae. A flat, red rash on her abdomen has spread to her chest, back, and the inside of her arms. What do you suspect the problem is?

10. How would you treat this patient and her husband?

REVIEW EXERCISE

Case Study 62

Name of Patient: Clayton, Tom

Sex:

Male

Date of Visit:

14 October 1979

Vital Signs:

Temperature 41°C
Pulse 142
Respirations 30
Blood Pressure 120/75
Weight 75 kg

Presenting
Complaint and
Medical History:

The patient complains of being very hot with fever and then cold with shaking chills. The attacks seem to be getting worse, and he now has a bad headache. He says that this has been happening for three days. The hot and cold periods repeat almost every day. He reports that he was in the forest two weeks earlier to cut wood and was bitten several times by mosquitoes. He feels a little better when his fever seems to drop and he sweats. But nothing else seems to make the problem any better. He is not sure if anything makes it worse.

Past medical history: This is his first visit to this health center. He has never felt like he does now. He had hepatitis six years ago. He has noticed that his eyes are a little yellow, but the way he feels now is not like the way he felt when he had hepatitis. He is not taking any chloroquine phosphate.

Family history: There is no history of serious illness in the family. No one else in the family is presently ill.

Physical
Examination:

The patient is sweaty. His conjunctivae are jaundiced. His neck veins are flat. His breath sounds are

normal and he has no edema. His heart sounds are normal with no murmurs. His spleen is enlarged and tender when palpated.

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

Preparing Blood Smears for Diagnosis of Malaria

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 prepare blood smears for the diagnosis of malaria.

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 preparing a blood smear for diagnosis of malaria, you should:

YES NO RATING COMMENTS

1. Collect equipment and materials				
2. Wash your hands with soap and water				
3. Tell the patient what you are going to do				

When preparing a thin smear:

4. Clean the three slides to be used				
5. Clean the patient's finger tip or ear lobe with an alcohol sponge. Wipe off the surplus alcohol with a cotton swab. Let the skin dry				
6. Using a quick jab, puncture the skin with a sterile lancet				
7. Place a small drop of blood on one end of a clean slide				

YES NO RATING COMMENTS

8. Place the end of the second slide at a thirty degree angle just in front of the drop of blood				
9. Move the second slide backwards until it touches the drop of blood and the blood spreads along the end of the second slide				
10. Push the second slide slowly forward towards the other end of the slide. The blood should now be spread across two-thirds of the slide				
11. Let the slide dry in the air. Protect the slide from dirt. If you prepared the slide correctly, you should be able to read ordinary printing easily through the smear				
12. Follow the above steps to prepare another slide if the first slide is of poor quality				
13. Fix the slide with methanol immediately				
14. Pack and label the container. Send the slide to the laboratory within four days				

When preparing a thick smear, complete steps 1 through 12 above. Then:

15. Put another drop of blood on the uncovered one-third of the thin smear slide				
16. Using the corner of the second slide, spread the blood with a circular movement, rapidly and evenly. Cover an area of two cm				

	YES	NO	RATING	COMMENTS
17. If you prepared the slide correctly, you should barely be able to read ordinary printing through the thick smear				
18. Let the slide dry in the air. Protect the slide from dirt. Do not let any methanol touch the thick smear				
19. Repeat the steps of a thick smear if the first slide is of poor quality. But do not throw away the slide with the thin smear				
20. Pack and label the container. Send the slide to the laboratory within four days				

Unit 4

Infectious Diseases Commonly Spread from Person to Person

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of
Meningitis
Diphtheria
Leprosy
2. Interview and examine patients and diagnose meningitis, diphtheria, and leprosy.
3. Provide treatment and care for patients with meningitis, diphtheria, and leprosy.
4. Tell patients and their families how to care for leprosy at home.
5. Tell people how to prevent meningitis, diphtheria, and leprosy from spreading.

LEARNING ACTIVITIES

1. Join the teacher and class in presentations and discussions of the diagnosis of meningitis, diphtheria, and leprosy.
2. Observe a slide presentation on leprosy.
3. Practice diagnosing one of these infectious diseases using an example from a case study.
4. Practice using the Diagnostic and Patient Care Guides and the Formulary.
5. During skill development in a clinic, practice identifying meningitis, diphtheria, and leprosy, and providing treatment and care.

4.1 MENINGITIS

Meningitis is an infection of the membrane that covers the brain and spinal cord. Many bacteria and viruses which live naturally in the body sometimes cause meningitis. The bacteria and viruses which cause common ear, nose, and throat infections can cause meningitis. The bacteria and viruses which cause boils on the face, head, and neck can also cause meningitis. Sudden onset of signs and symptoms is typical of all the common types of meningitis. A meningitis patient will usually seem healthy or have a minor upper respiratory infection, and then suddenly become terribly ill.

Patients with tuberculosis can develop a different type of meningitis called tubercular meningitis. Unlike the common types of meningitis, the signs and symptoms of tubercular meningitis appear gradually. Tubercular meningitis is most commonly seen in children between the ages of one and five.

Immunization with BCG, the tuberculosis vaccine, can protect children against tubercular meningitis. There is no immunization against the other types of commonly seen meningitis.

CLINICAL PICTURE

a. Presenting complaint

A newborn will be irritable, unusually sleepy, or not sucking well. Newborn may or may not develop a fever with meningitis. But if they do develop a fever, they often have *convulsions*. Think of meningitis whenever a newborn is brought to you with a fever.

Children and adults suddenly develop a *high fever, severe headache, and vomiting*.

b. Medical history

If the patient is a newborn, review the mother's labor and delivery history. Complications during labor and delivery can cause meningitis in the newborn. Most commonly the mother's membranes

will have ruptured more than twelve hours before the baby was born. A mother will usually report that her baby became sick very suddenly.

Children or adults will tell you of becoming ill suddenly and developing a high fever. The patient may have had a history of an **upper respiratory infection**, *earache*, or *boil* on his *face*, head, or neck before suddenly feeling very ill. The patient then became irritable and suffered a headache and stiff neck. These symptoms may be followed by some mental confusion. The patient may become sleepy and eventually lose consciousness within two to three days of feeling ill.

A child with a similar history, but with a slow onset of signs and symptoms over a two week period may have tubercular meningitis. Ask if the child has had BCG immunization against tuberculosis. Check for a BCG scar.

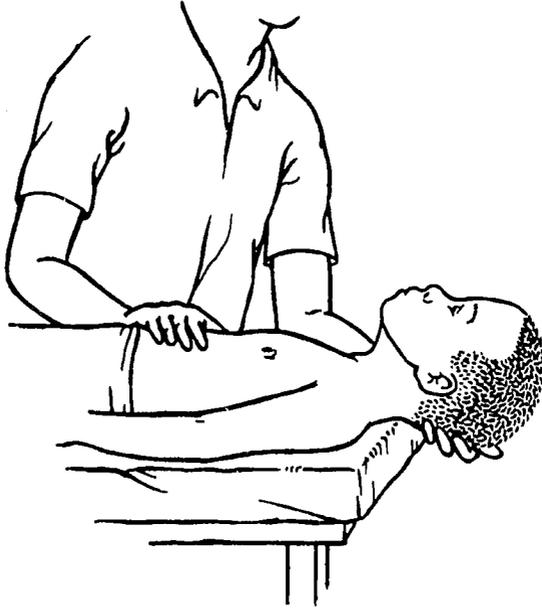
c. Physical examination

Examine the anterior fontanelle of newborn or infant patients. A *tight* or *bulging anterior fontanelle* is a sign of increased pressure on the brain caused by meningitis.



EXAMINING AN INFANT'S ANTERIOR
FONTANELLE FOR TIGHTNESS OR BULGING

Children and adults will have a *high fever*. Gently bend the patient's head toward his chest. Check for *neck stiffness* and *neck pain*. Notice if the patient *bends his legs and draws them up toward his chest* when his neck is bent. These are all important signs of meningitis. Remember, newborns with meningitis will not have neck stiffness.



EXAMINING A PATIENT FOR NECK STIFFNESS

COURSE AND COMPLICATIONS

Without treatment, a patient with meningitis will die within a few hours to a few days. The patient becomes drowsy and then comatose. Even patients who are treated sometimes have convulsions or other kinds of nervous system problems later in life.

PATIENT CARE

- a. Transfer the patient to the hospital. Go with the patient, if necessary, to be sure the patient receives immediate attention. Keep the intravenous drip operating if you have started one.
- b. If you suspect the patient has tubercular meningitis, do not start antibiotic treatment.
- c. For all other suspected meningitis cases, begin antibiotics before leaving for the hospital.

Give adults five million units of penicillin intravenously immediately. Put fifteen million units in an IV drip. Continue to run the drip during the transfer to the hospital. If necessary, give the penicillin intramuscularly. See Patient Care Guides.

Give children older than seven ampicillin, either intramuscularly or intravenously. If you are able to begin an IV quickly, give the antibiotics IV over a few minutes. Follow this treatment with the same dosage every four hours through the IV or intramuscularly. See Patient Care Guides.

Give children younger than seven ampicillin as described above. Add chloramphenicol every four hours. See Patient Care Guides. Chloramphenicol is recommended because meningitis in young children is often caused by bacteria which ampicillin may not kill.

- d. If the patient's fever is very high, sponge his body with cool water to bring down the fever.
- e. If the patient is able to take aspirin, give an appropriate dosage. See Patient Care Guides.

PREVENTION

- a. Properly treating boils on the face and infections such as otitis and sinusitis will prevent some cases of meningitis.
- b. Tuberculosis patients who get proper treatment will rarely develop meningitis.
- c. Tell your supervisor if you see more than one case of meningitis in a period of several weeks. A meningitis outbreak will require additional preventive measures.

4.2 DIPHTHERIA

Diphtheria is caused by bacteria which usually live in the nose and throat. Diphtheria spreads from person to person very easily through coughing, sneezing, or close contact. The newly infected person develops the signs and symptoms of diphtheria in two to seven days. Diphtheria bacteria make a toxin which damages the muscles of the heart and the nerves.

Children can be effectively immunized against this dangerous disease. Diphtheria is the "D" in the DPT immunization series. Young children are protected against diphtheria after they have received the initial four-shot DPT series. A DT injection before starting school protects older children.

CLINICAL PICTURE

a. Presenting complaint

The early symptoms of diphtheria can be like an upper respiratory infection. A patient will complain of *cough, sore throat, runny nose, a mild fever, and sometimes hoarseness.*

b. Medical history

A patient may have a previous history of a throat or ear infection. Upper respiratory infection symptoms such as a cough, sore throat, and runny nose develop and become worse very quickly. *A high fever develops, and the sore throat becomes very painful. Breathing may be difficult.*

Ask whether the patient has been immunized against diphtheria or has completed the four-shot DPT series. An older child may have had the four-shot DPT series as an infant, but did not receive the DT injection before beginning school. Do not rule out diphtheria even if a parent tells you his child has been completely immunized. He may not remember correctly. Or, the vaccine may have spoiled.

c. Physical examination

The patient looks very sick. A fever of 40°C or more is common. *His throat is bright red, and a gray membrane covers his tonsils and*

pharynx. Moving the membrane will cause bleeding because the membrane is stuck to the throat. The **lymph glands on both sides of the neck** are swollen to an **unusually large size**.

COURSE AND COMPLICATIONS

The membrane will move deeper into the patient's throat and start to block the airway. The patient will have difficulty breathing. Eventually the membrane can completely block the airway.

The toxin from diphtheria bacteria attacks the nerves which control swallowing, making it difficult for the patient to swallow. The toxin can also damage the heart muscles and cause heart failure. The toxin attacks other muscles. These muscles become weak. Without treatment, most patients die from diphtheria.

PATIENT CARE

Transfer to the hospital any patient you suspect of having diphtheria. Start the patient on penicillin before the transfer to stop continued production of diphtheria toxin. See Patient Care Guides.

PREVENTION

You can prevent diphtheria by giving the four-shot DPT series to all children in early childhood. During an epidemic be sure that everyone in the community is immunized against diphtheria. Give a diphtheria booster shot to those people who were previously immunized. See Patient Care Guides.

4.3 LEPROSY

Leprosy, or Hansen's disease, is a disease of the skin and nerves. Leprosy is caused by bacteria which grow very slowly. Once a person has been exposed to leprosy bacteria, the signs and symptoms of the disease take three to seven years to develop.

Leprosy spreads from an infected person to a healthy person. Leprosy usually spreads when the infected person has been in very close contact with another person for a long time. Therefore, leprosy will infect the

family members of a person with the disease more often than other people. Still, most people exposed to leprosy do not develop the disease. The leprosy bacteria enter the body through the skin, the nose, and the mouth. The bacteria then attack the skin tissue and the small nerves in the skin, the large nerves which lie near the surface of the skin, and the mucous membranes of the nose.

There are three types of leprosy: lepromatous leprosy, tuberculoid leprosy, and borderline leprosy. The clinical picture of leprosy depends on the type of the three types of leprosy a patient has.

Lepromatous leprosy is the most serious and contagious of the three types. The leprosy bacteria grow quickly in the skin, and the patient loses sensation in his hands and feet. A patient with lepromatous leprosy commonly injures his hands or feet because he cannot feel them.

Tuberculoid leprosy is a more limited and less contagious disease that mainly affects the large nerves near the surface of the skin.

Borderline leprosy can become either lepromatous or tuberculoid leprosy.

CLINICAL PICTURE

a. Presenting complaint

The earliest presenting complaint is a *light colored patch* on the *patient's skin*. A patient may also complain of a *painless injury to his hand, finger, foot, or toe*. Presenting complaints will vary in the later stages of illness depending on the type of leprosy which a patient has.

b. Medical history

Within the last three to seven years, the patient has been in close contact with someone who has been diagnosed as having leprosy. The infected person is usually a family member.

A patient with lepromatous leprosy often has injured or burned his hand or foot. After careful questioning, the patient may tell you he cannot feel his hands or feet. He may not remember when or how he was injured. He may tell you that he knew that he injured himself, but was surprised when he felt no pain. Always suspect leprosy when a patient has a history of burns or injuries to the hands or feet.

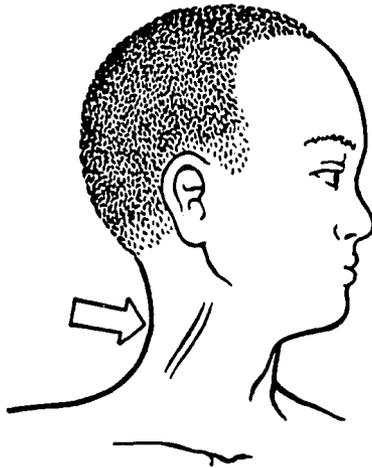
A patient with tuberculoid leprosy may report an area of swelling or tenderness on his arms, legs, or neck. Notice if the swelling or tenderness occurs where large nerves lie near the surface of the skin.

c. Physical examination

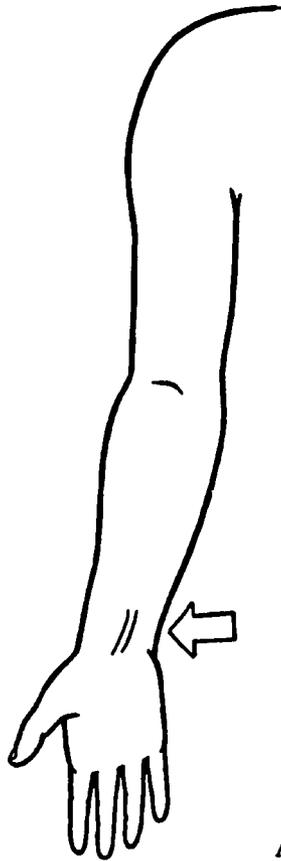
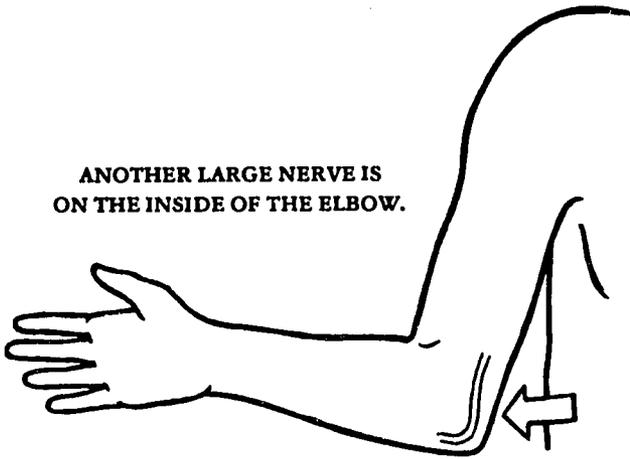
The most important sign of lepromatous leprosy is the *loss of sensation in the patient's hands or feet*. Always check for loss of sensation when a patient comes to you with a burn or injury to the hand or foot. A patient with lepromatous leprosy may also have many skin lesions with indistinct edges. The patient may feel these lesions when you touch them lightly.

A light colored, flat skin patch with sharp edges and no sensation when touched lightly is an early sign of both tuberculoid and borderline leprosy. The patient may have a few or several of these skin patches. An early leprosy skin patch is often misdiagnosed as another kind of skin problem such as ringworm or tinea versicolor. Always examine any skin patch for loss of sensation.

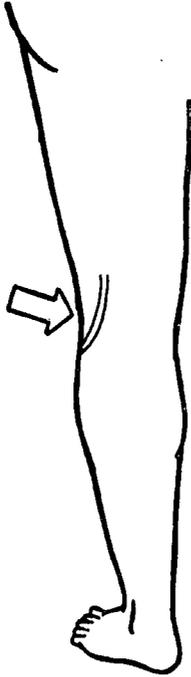
Enlargement and tenderness of the nerves which lie near the surface of the skin are also early signs of tuberculoid or borderline leprosy. Nerve enlargement and tenderness are seen later with lepromatous leprosy. The locations of the large nerves are shown in the following figures.



**YOU CAN FEEL THE LARGE NERVE IN THE
NECK WHEN THE PATIENT TURNS HIS
HEAD AWAY FROM YOU.**



**A LARGE NERVE IS IN THE MIDDLE
OF THE WRIST ON THE PALM SIDE.**



**ANOTHER LARGE NERVE IS LOCATED ON
THE BACK OF THE LEG BEHIND THE KNEE.**



**YOU CAN FEEL A LARGE NERVE ON THE
INSIDE OF THE ANKLE, JUST BEHIND
THE TIP OF THE TIBIA BONE.**

Remember to examine these nerves on both sides of the body. Examine the left and right sides of the neck, the left and right elbows, both wrists, the area behind the knees, and both ankles.

COURSE AND COMPLICATIONS

Each type of leprosy follows its own course.

Without treatment, lepromatous leprosy continues to spread in the body. Complications such as the destruction of the cartilage of the nose, thickening of the skin, loss of the outer one-third of the eyebrows, damage to the eyes, and blindness can result if the patient does not receive proper care. Injuries and secondary infections are common complications because of the loss of sensation in the hands or feet. Such injuries and infections can result in the loss of fingers or toes. Patients with lepromatous leprosy must be on treatment for the rest of their lives.

Tuberculoid leprosy is usually self-limiting. This means that tuberculoid leprosy usually ends within three to five years without treatment. However, the disease often destroys one or more of the important large nerves which lie near the surface of the skin. These are the nerves which control movement. The muscles these nerves control weaken, the patient loses control of the muscles, and complications develop. Two examples of these complications are a claw hand and a foot drop.

Borderline leprosy is unstable. The patient usually develops either lepromatous or tuberculoid leprosy.

Patients with lepromatous or borderline leprosy sometimes suffer reactions to the leprosy drug. A drug reaction is a serious complication. An untreated reaction can last from weeks to more than one year. An untreated reaction can kill the patient. The signs and symptoms of a reaction are high fever, enlarged lymph glands, swollen joints, tender and swollen nerves, and tender and swollen testes. Skin lesions become red and swollen. The patient's nose may become swollen and blocked.

Patients with leprosy can also become infected with tuberculosis easily.

Leprosy has social and psychological complications as well. Because of old attitudes towards people with leprosy, the patient and his family need support.

PATIENT CARE

- a. Leprosy is not a medical emergency. Leprosy treatment may last for many years. A diagnosis of leprosy can be socially and psychologically difficult for a patient. Therefore, make every effort to

confirm your diagnosis. Refer the patient for diagnosis. Or, tell the patient to visit the health center during a scheduled visit by your supervisor. In the meantime, counsel the patient about the disease and its treatment.

- b. Treat leprosy with dapsons. Start dapsons treatment slowly to avoid reactions. See Patient Care Guides.
- c. Teach the patient the signs and symptoms of a drug reaction. See the patient weekly for the first month, and every other week for two months. Check for the signs and symptoms of a reaction. Then see the patient monthly. If you detect a reaction, stop dapsons treatment and refer the patient for care immediately.
- d. A leprosy patient must stay on dapsons for a long time in order to be effectively treated. Discuss the need to stay on dapsons with the patient and his family. Help the patient and his family understand the importance of keeping the regularly scheduled visits to the health center. Visit the patient at his home occasionally. Encourage the community health worker to visit the patient often. Ask the community health worker to encourage the patient to take his medicine as scheduled.
- e. If the patient has lost sensation in his hands or feet, teach him and his family ways to protect his hands and feet from injury. The patient should check his hands and feet daily for injuries. He should wash any injury with soap and water, cover it with a clean cloth, and come to the health center immediately.
- f. Encourage the patient to exercise affected joints. When the nerves that control one group of muscles are damaged, the muscles which pull in the opposite direction contract and become shortened. The affected joints will become permanently bent if they are not exercised daily. Teach the patient and his family how to straighten the joints with exercise. Tell the patient to exercise his joints three times a day.
- g. Protect leprosy patients from exposure to people with tuberculosis. Watch leprosy patients closely for the development of the signs and symptoms of tuberculosis.
- h. Leprosy patients and their families often have social and psychological problems. The mental health of the patient and his family is just as important as the patient's physical health. Take time to

talk with the leprosy patient and his family about any problems they may be having. Reassure the patient that he can continue to be a productive member of his family and his community. Encourage the community health worker to offer support.

Help the community understand that leprosy can be effectively treated and that a patient who is on treatment is not contagious. Help the leaders understand that they do not need to isolate the leprosy patient or to treat him differently from any other person. Your attitude toward the leprosy patient will set an example for others to follow.

PREVENTION OF LEPROSY

- a. Leprosy can be spread to another person in the early stages of the disease. Early diagnosis and care of leprosy patients can help prevent the spread of this infectious disease. Help people understand that patients with leprosy who stay on their medication cannot spread leprosy to others.

Watch children of a leprosy patient for the early signs and symptoms of the disease. Parents can do this most effectively since they do not want their children to develop the disease. You and the community health worker should examine the children once every six months.

- b. BCG and dapsons have been used to protect family members of leprosy patients. However, experts have not yet determined how effective or practical this is. Follow the policy in your area for treatment of family members.
- c. Educate the community about leprosy. Many communities fear leprosy. People with leprosy are often asked to leave their homes. Therefore, people who think that they may have leprosy are afraid to seek help. They do not want to be diagnosed as having the disease. The strict isolation of these patients by health workers in the past has only reinforced these fears.

You can help to change these attitudes and fears in your community if they exist. Review what you now know about leprosy with the patient, his family, and community members.

REVIEW QUESTIONS

Infectious Diseases Commonly Spread from Person to Person

1. TRUE (T) or FALSE (F)

- Tuberculosis can cause meningitis.
- Children can be immunized against tuberculosis with BCG.
- The same bacteria and viruses which cause common ear, nose, and throat infections, and boils on the face, head, and neck can cause meningitis.
- A mother with an infant with meningitis often reports that the child is irritable and usually sleepy, but is sucking well.

2. What physical examination finding would make you strongly suspect meningitis in an infant?

3. Neck _____ is a sign of meningitis in children and adults. Another sign occurs when the neck is bent forward. The legs _____ and _____ towards the _____.

4. You have diagnosed an adult patient as having meningitis. He has a temperature of 40.5°C. He is conscious and is not vomiting. Using your Patient Care Guides as a reference, tell how you would care for this patient.

5. TRUE (T) or FALSE (F)

- Diphtheria is not easily spread from person to person.
- Children are protected against diphtheria after they have received the four-shot DPT immunization series.

___ Children who have completed the four-shot DPT series are further protected against diphtheria if they receive a DT injection before starting school.

___ The early symptoms of diphtheria are like an upper respiratory infection.

___ A bright red membrane covering the tonsils and pharynx means the patient has diphtheria.

___ The membrane of diphtheria can block the patient's airway.

6. TRUE (T) or FALSE (F)

___ Most people exposed to a person with leprosy get the disease.

___ A person who is being treated for leprosy cannot spread the disease to others as long as he stays on his medication.

___ Community members need to be educated about leprosy.

___ Patients being treated for leprosy with dapsone never have reactions to this drug.

7. List two early presenting complaints of people with leprosy.

a.

b.

8. Depending upon the type of leprosy a patient has, what are three physical examination signs of leprosy?

a.

b.

c.

9. A mother brings her two-week-old infant to you with the complaint that he has a fever and had a convulsion. She reports that the baby first became irritable and then unusually sleepy. He has not been sucking well. You find out that the mother's membranes ruptured fifteen hours before the baby was born.

The infant has a fever of 40°C . He seems unusually sleepy. The baby is suffering from malnutrition and dehydration. Because of the early signs of dehydration, you examined the anterior fontanelle to see if it was sunken. You found the skin over the fontanelle to be tight. What do you suspect the problem is in addition to malnutrition and dehydration?

10. A mother brings her four-year-old child to you with the complaint that the child has an upper respiratory infection, fever, and swollen neck. The child says her throat hurts a lot. You note from the patient's record that she has received only one DPT injection. That was three months after she was born. The child has received no other immunizations. The mother reports that her other three children are not sick. The patient has a 40.3°C fever. Her pulse rate is increased. The child is normal weight for age. She looks very sick, and the lymph glands on both sides of her neck are swollen to an unusually large size. Her throat is very red. A gray membrane covers her tonsils.
 - a. What do you suspect the child's problem to be?
 - b. What are you going to do about the other three children in the family?
 - c. How could this problem have been prevented?
 - d. Give the schedule for answer c above, using your Formulary as a reference.

11. A thirty-nine-year-old woman has some mild abdominal discomfort and diarrhea. You palpate her abdomen and notice a light colored skin patch. She reports that this appeared a couple of weeks ago, but she thought it was just ringworm and did not have time to come to see you about it. Is there anything you would want to do concerning this light colored skin patch on her abdomen?

REVIEW EXERCISE

Case Study 63

Name of Patient: Singh, Linda
Sex: Female
Date of Birth: 30 July 1972
Date of Visit: 20 October 1979
Vital Signs: Temperature 38.2° C
Pulse 96
Respirations 20
Weight 32 kg

Presenting Complaint and Medical History: The patient has had a constant headache for two days. The headache hurts all over her head and is getting worse. She reports nothing significant which makes the headache better or worse. She also has a fever. She vomited once today. She has no history of trauma to the head. She has been very irritable.

Past medical history: She had a running ear three months ago and was given an injection at another rural health center. She has received DPT, BCG, and polio immunizations.

Family history: She reports no important history of illness. No one else in her family is sick.

Physical Examination: The patient looks sick. She is very irritable. Her eyes, ears, mouth, and throat are normal. Her neck is stiff. She complains of pain when her chin is bent towards her chest. When her head is bent, she bends and draws her legs up towards her chest. Her breath sounds are normal with no murmurs. Her abdomen is soft with no complaint of pain upon palpation. A BCG scar is visible.

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 64

Name of Patient: Persaud, Jean
Sex: Female
Date of Birth: 10 May 1937
Date of Visit: 3 December 1979
Vital Signs: Temperature 37.0° C
 Pulse 74
 Respirations 16
 Blood pressure 140/90
 Weight 69 kg

Presenting
Complaint and
Medical History: The patient has had a skin lesion on her face for six months. She says the lesion is slowly increasing in size. It is not painful and does not cause any irritation.

Past medical history: She had typhoid fever twenty years ago. She has had eight live births and had a tubectomy after her eighth pregnancy.

**Physical
Examination:**

Her mucous membranes are pink, but her tongue is slightly coated. Other than the skin lesion on the face, her head and neck are normal. Her chest is clear. Her heart sounds are normal. No edema is noted. She has a scar on her abdomen from her tubectomy.

A light colored, round, flat lesion near her right nostril extends slightly onto her cheek and to the edge of her upper lip. The edge of the lesion is sharp and slightly raised. The surface of the patch is dry and slightly wrinkled. A similar lesion is on the outside surface of her right forearm. Neither lesion has sensation to light touch.

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 5

Sharing Health Messages about Leprosy

STUDENT GUIDE

OBJECTIVES

1. Develop a health message about one of these topics on caring for the patient with leprosy:
 - The psychological effect on the patient who learns he has leprosy
 - The social and economic effects on the patient with leprosy
 - The importance of the patient staying on his leprosy medication
 - How a patient can recognize a reaction to his leprosy medication and what he can do
 - How a leprosy patient can care for and protect his hands from injury
 - How a leprosy patient can care for and protect his feet from injury
 - How to exercise the joints of affected arms and legs
 - How to check family members for early signs of leprosy
 - The attitudes of community members towards the person with leprosy
2. Write the health message in simple terms that patients, family members, and other people will understand.
3. Describe how the health worker could use the message in his daily activities.
4. Share health messages with patients, family members, and other community members.

LEARNING ACTIVITIES

- 1. Discuss health messages about leprosy and how to use the messages with a patient, his family, and the community.**
- 2. Participate in a role-play of a discussion with a health worker, a patient, and a family member on the topic of foot care of a patient with leprosy.**
- 3. Discuss the sample role-play dialogue.**
- 4. Study and practice how to develop simple health messages, write clear and understandable messages, and share health messages.**

5.1 SHARING HEALTH MESSAGES ABOUT LEPROSY

You can develop many health messages about the care of the patient with leprosy and about community attitudes towards leprosy. This unit presents one possible topic as an example.

Patients with lepromatous leprosy usually lose sensation in their hands and feet. These patients need to learn how to protect their hands and feet from injuries. The example here is a discussion with a patient and his wife about proper foot care.

A discussion with a patient who has been on leprosy treatment for a long time and comes in with a foot injury will be different from a discussion with a patient recently diagnosed as having leprosy. This example shows how to discuss the importance of foot care with a newly diagnosed patient. The patient in the example has already discussed proper foot care with a staff member at the hospital.

Remember that the newly diagnosed patient may be very upset about his disease. Therefore, you should try to put him and his family at ease. But you must also be honest with the patient about his disease and stress the important role he and his family must play in his home care.

The following shows the type of discussion you would have with such a patient and his wife.

HEALTH WORKER: Hello, Mr. and Mrs. Williams. Please have a seat. I see from the note that Dr. Carlton has sent me that the laboratory report confirms our suspicion.

MR. WILLIAMS: Yes. I have leprosy and I am very upset.

HEALTH WORKER: Yes, I understand, Mr. Williams. What seems to be upsetting about your diagnosis of having leprosy?

MR. WILLIAMS: First, I am worried about my wife and children. I am afraid that they may have it also.

HEALTH WORKER: In my recent examination of Mrs. Williams and your daughters, I found nothing to make me think that

anyone else in your family has leprosy. But I would like to examine your family again in six months, or earlier if you like.

MR. WILLIAMS: Does this mean that they may still have leprosy or that they may get leprosy from me?

These are some of the issues that a patient recently diagnosed as having leprosy may bring up. How well prepared the patient is to deal with his problem depends on how well you and the hospital staff have informed him. The support the patient receives from the hospital staff, you and your health team, his family, and his community is a very important part of the patient's care.

You must be prepared to answer the patient's questions. Questions like the one in the example must be answered before the patient will be interested in talking about proper foot care. The patient will also have questions about medicine, drug reactions, early signs of leprosy in family members, and social and work considerations. Review what was already discussed with the patient. Reinforce what he understands. Correct any misunderstandings.

Remember that the patient and his family must take an active role in his home care. So, they need to be involved in planning how they are going to do this in a way which fits their lifestyle.

This is a discussion which might take place with a patient and his wife.

HEALTH WORKER: Mr. Williams, you have told me that the nurse at the hospital talked to you about proper foot care. Do you and Mrs. Williams have the time to talk about this a little more now?

MR. WILLIAMS: Yes, we do.

HEALTH WORKER: Good! This is an important part of your home care. What did the nurse tell you about taking care of your feet?

MR. WILLIAMS: She said that I could injure my feet and not know it. She said that it is important for me to check my feet daily and to come to see you if I injure my foot.

MRS. WILLIAMS: The nurse helped us make the padded sandals he is wearing to protect his feet. She said that I should help him check his feet to make sure the sandals do not cause any blisters. The nurse's name was Mrs. Natang, I believe.

HEALTH WORKER: What the nurse told you was correct. Mrs. Natang has a lot of experience and is a very practical lady. Her father had leprosy. That is one reason she became interested in working with people with leprosy.

Mrs. Williams, did Nurse Natang show you how to examine your husband's feet?

MRS. WILLIAMS: Yes, she did. I helped Walter examine his feet every morning while we were at the hospital.

HEALTH WORKER: Good. Can you show me how you examine his feet?

Mr. Williams washes his feet with soap and water. Mrs. Williams washes her hands with soap and water. She examines his feet while the health worker watches.

HEALTH WORKER: Mr. Williams, how did Mrs. Williams do?

MR. WILLIAMS: She forgot to look between my toes.

MRS. WILLIAMS: But, Walter, you are always ticklish between your toes!

MR. WILLIAMS: That's the problem. I'm not ticklish between my toes any more!

Everyone laughs.

HEALTH WORKER: It is important to check between the toes as well as on the tops and bottoms of the feet and on the heels. It is good to see that Mr. Williams' feet are just fine. You have been doing a good job.

Mrs. Williams, you mentioned that you helped Mr. Williams check his feet every morning at the hospital. Will you be able to stay on this schedule when you return home?

MRS. WILLIAMS: It was not a problem at the hospital, but it may be a problem when we return home. I have to take some of our fruits and vegetables to the market almost every day. I must leave for the market before sunrise so I get a good spot to sell my produce. I usually do not return home until mid-afternoon.

HEALTH WORKER: It really does not make any difference what time of day Mr. Williams' feet are examined. But it must be

done daily so that it becomes a routine. What sort of schedule might fit into your daily routine?

MRS. WILLIAMS: Well, let me see. Our two daughters leave for school after the sun is up. It is still light outside when I come home and Walter returns from his work. What do you think, Walter?

MR. WILLIAMS: I don't need any help. I can examine my own feet!

MRS. WILLIAMS: I know you can. But, remember, I forgot to look between your toes. Maybe you will forget to look some place else.

MR. WILLIAMS: Well, I am still worried about our daughters getting leprosy from me. Maybe you should check my feet later in the afternoon.

MRS. WILLIAMS: You don't care if I get it or not?

HEALTH WORKER: If I may interrupt, I think Mr. Williams' idea that you help him check his feet in the afternoon when there is still plenty of light is a good idea. Now about this other issue of your being worried that whoever helps you check your feet may get leprosy. What did Nurse Natang say about this?

MR. WILLIAMS: She said that leprosy is not spread very easily. She said that we need to check each other for the signs of leprosy. She said that if we find anything to come to see you right away. Otherwise, my family needs to be examined by you in six months.

HEALTH WORKER: That is correct. Did she tell you anything else?

MR. WILLIAMS: She told me what I would feel like if I had a reaction to my medicine. She said that I should stop taking the medicine and come to see you if I have a reaction. She also said that now that I am taking my medicine no one in the family should worry about getting leprosy from me.

HEALTH WORKER: That is also correct. But you sound like you are not convinced about this last point.

MR. WILLIAMS: Well, I am still a little worried. I am still having some problems getting used to the idea of having leprosy. It is difficult to have to take medicine for a long time and to check my feet everyday.

HEALTH WORKER: Yes, I can understand your concern. Although I have never had leprosy, I have worked with many people who have had to face this same problem. You are fortunate that we were able to diagnose your problem so early. You are also lucky to have the support you are getting from Mrs. Williams. Some people are not as fortunate as you to have such a caring wife.

MR. WILLIAMS: That is true!

HEALTH WORKER: Let me assure you that what Nurse Natang said was also true. If you take your medicine twice a week as she explained to you then your family is also protected. I do hope you believe this. I appreciate your openness in sharing your concerns with me. Also, remember to wash your feet daily with soap and water before the examination.

MR. WILLIAMS: Okay, let us see what happens. When we get home we will talk with our daughters. We will see what we can work out so someone can help me check my feet every day after I wash them with soap and water.

HEALTH WORKER: Now, one last question. Do the two of you know what to do if you find a foot injury or any red or irritated spot anywhere on the foot?

MRS. WILLIAMS: I would wash his foot with clean water and soap. Then I would put on a clean cloth.

MR. WILLIAMS: Nurse Natang showed us how to make crutches out of materials we can find in our yard. I would use the crutches so I can come to see you without having to walk on my injured foot.

HEALTH WORKER: You are absolutely correct. Mr. Williams, you understand that I need to see you weekly for the next month. Next Wednesday I will be visiting Mrs. Tablan, the community health worker in your village. I will probably not reach your village until the afternoon. Is this a convenient time for me to visit you or would you prefer to visit me here at the health center sometime next week?

MR. WILLIAMS: Oh, we know Mrs. Tablan very well. She lives only a few houses away from us. In fact, she was the one who told me to come to see you. Next Wednesday

afternoon would be just fine. We can ask her to send one of her children to fetch us when you arrive.

HEALTH WORKER: Great. Then this fits into everyone's schedule. Do you have anything you want to ask me or other members of our health team before you leave?

THE WILLIAMS': No, nothing right now, except would you join us for dinner next Wednesday night?

HEALTH WORKER: Thank you, I would be delighted to have dinner with you. I would also like to thank you for stopping in to see me on your way home from the hospital. We always need to know how things went at the hospital and how we can best help you and your family on your way to recovery. It has been a pleasant visit. Good-bye, and I will see you next Wednesday. I am looking forward to the dinner.

THE WILLIAMS': Good-bye, and thank you for your time. Do bring a good appetite.

REVIEW EXERCISE

Sharing Health Messages about Leprosy

With your group, develop a health message on one of these topics:

1. The psychological effect on the patient who learns he has leprosy
2. The social and economic effects on the patient with leprosy
3. The importance of the patient staying on his leprosy medication
4. How a patient can recognize a reaction to his leprosy medication and what he can do
5. How a leprosy patient can care for and protect his hands from injury
6. How a patient with leprosy can care for and protect his feet from injury
7. How to exercise the joints of affected arms and legs
8. How to check family members for early signs of leprosy
9. The attitudes of community members towards the person with leprosy

If possible, use leprosy patients or health workers who work with leprosy patients as resource people for developing your health message. You may develop a revised version of the sample health message on foot care. Or, if you have an idea for a health message on leprosy which you would like to develop and which is not listed above, feel free to develop your own topic into a health message to share with the class.

Notice that some of the topics listed are not discussed in Unit 6 where leprosy is discussed. You now have an opportunity to share your experiences and those cultural considerations which must be taken into account.

SKILL CHECKLIST

Developing and Presenting Health Messages about Leprosy

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 develop and present health messages about leprosy.

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 you develop and present a health message about leprosy, you should:

	YES	NO	RATING	COMMENTS
1. Tell the patient, family member, or group what your topic is and why it is important				
2. Find out what people in the group know about the topic				
3. Present your message in simple, clear language				
4. Present your message in more than one way				
5. Include all group members in the discussion				
6. Find out if people understood the message				
7. Make people in the group comfortable and relaxed				

Unit 6

Assessing and Caring for Patients with Infectious Diseases; Skill Development

STUDENT GUIDE

OBJECTIVES

1. Interview and examine patients with infectious diseases.
2. Recognize and record the signs and symptoms of infectious diseases.
3. Advise patients and family members about the prevention and home care of infectious diseases.
4. Present health messages about the prevention of infectious diseases and about community attitudes towards the patient with leprosy.

LEARNING ACTIVITIES

1. Participate in one and one-half days of clinical practice in a hospital ward or outpatient clinic. During that time you will interview and examine patients and advise patients and family members about the prevention and home care of infectious diseases. You will also present health messages about the prevention of infectious diseases and about community attitudes towards the patient with leprosy.
2. Participate in two weeks of skill development practice in a hospital ward or outpatient clinic.

Unit 7

Caring for Patients with Infectious Diseases; Clinical Rotation

STUDENT GUIDE

ENTRY LEVEL

Before starting your clinical experience, you must:

1. Pass a test of your knowledge about infectious diseases with a score of 80% or higher.
2. Receive at least two Satisfactory ratings on how you:
 - Take and record a medical history of the patient with an infectious disease
 - Give a physical examination to the patient with an infectious disease
 - Identify the signs of infectious diseases
 - Counsel patients about infectious diseases
 - Present health messages about leprosy

OBJECTIVES

1. Diagnose all of the infectious diseases described in this module with the help of the Diagnostic Guides.
2. Properly record information about medical history, physical examination, and patient care.
3. Provide patient care, using the treatments described in this module and in the Patient Care Guides.
4. Prepare a blood smear for the diagnosis of malaria.
5. Counsel patients about home care for leprosy.

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 infectious diseases. You will be expected to use the Diagnostic and Patient Care Guides, the Patient Care Procedures, and the Formulary. You will have a chance to practice the patient care procedure for making thin and thick blood smears for the diagnosis of malaria.

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. The log book contains a list of the problems you will work with during your clinical experience. It also shows how many patients with infectious diseases 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, but no patient advice given
- 4 = Diagnosis, treatment, and patient advice correct

You will be expected to get two ratings of 4 for each problem taught in this module.

During the clinical experience described in this unit, you will be expected to receive at least two Satisfactory ratings on your skill in preparing blood smears for the diagnosis of malaria.

Unit 8

Helping a Community to Prevent and Care for Infectious Diseases; 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 infectious diseases.
2. Complete one 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 prepare a blood smear for the diagnosis of malaria

Teaching methods for community health workers

Presenting community health messages on leprosy

OBJECTIVES

1. Provide clinical services to patients with infectious diseases.
2. Identify infectious diseases and plan a program to prevent them from occurring and spreading, with special emphasis on immunization.
3. Advise the community about its role in preventing infectious diseases.
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 infectious diseases.
2. Identify any local customs that increase or decrease the occurrence of infectious diseases.
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.

OTHER COMMON PROBLEMS

The MEDEX Primary Health Care Series

**OTHER
COMMON PROBLEMS**

Student Text

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

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TABLE OF CONTENTS

TASK ANALYSIS TABLE	9
SCHEDULE	17
INTRODUCTION	19

UNIT 1

Assessing the Patient with a Low Back or Joint Problem

Student Guide	23
Signs and Symptoms of Low Back and Joint Problems	25
Taking a Medical History of the Patient with a Low Back or Joint Problem	29
Examining the Patient with a Low Back or Joint Problem	31
Review Questions	34

UNIT 2

Low Back and Joint Problems

Student Guide	36
Low Back Pain Caused by Muscle Strain or Sprain of the Sacroiliac Joint	37
Low Back Pain Caused by Disk Disease	39
Osteoarthritis	41
Rheumatoid Arthritis	43
Septic Arthritis	45
Review Questions	47
Review Exercises	49

UNIT 3

Assessing the Patient with a Thyroid Problem

Student Guide	55
Signs and Symptoms of Thyroid Problems	57
Taking a Medical History of the Patient with a Thyroid Problem	58
Examining the Patient with a Thyroid Problem	59
Review Questions	61

UNIT 4

Thyroid Problems

Student Guide	63
Simple Goiter	64
Hypothyroidism	65
Hyperthyroidism	66
Review Questions	68
Review Exercise	70

UNIT 5

Assessing the Patient with Other Medical Problems

Student Guide	72
Signs and Symptoms of Other Medical Problems	73
Taking a Medical History of the Patient with Other Medical Problems	74
Examining the Patient with Other Medical Problems	77
Review Questions	80

UNIT 6

Other Medical Problems

Student Guide	83
Headache	84

109

Stroke	86
Grand Mal Epilepsy	88
Petit Mal Epilepsy	90
Anemia	91
Cancer	93
Diabetes Mellitus	96
Review Questions	101
Review Exercises	104
Skill Checklist	111

UNIT 7

Assessing the Patient with a Mental Health or Alcohol Abuse Problem

Student Guide	114
Signs and Symptoms of Mental Health and Alcohol Abuse Problems	116
Taking a Medical History of the Patient with a Mental Health or Alcohol Abuse Problem	117
Examining the Patient with a Mental Health or Alcohol Abuse Problem	119
Review Questions	122

UNIT 8

Mental Health and Alcohol Abuse Problems

Student Guide	125
Acute Confusion	126
Anxiety	127
Depression	128
Acute Alcohol Intoxication	130
Chronic Alcoholism	131
Review Questions	133
Review Exercises	134

UNIT 9

Supporting the Person with a Chronic Illness

Student Guide	137
Supporting the Person with a Chronic Illness	138
Review Questions	141
Skill Checklist	142

UNIT 10

Assessing and Caring for Patients with Other Common Problems; Skill Development

Student Guide	144
---------------	-----

UNIT 11

Caring for Patients with Other Common Problems; Clinical Rotation

Student Guide	145
---------------	-----

UNIT 12

Helping a Community to Prevent and Care for Other Common Problems; Community Phase

Student Guide	147
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**Work Requirements
DUTIES**

Training Requirements

SKILLS

KNOWLEDGE

Age and sex
Menstrual patterns
Type of bowel movements
General physical condition
Problems with vision
Information needed to complete the medical history of a patient's other medical problem when the presenting complaint is:
Headache
Onset of pain
Duration of pain
Location of pain
Quality of pain
Pattern of pain
Fever, chills, or other symptoms associated with the pain
Use of drugs or medications
Family history of similar headaches
Loss of consciousness or fainting spell
Condition before losing consciousness or fainting
Condition while unconscious

11

Work Requirements <i>DUTIES</i>	Training Requirements	
	SKILLS	KNOWLEDGE
		<p>Condition after regaining consciousness</p> <p>History of loss of consciousness or fainting</p> <p>History of high blood pressure</p> <p>Weight loss or loss of appetite</p> <p>Sores which do not heal</p> <p>Unexplained blood in the urine or stool, or bleeding from the rectum or vagina</p> <p>Chronic bacterial infections</p> <p>Increased thirst</p> <p>Increased hunger</p> <p>increased urination</p> <p>Information needed to complete the medical history of a patient's mental health or alcohol abuse problem:</p> <p>Symptoms of physical illness</p> <p>Problems in daily life</p> <p>Symptoms which upset daily life</p> <p>Symptoms reported by family or friends</p>

11

Work Requirements DUTIES	Training Requirements	
	SKILLS	KNOWLEDGE
<p>2. Give a physical examination to patients with other common problems</p>	<p>1.3 Record a patient's medical history</p> <p>2.1 Identify these signs of other common problems:</p> <p>Limited movement of a joint Joint inflammation with redness, swelling, tenderness, or warmth Rough sensation when a joint is moved Joint deformity Positive straight leg raising test Leg muscle weakness Loss of sensation in one leg Tenderness over the sciatic nerve Muscle spasms and tenderness Fever Weight loss Enlarged smooth or nodular thyroid gland Puffy face with a dull, uninterested expression Slow, slurred speech with a low pitched voice Slow body movements Thick, dry skin Coarse, brittle hair</p>	<p>1.3.1 How to use medical history forms</p> <p>2.1.1 The anatomy and physiology of the human body</p> <p>2.1.2 The definition of signs of other common problems</p>

Work Requirements
DUTIES

Training Requirements

SKILLS

KNOWLEDGE

Bulging, staring eyes
Fine tremors of the hands
Increased resting pulse rate
Moist skin
Fine, silky hair
Hoarseness
Loss of consciousness
Paralysis of one side of the face
Paralysis of an arm or leg on one side
Difficulty speaking
Hard lump or mass anywhere in the body
Pale or white conjunctivae
Pale or white mucous membranes of the mouth
Pale or white nail beds
Obesity
Unusual behavior
Abnormal emotional state
Abnormal mental state
Sudden loss of speech
Sudden loss of vision
Sudden loss of hearing
Sudden paralysis or loss of sensation in an arm or leg
Enlarged and tender liver

<p align="center">Work Requirements DUTIES</p>	<p align="center">Training Requirements</p>	
	<p align="center">SKILLS</p>	<p align="center">KNOWLEDGE</p>
<p>3. Diagnose other common problems</p> <p>Low back pain caused by muscle strain or sprain of the sacroiliac joint</p> <p>Low back pain caused by disk disease</p> <p>Osteoarthritis</p> <p>Rheumatoid arthritis</p> <p>Septic arthritis</p> <p>Simple goiter</p> <p>Hypothyroidism</p> <p>Hyperthyroidism</p> <p>Headache</p> <p>Stroke</p> <p>Grand mal epilepsy</p> <p>Petit mal epilepsy</p> <p>Anemia</p> <p>Cancer</p>	<p>Fluid in the abdomen</p> <p>Jaundice</p> <p>Malnutrition</p> <p>2.2 Give a physical examination to the patient with other common problems, and record the findings</p> <p>3.1 Use the Student Text and the Diagnostic Guides to identify other common problems</p>	<p>2.2.1 How to use forms for writing down the findings of a physical examination</p> <p>3.1.1 The clinical picture of other common problems and the course and complications of the problems</p>

117

Work Requirements DUTIES	Training Requirements	
	SKILLS	KNOWLEDGE
6. Advise patients' families and others on how to prevent and care for other common problems	5.2 Teach a patient with diabetes how to give himself an insulin injection	5.1.3 How to prevent other common problems 5.2.1 How to use demonstration as a teaching method 5.2.2 How to sterilize and prepare a syringe, prepare an insulin dose, and administer an insulin injection
	5.3 Support the person with a chronic illness	5.3.1 How to use discussion as a teaching method and as a method for the patient to present his ideas, concerns, and suggestions about how he can best care for his problems 5.3.2 The role of the family and community in supporting the person with a chronic illness
	6.1 Tell a patient's family and community groups about other common problems and how to prevent them	6.1.1 How to tell groups of people about other common problems
	6.2 Contact a health office for assistance	6.2.1 When and how to ask members of the health team for help

SCHEDULE
OTHER COMMON PROBLEMS

DAY 1	DAY 2	DAY 3
<p>Introduction to Other Common Problems module</p> <p>Recognizing the signs of low back and joint problems</p> <p>Taking a medical history of the patient with a low back or joint problem</p>	<p>Diagnosing low back and joint problems</p> <p>Treating and caring for patients with low back and joint problems</p>	<p>Diagnosing thyroid problems</p> <p>Simple goiter</p> <p>Hypothyroidism</p> <p>Hyperthyroidism</p> <p>Treating and caring for patients with thyroid problems</p> <p>Recognizing the signs of other medical problems</p>
<p>Interviewing and examining patients with low back or joint problems; Clinical practice</p> <p>Diagnosing low back and joint problems</p> <p>Low back pain caused by muscle strain or sprain of the sacroiliac joint</p> <p>Low back pain caused by disk disease</p> <p>Osteoarthritis</p> <p>Rheumatoid arthritis</p> <p>Septic arthritis</p>	<p>Recognizing the signs of thyroid problems</p> <p>Taking a medical history of the patient with a thyroid problem</p> <p>Interviewing and examining patients with thyroid problems; Clinical practice</p>	<p>Taking a medical history of the patient with other medical problems</p> <p>Interviewing and examining patients with other medical problems; Clinical practice</p> <p>Diagnosing other medical problems</p> <p>Headache</p> <p>Stroke</p> <p>Grand mal epilepsy</p> <p>Petit mal epilepsy</p> <p>Anemia</p> <p>Cancer</p> <p>Diabetes mellitus</p>

17

DAY 4	DAY 5	DAY 6
<p>Treating and caring for patients with other medical problems</p> <p>Recognizing the signs of mental health and alcohol abuse problems</p> <p>Taking a medical history of the patient with a mental health or alcohol abuse problem</p>	<p>Supporting the person with a chronic illness</p>	<p>Diagnosing other common problems and caring for patients; Clinical practice</p> <p>Group A - Patient care</p> <p>Group B - Interviewing and examining patients</p> <p>Group C - Presenting health messages</p>
<p>Interviewing and examining patients with mental health or alcohol abuse problems; Clinical practice</p> <p>Diagnosing mental health and alcohol abuse problems</p> <p>Acute confusion</p> <p>Anxiety</p> <p>Depression</p> <p>Acute alcohol intoxication</p> <p>Chronic alcoholism</p> <p>Treating and caring for patients with mental health or alcohol abuse problems</p>	<p>Diagnosing other common problems and caring for patients; Clinical practice</p> <p>Group A - Interviewing and examining patients</p> <p>Group B - Presenting health messages</p> <p>Group C - Patient care</p>	<p>Diagnosing other common problems and caring for patients; Clinical practice</p> <p>Group A - Presenting health messages</p> <p>Group B - Patient care</p> <p>Group C - Interviewing and examining patients</p> <p>Posttest</p>

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 the other common problems discussed in this module. Before you start this module, be sure you know:

The normal anatomy and physiology of the body systems which are affected by other common problems

How to take a medical history

How to give a physical examination

How to present health messages

How to test urine for sugar

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 other common 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 10. Your instructor will make special arrangements for Units 11 and 12 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 Diagnostic Guides for the disease discussions in the module

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

Read the Patient Care Procedure for teaching a patient with diabetes how to give himself an insulin injection

Read the health message section on supporting the person with a chronic illness

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

The instructor will answer the review questions and any other questions you have in class.

EVALUATION

This training program will help you build your knowledge and skills. Regular evaluations will allow your instructor 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 for Evaluation Levels I, II and III 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 other common problems, 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 signs of other common problems

Interview patients with other common problems

Examine patients with other common problems

Teach the patient with diabetes how to give himself an insulin injection

Support the person with a chronic illness

123

EVALUATION Level II

You will have one month of clinical practice. To satisfy the requirements of this clinical evaluation, you must correctly diagnose, care for, and advise two patients for each of these problems:

Low back pain caused by muscle strain or sprain of the sacroiliac joint

Low back pain caused by disk disease

Osteoarthritis

Rheumatoid arthritis

Septic arthritis

Simple goiter

Hypothyroidism

Hyperthyroidism

Headache

Stroke

Grand mal epilepsy

Petit mal epilepsy

Anemia

Cancer

Diabetes mellitus

Acute confusion

Anxiety

Depression

Acute alcohol intoxication

Chronic alcoholism

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:

Teaching a patient with diabetes how to give himself an insulin injection

Supporting the person with a chronic illness

124

EVALUATION Level III

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

Diagnosing and caring for patients with other common problems

Advising patients and their families about home care, when appropriate, for other common problems

Conducting community meetings to discuss supporting the person with a chronic illness

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

125

Unit 1

Assessing the Patient with a Low Back or Joint Problem

STUDENT GUIDE

OBJECTIVES

1. Describe the signs of low back or joint problems:
 - Limited movement of a joint
 - Joint inflammation with redness, swelling, tenderness, or warmth
 - Rough sensation when a joint is moved
 - Joint deformity
 - Positive straight leg raising test
 - Leg muscle weakness
 - Loss of sensation in one leg
 - Tenderness over the sciatic nerve
 - Muscle spasms and tenderness
 - Fever
 - Weight loss
2. Recognize the signs of a low back or joint problem when you see or feel them in a patient.
3. Interview a patient about his low back or joint problem.
4. Examine a patient with a low back or joint problem.
5. Record your findings on official forms.

LEARNING ACTIVITIES

1. Join the instructor and class in presentations, demonstrations, and discussions of low back and joint problems.
2. Practice taking a medical history of the patient with a low back or joint problem using role-plays based on case studies 65, 66, 67, and 68 in Unit 2.

3. In the classroom, interview and examine patients with low back and joint problems.
4. In the clinic, ask patients questions about their low back and joint problems. Examine patients with low back and joint problems, and write down your findings.

127

1.1 SIGNS AND SYMPTOMS OF LOW BACK AND JOINT PROBLEMS

This section discusses the signs and symptoms of problems of the lower back and the joints of the arms and legs. Minor trauma to the lower back is associated with one problem. Disease or infection causes the others. Some of the problems are acute conditions with sudden onset. Others are chronic and develop over weeks, months, or years.

These signs and symptoms often accompany lower back and joint problems:

Limited Movement of a Joint

A joint is the place where two bones join together. Joints are classified according to the way they move. For example, a joint which moves like the hinge on a door is called a hinge joint. The finger, elbow, and knee are hinge joints. Hinge joints move up and down, or in and out. The shoulder and hip joints are ball and socket joints. Ball and socket joints move up, down, and in a circular motion.

Because of their location and constant use, joints commonly suffer injury, disease, and inflammation. A joint disease usually causes reduced or limited joint movement. A diseased or inflamed joint cannot be moved as far, as easily, or in as many directions as a healthy joint can.

Joint Inflammation with Redness, Swelling, Tenderness, or Warmth

Like other parts of the body, joints become swollen and tender when they are inflamed. Increased fluid in and around an inflamed joint causes swelling. The blood vessels around the joint dilate as the body fights the joint infection. This dilation of the blood vessels can make the swollen tissue red and warm. The patient will complain of tenderness or pain when you feel and move the joint.

Rough Sensation When a Joint is Moved

A healthy joint has a smooth, moist lining that allows the joint to move easily. The lining of a diseased or inflamed joint becomes

128

rough and dry. A diseased joint cannot move freely. Movement of a diseased joint feels coarse and rough. The dry joint surfaces rubbing together cause this rough sensation.

Joint Deformity

Three types of non-traumatic joint deformity are a spindle deformity of the fingers, enlargement of the distal joints of the fingers, and an abnormal curvature of the spine.

Some joint problems severely damage the joints of the fingers. Inflammation makes the joints swell. With one problem, the distal joints of the fingers become seriously enlarged. With another, the fingers become spindle-shaped. The middle joints of the fingers look swollen, and their ends look thin.

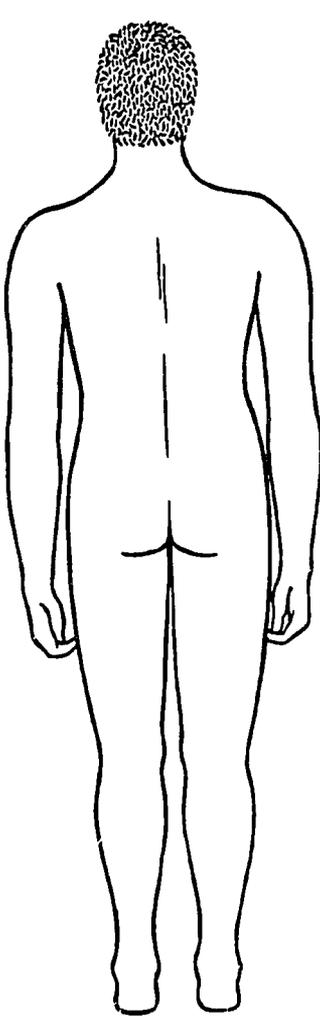


DISTAL JOINT ENLARGEMENT OF OSTEOARTHRITIS

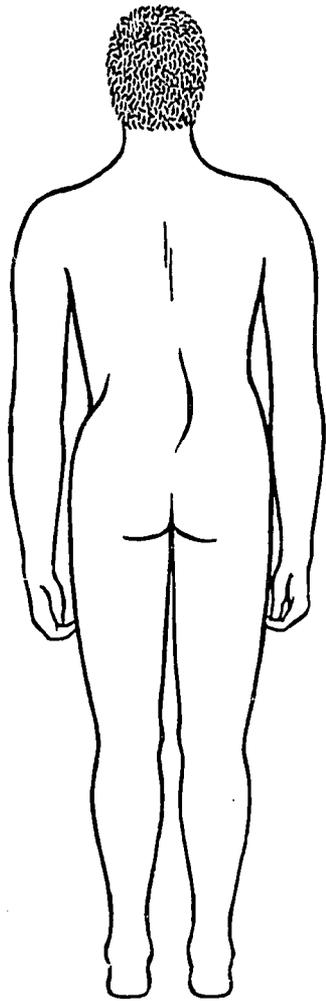
A low back problem can also result in a deformity. The spine of the back consists of a column of small bones called vertebrae. Strong fibers, or ligaments, join the vertebrae. Each space between the vertebrae is filled with tissue softer than bone. This tissue is called a disk. The disks hold the spinal vertebrae in a straight line. They also allow the neck and back to move. Large power muscles run up and down both sides of the spinal column. These muscles control the movement of the spinal column.

12A

Look directly at the back of a standing person. A healthy spinal column runs straight up and down. Now look at a healthy person's back from the side. Notice the natural curve of the lower spine from front to back. Deterioration of a spinal disk causes the spine to curve abnormally to the right or left. The curvature usually occurs in the lower, or lumbosacral, part of the spinal column.



NORMAL



**ABNORMAL CURVATURE
OF THE SPINE TO THE RIGHT**

130

A damaged disk can no longer hold the spinal vertebrae in a straight line. The weight of the upper part of the body forces the spinal column to curve to the right or left. Disk damage can also flatten the normal front to back curve of the lower spine.

Positive Straight Leg Raising Test

The straight leg raising test can help you find out if a disk of a patient with low back pain is pressing on his spinal nerves. Ask the patient to lie on his back on the examining table. Lift the patient's legs one at a time. Keep the raised leg straight at the knee. Hold the other leg flat on the examining table.

A straight leg raising test is negative if the patient can lift his leg easily and feels no back or leg pain. A negative test means that a spinal disk is not pressing on a nerve. The patient's low back problem is likely caused by muscle strain or sprain of the sacroiliac joint.

A straight leg raising test is positive if the patient has difficulty raising his leg because of back pain or pain radiating down the back of his leg. A positive test means that a damaged disk may be pressing on a nerve. The patient's low back problem is likely caused by disk disease.

Leg Muscle Weakness

Testing and comparing the muscle strength in both legs is another way to detect spinal nerve irritation. Ask the patient to straighten and then bend each leg against your resistance. Note if one leg is weaker than the other. Nerve irritation from a low back problem can cause muscle weakness in one leg.

Loss of Sensation in One Leg

Compare the sensation in both legs with a pinprick. A loss of sensation to a pinprick in one leg is a sign of nerve irritation from a low back problem.

Tenderness Over the Sciatic Nerve

Tenderness over the sciatic nerve in each buttock may be a sign that a damaged disk is pressing on the sciatic nerve.

Muscle Spasms and Tenderness

A patient will have spasms of his back muscles if a damaged disk is pressing on his spinal nerves. Stretching the spinal muscles or

tearing the ligaments around the spinal vertebrae can also irritate the spinal nerves and cause painful muscle spasms. The patient will complain of tenderness when you press on a muscle which is in spasm.

Fever

When a patient comes to you with a fever, be sure to examine his joints for signs of inflammation, deformity, and limited movement. A joint problem is sometimes the result of a disease with generalized body symptoms. Fever may be the only early sign.

Weight Loss

Weight loss is also a sign of a disease with generalized body symptoms. A patient with fever, fatigue, and loss of appetite may lose weight. Patients with one type of joint disease often lose weight. Always weigh the adult patient. Check his health records. Note any weight loss since the patient's last visit. Examine the joints of a patient who has lost weight. Look for inflammation, deformity, and limited movement.

1.2 TAKING A MEDICAL HISTORY OF THE PATIENT WITH A LOW BACK OR JOINT PROBLEM

Pain is the most common symptom of a low back or joint problem. When a patient comes to you with low back or joint pain, you need to answer several questions. Is the problem limited to only the lower back or a joint? Is it affecting the nerves or the muscles? Is it an acute problem or a problem that the patient will have to live with for the rest of his life? Is it a local joint problem or the result of a systemic disease? Take a medical history to answer these and other questions.

When a patient complains of pain, ask:

“How did the Pain Start? How Long Have You Had the Pain?”

Low back pain usually starts suddenly or within twenty-four to forty-eight hours of a back strain. A patient with one type of back problem will have lifted a heavy object twenty-four to forty-eight hours before the onset of pain. A patient with a second type of

back problem may say that he developed sudden and severe low back pain when he coughed or suffered a minor trauma to his back. Such a patient may have had this type of back pain before.

Joint pain may be either acute or chronic. A patient with septic arthritis will have sudden, severe pain in a large weight-bearing joint. Patients with two other types of arthritis have long-term, or chronic, problems. A patient with rheumatoid arthritis will commonly report that he has had pain for several weeks. A patient with osteoarthritis may report that he has had pain for weeks, months, or even years. A patient with such chronic pain will usually come to see you when the pain starts to affect his daily activities.

“What is the Quality of the Pain?”

Sharp pain is usually a symptom of a low back problem. Severe, throbbing pain is a symptom of an acute infection of a large weight-bearing joint. An aching pain is commonly associated with chronic joint disease.

“Is the Pain in Only One Joint or in Many Joints?”

Rheumatoid arthritis affects many joints at once. Osteoarthritis usually affects only one joint, often a joint which was injured earlier in the patient's life. Septic arthritis rarely affects more than one joint. The affected joint is usually a weight-bearing joint such as the knee or hip.

“Does the Pain Stay in One Place or Does it Move?”

A patient with one type of low back pain will often have shooting pain down one of his legs and even into his foot. Shooting pain is a sign that a damaged disk may be pressing on a spinal nerve.

“Does Anything Make the Pain Better or Worse?”

Rest often helps to relieve low back pain and some types of arthritis. Lying on a firm surface also helps to relieve low back pain.

A cycle of pain and stiffness is typical of rheumatoid arthritis. The painful joints are stiff in the morning, become less stiff during the day, and then become stiff and painful again in the evening.

“Have You Had Any Fever or Weight Loss Since the Joint Pain Started?”

Rheumatoid arthritis causes generalized body symptoms. Along with joint symptoms, the patient will report fever, fatigue, loss of appetite, and loss of weight.

137

A patient with septic arthritis will have fever and chills. A male patient may have pain and burning upon urination and a discharge from his penis. A female patient may have a discharge from her vagina, irritation around her vagina, or pain during intercourse. These are all symptoms of gonorrhea which can cause acute and severe pain in a large weight-bearing joint.

Always note the age of a patient with a low back or joint problem. One type of arthritis commonly affects patients who are forty years old or older. A second type affects patients aged twenty to forty. A third type of arthritis can develop in a person of any age.

1.3 EXAMINING THE PATIENT WITH A LOW BACK OR JOINT PROBLEM

Always begin the examination by noting the general appearance of the patient. Next obtain his vital signs. Only then should you examine the patient's back or joints.

Check General Appearance

Note how the patient walks, stands, and sits. A patient with a back problem may not be able to stand upright. He may bend over and walk or sit stiffly. A patient with a problem in one of the large weight-bearing joints may walk with a limp. Or he may not be able to walk at all.

Note any signs of pain. Low back and some joint problems can be so painful that the pain will show on the patient's face.

Take and Record Vital Signs

Fever and weight loss can be signs of joint disease.

Observe the Back

If the patient is complaining of low back pain, have him remove his shirt so that you can examine his back.

a. Note the shape of the spinal column

Abnormal curvature of the lower spine to the right or left is a sign of disk disease. Disk disease may also flatten the normal curve of the lower spine.

134

- b. Note the size of the muscles which run along both sides of the spinal column

A muscle injury or nerve irritation from a back injury or disease often causes muscle tightness and spasms. A muscle in spasm may appear larger than the unaffected muscle on the opposite side.

Palpate the Spinal Vertebrae and Back Muscles

Use your thumb to palpate along each spinal vertebra. A patient who has strained or sprained his back or who has a damaged disk will complain of tenderness.

Palpate the large muscles along the spinal column. A muscle in spasm will feel tight and hard. The patient will complain of tenderness.

Conduct the Straight Leg Raising Test

When a patient has low back pain, you need to find out if a disk is pressing on his spinal nerves.

Ask the patient to lie on his back on the examining table. Lift the patient's legs one at a time. Hold the raised leg straight at the knee. Hold the other leg flat on the examining table.

- a. Is the straight leg raising test negative?

A straight leg raising test is negative if the patient can lift his leg easily and feels no back pain or pain radiating down his leg. A negative test means that a disk is not pressing on the spinal nerves.

- b. Is the straight leg raising test positive?

A straight leg raising test is positive if the patient has difficulty raising his leg because of back pain or pain radiating down his leg. A positive test means that a disk may be pressing on the spinal nerves.

Check for Other Signs of Nerve Irritation

Palpate over the sciatic nerve in both buttocks. The patient will complain of tenderness if a disk is pressing on the sciatic nerve.

Compare the muscle strength in the patient's legs. Ask the patient to straighten and bend his legs one at a time against your resistance. Muscle weakness in one leg is a sign of nerve irritation from a low back problem.

135

Compare the sensation in the patient's legs. Ask the patient to turn away. Have the patient tell you if he can feel a slight pinprick over different parts of the same leg. Then test the other leg for sensation to pinpricks. Loss of sensation in one leg is a sign of nerve irritation from a low back problem.

Tenderness over the sciatic nerve, leg muscle weakness, and loss of sensation in one leg are signs commonly seen on the same side and in the same leg which had a positive straight leg raising test. A patient with intervertebral disk disease has this combination of signs and symptoms.

Inspect the Joints

Inspect the affected joint of a patient with a joint complaint. Always compare the affected joint with the healthy joint on the opposite side of the body.

- a. Check for joint swelling and redness

Joint swelling and redness are signs of inflammation.

- b. Check for joint deformity

Patients with rheumatoid arthritis often have a spindle-shaped deformity of the fingers. The distal joints of the fingers are usually enlarged in a patient with osteoarthritis.

- c. Check for limited joint movement

Ask the patient to move the affected joint. Inflammation or osteoarthritis can limit joint movement.

Palpate the Joints

Palpate the patient's joints. Compare the affected joint with the healthy joint on the opposite side of the body.

- a. Check for warmth and tenderness

Warmth is a sign of joint inflammation.

Tenderness when you feel and move the joint is a sign of either inflammation or joint disease.

- b. Check for a rough sensation when you move the affected joint

A diseased joint does not move freely. You may feel a rough sensation over the joint when you move it. This rough sensation is caused by the rough and dry joint surfaces rubbing together.

This rough sensation is a common sign of osteoarthritis.

13/6

REVIEW QUESTIONS
**Assessing the Patient with a Low Back
or Joint Problem**

1. Name the four signs of joint inflammation.
2. Name three common joint deformities.
3. What causes a rough sensation when you move a patient's joint?
4. What are the signs that a spinal disk is pressing on a nerve?
5. What is a positive straight leg raising test?
6. What causes a positive straight leg raising test?
7. Rheumatoid arthritis causes generalized body symptoms. Along with joint symptoms, the patient will report other symptoms. Name two.

Unit 2

Low Back and Joint Problems

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of
 - Low back pain caused by muscle strain or sprain of the sacroiliac joint
 - Low back pain caused by disk disease
 - Osteoarthritis
 - Rheumatoid arthritis
 - Septic arthritis
2. Interview and examine patients and diagnose low back and joint problems.
3. Provide treatment and care for patients with low back and joint problems.
4. Tell patients and their families how to care for low back and joint problems at home and to prevent them from becoming worse.

LEARNING ACTIVITIES

1. Join the instructor and class in presentations and discussions of the diagnosis of low back and joint problems.
2. Practice diagnosing low back and joint problems using examples from case studies.
3. Practice using the Diagnostic and Patient Care Guides and the Formulary.
4. During skill development in a clinic, practice identifying low back and joint problems, providing treatment and care, and telling patients about home care and prevention.

2.1 LOW BACK PAIN CAUSED BY MUSCLE STRAIN OR SPRAIN OF THE SACROILIAC JOINT

Low back pain is a very common complaint. The cause of low back pain is often difficult to determine. Poor posture and muscle strain from lifting heavy objects or from repeated bending are the most common causes of low back pain. Doing heavy work can also sprain the sacroiliac joint and cause severe low back pain.

CLINICAL PICTURE

a. Presenting complaint

The patient complains of *pain* in his *lower back*. Bending over and straightening up are difficult and painful.

b. Medical history

The patient will often report doing *heavy work* or *lifting a heavy object* within the last *twenty-four to forty-eight hours*.

c. Physical examination

Examine the patient's back while he is standing. Note his posture. Patients with low back muscle strain often *cannot stand upright*.

Ask the patient to lie on his stomach. Gently feel the muscles on both sides of his spine. You will note *spasms* and *tenderness* over any injured muscles. The spine, however, will not be tender.

Stretching or injuring the ligaments around the sacroiliac joint can sprain this joint. A patient with such a sprain will have *tenderness over the sacroiliac joint*.

Simple low back muscle strain or a sprain of the sacroiliac joint should not affect a patient's ability to lift his legs. Perform the straight leg raising test. The patient will be able to *raise his legs* and will feel *no sharp back or leg pains* when you perform the straight leg raising test.

Test the patient's legs and feet for strength. The patient will have *normal muscle strength* in his *lower legs and feet*. Test the patient's

legs and feet for sensation. The patient will have *no loss of sensation in either leg or foot*.

COURSE AND COMPLICATIONS

Low back pain caused by muscle strain or sprain of the sacroiliac joint should improve with rest within a few days. A low back problem caused by an injury will take longer to heal.

PATIENT CARE

- a. Recommend bedrest. Encourage the patient to sleep on a flat, firm surface. Tell him to place a flat board under a thin mattress for support. Tell him to rest for one to two hours several times a day until his back pain subsides.
- b. Advise the patient to avoid any work or activities which will strain his back or cause back pain.
- c. Suggest placing warm water bottles or other sources of warmth against his painful muscles. The warmth will provide some relief and will assist healing.
- d. Advise the patient to take aspirin every four hours for pain. See Patient Care Guides.
- e. Refer the patient to the hospital if symptoms continue for more than two weeks.

PREVENTION

Show the patient how to lift heavy objects safely. Tell him to keep his back straight and to bend his knees. He should lift the weight of the object by straightening his knees and rising straight up. He should not bend from the waist. Bending from the waist strains the back muscles. Tell him to carry heavy objects close to his body to protect his back.

Good posture can also help reduce chronic back muscle strain. Encourage a patient with poor posture to stand and sit properly. Tell him to keep his chin tucked in towards his chest, with shoulders back and stomach in. This posture centers the weight of the upper body for easy support by the pelvis and the bones of the legs and feet, rather than the back.

141

2.2 LOW BACK PAIN CAUSED BY DISK DISEASE

A disease of the spinal disk is another, more serious cause of low back pain. The disks between the vertebrae of the spine are called intervertebral, or spinal, disks. Sometimes a disk deteriorates and breaks down. A damaged disk may protrude from between the vertebrae and press on the spinal nerves. This pressure causes severe pain. Patients with disk problems may need further evaluation and care from a doctor.

CLINICAL PICTURE

a. Presenting complaint

The patient complains of a *sudden onset of severe, sharp pain*. The *pain often radiates down the leg to the foot*.

b. Medical history

A patient with disk disease usually has *no history of injury from heavy work*. The patient may have noticed the pain when he coughed or suffered a minor back injury. The patient may report *previous episodes of back pain months or years earlier*.

c. Physical examination

When a disk breaks down, it presses on the spinal nerves. This pressure causes the signs of disk disease. The severity of the signs depends on the amount of pressure the disk is placing on the nerves.

Inspect the patient's back while he walks, sits, and lies on his stomach. Check for *curvature of the lower spine to one side*. Also check for flattening of the normal curve of the lower spine.

Notice any stiffness or pain when the patient moves or sits. Ask the patient to turn and to bend. *Movement of his lower spine will be limited and painful*.

Press over the *sciatic nerve*. Note any *tenderness*. Perform the straight leg raising test. When you do, the patient will usually feel *pain in one leg*. The *pain radiates down the leg to the foot on the affected side*.

142

Test the patient's legs and feet for strength. You will note a *loss of muscle strength* in the *leg and foot* on the *affected side*.

Use a pinprick to test the patient's leg and foot on the affected side for sensation. You will note a *loss of sensation* in the *leg and foot* on the *affected side*.

COURSE AND COMPLICATIONS

A damaged disk injures the spinal nerves. This injury causes muscle weakness and loss of sensation in the affected leg and foot. The symptoms can often be relieved with rest. However, surgery may be required if simple measures are not effective.

PATIENT CARE

- a. Tell the patient to sleep on a thin mattress supported by a flat, firm board. Advise him to tuck a pillow or a rolled up blanket under his knees. He should also raise his back slightly.
- b. Advise him to take aspirin every four hours. See Patient Care Guides.
- c. Tell the patient to avoid all back strain. Encourage him to remain in bed until his painful symptoms clear up. This may require two to three weeks of complete bed rest.
- d. Refer the patient to the hospital if the pain or signs of nerve irritation do not improve within one week. Several weeks of leg traction may relieve the pressure on the nerves. However, surgery may be required if simple measures are not effective.

PREVENTION

Lifting heavy objects properly may help prevent low back pain caused by disk disease. Good posture may also help reduce the risk of disk damage.

14/3

2.3 OSTEOARTHRITIS

As people become older, their bodies begin to wear out. This is called a degenerative process. A degenerative process in the joints is called osteoarthritis, or degenerative joint disease. Osteoarthritis is a very common problem which affects almost every person as he gets older. But osteoarthritis appears earliest in people who do heavy work or who are overweight.

Osteoarthritis commonly affects one large weight-bearing joint such as a knee or a hip. People who do heavy work with their arms can develop osteoarthritis in an elbow or shoulder. Osteoarthritis can also develop in a joint which was injured earlier in a person's life. Osteoarthritis can affect more than one joint when a person does heavy work with his hands, such as fishing or cutting wood. Then the distal joints of the fingers in both hands may be affected.

A joint affected by osteoarthritis cannot bend as far or in as many directions as a healthy joint can. The joint creaks. Movement is rough, stiff, and painful because the lining of the joint is rough and dry. Small bony growths may form around the edges of the joint. These bony growths can make the joint space smaller. When this happens to a spinal joint, the spinal nerves are affected. Nerve irritation causes back pain and discomfort.

Osteoarthritis is a chronic problem. Patients commonly report having symptoms for months or years.

CLINICAL PICTURE

a. Presenting complaint

The patient usually seeks help because of *pain* in a *single joint*. The pain often has been *present* for *months* or *years*.

b. Medical history

The patient is usually *an older person* who has done *heavy work* for many years. He may have a *history of joint injury*.

Osteoarthritis usually affects a *large, weight-bearing joint* such as a hip or a knee. The joints of the neck or the lower spine may also

be affected. If so, the patient will have a history of neck or lower back pain. The distal joints of the fingers in both hands, an elbow, or a shoulder joint may be painful if the patient has done heavy work with his hands and arms.

c. Physical examination

Move and bend the affected joint. Check for *limited movement*. Note any *pain* or *roughness* as you move the joint back and forth.

Affected *finger joints* may be *warm* and *tender*. The distal joints of the fingers may be *enlarged*. An affected large joint, such as the knee, may be swollen because of fluid in and around the joint space. Except for finger joints, signs of inflammation are not common.

The patient with osteoarthritis will not have a fever.

COURSE AND COMPLICATIONS

Osteoarthritis lasts for a lifetime and cannot be cured. The disease is part of the aging process. The patient whose neck is affected may lose sensation of muscle strength in his arms because of pressure on his spinal nerves.

PATIENT CARE AND PREVENTION

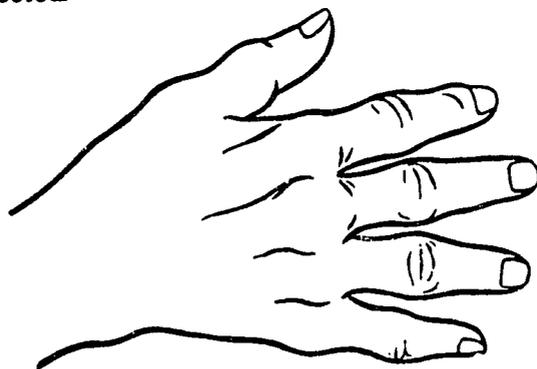
- a. Emphasize the need to rest the affected joints. The patient may have to change his daily activities.
- b. Advise the patient to apply moist heat to the joint for twenty minutes several times a day.
- c. Advise the patient to take aspirin every four hours. See Patient Care Guides. Warn him that aspirin irritates the stomach. He should always take aspirin with water, milk, or food.
- d. A neck brace sometimes relieves pain when the spine is involved. Tell the patient to use a firm head support when he sleeps. Refer the patient to the hospital if he develops signs of nerve damage in his arms.
- e. A cane or crutch will reduce pressure on affected hip or knee joints. Reduced pressure may relieve painful symptoms.
- f. Encourage an overweight patient to lose weight.

2.4 RHEUMATOID ARTHRITIS

Rheumatoid arthritis is a chronic disease that causes severe joint inflammation as well as generalized body symptoms. The cause of rheumatoid arthritis is not known. The disease most commonly strikes people between the ages of twenty and forty.

A joint is normally lined with a membrane called a synovial membrane. The membrane secretes a fluid which helps the joint move smoothly. Rheumatoid arthritis causes the synovial membrane to become thick and swollen. The cells of the membrane multiply at an abnormal rate. The membrane forms scar tissue. The scar tissue grows into the joint. Joint movement decreases as more scar tissue develops. Finally the scar tissue joins the bones of the joint together, resulting in very little or no joint movement at all.

Rheumatoid arthritis can affect many joints. The joints in both hands are most commonly affected. The wrist, hip, knee, ankle, and toe joints can also be affected.



HAND WITH RHEUMATOID ARTHRITIS

Like osteoarthritis, rheumatoid arthritis is a chronic problem. But unlike osteoarthritis, a patient with rheumatoid arthritis will seek help within the first few weeks of the onset of painful symptoms.

CLINICAL PICTURE

a. Presenting complaint

146

Patients commonly complain of *fatigue, loss of appetite and weight, and fever*. A patient may have joint or muscle pain.

b. Medical history

Rheumatoid arthritis sometimes starts suddenly with joint pain. The pain may follow surgery, trauma, infection, or another emotionally upsetting event. Usually *more than one joint is affected*.

The joint pain and stiffness follow a cycle. The affected joints are *stiff in the morning, become less stiff during the day, and then become stiff again by evening*.

The patient becomes tired very easily. His fever and poor appetite lead to weight loss. The joint pain makes it *difficult* for him *to carry out his daily activities*.

c. Physical examination

Check for fever and weight loss. Look for *signs of joint inflammation*. A patient's fingers will be swollen if he has had the problem for several weeks or months. The *fingers are commonly spindle-shaped*. The *affected joints will be red, warm, and tender*. They may be filled with fluid. Notice any *limited movement of the affected joints*.

COURSE AND COMPLICATIONS

Rheumatoid arthritis lasts for many years. Acute attacks may last for several weeks. The patient suffers severe joint pain and may stop using the affected joints. Without daily exercise, the patient will lose the ability to move the joints. A joint may become fixed in one position, resulting in a crippling deformity called a contracture.

PATIENT CARE

Rheumatoid arthritis cannot be cured. But proper treatment and care can control pain and help keep affected joints working. Follow these patient care guidelines.

- a. The patient with rheumatoid arthritis needs extra rest. Recommend complete bedrest when the disease is very active. When the disease is less active, the patient still needs to rest during the day. The patient with painful knees or hips should lie on his back for one to two hours two or three times a day. Show the patient how to make splints for inflamed wrists and fingers.

- b. The affected joints need exercise as well as rest. Regular exercise will help prevent the development of contractures.

Teach the patient passive and active joint exercises. Passive exercises do not use the muscles around the joint. Teach the patient or a family member to bend the affected joint several times during each exercise period without using the muscles around the joints.

Active exercises use the joint muscles. They develop and maintain muscle strength. Teach the patient and his family how to move the joints in all directions using the muscles which control the joints.

- c. Advise the patient to take aspirin for pain. See Patient Care Guides. To be effective, aspirin must be taken in large doses. Warn the patient that aspirin irritates the stomach. Tell him to take aspirin with food, milk, water or an antacid. Any stomach burning or vomiting of black material is serious evidence of irritation to the lining of the stomach. Aspirin can also cause ringing in the ears. Reduce the dosage as necessary to stop these serious side effects.

2.5 SEPTIC ARTHRITIS

Septic arthritis is an acute bacterial infection of the joints. Septic arthritis usually affects one large, weight-bearing joint. The infection causes swelling in the joint space. The swelling causes acute pain.

People with gonorrhea or sickle cell disease are at risk of developing septic arthritis. The disease can also develop in an injured joint. Septic arthritis can affect a person of any age.

CLINICAL PICTURE

- a. Presenting complaint

The patient complains of *severe, throbbing pain in one joint.*

- b. Medical history

Ask the patient if he has had any *symptoms of gonorrhea.* A male patient will have a history of pain or burning on urination and a white discharge from his penis. After several days of symptoms, the pain will worsen and the discharge will become yellow and heavy.

150

A woman with gonorrhea sometimes has a discharge from her vagina, irritation around her vagina, and pain during intercourse. Usually, however, a woman with gonorrhea will have no symptoms.

Find out if the patient has taken any antibiotics recently. Antibiotics can mask the signs and symptoms of septic arthritis and confuse the clinical picture.

Ask about *chills* and *fever*. A patient with septic arthritis will have both.

c. Physical examination

Septic arthritis usually affects a *large*, weight-bearing joint such as a knee or a hip. You will note *signs of joint inflammation*. The affected joint will be *red, swollen, warm, and tender*. Check for *limited movement* of the affected joint.

COURSE AND COMPLICATIONS

The affected joint will suffer severe damage and become useless without proper treatment.

PATIENT CARE

- a. Look for evidence of bacterial infection elsewhere in the body. Treat the patient with high doses of the appropriate antibiotic. See Patient Care Guides.
- b. The patient should not use the joint during the acute infection. Advise the patient to elevate and rest the affected joint. Suggest resting the joint on a pillow a little higher than the patient's body.
- c. Apply moist heat to the joint for pain relief.
- d. Advise the patient to take aspirin every four hours for pain. See Patient Care Guides.
- e. Encourage the patient to gently move and bend the joint at least three times every day. This will prevent the development of contractures and the loss of joint function.
- f. You must refer the patient to the hospital if joint swelling is severe and the joint swelling and tenderness do not improve within a twenty-four hours after starting IV antibiotics.

REVIEW QUESTIONS

Low Back and Joint Problems

1. Review the signs and symptoms listed below. Check (x) the name of the problem that each sign or symptom is commonly associated with.

	MUSCLE STRAIN OR SPRAIN OF SACROILIAC JOINT	DISK DISEASE
a. Sudden onset of severe, sharp pain which radiates down the leg to the foot and was not caused by heavy work		
b. Pain in the lower back which started when doing heavy work within the last twenty-four to forty-eight hours		
c. Curvature of the lower spine		
d. Tenderness over the sciatic nerve		
e. Tenderness over the sacroiliac joint		
f. Positive straight-leg raising test		
g. Negative straight-leg raising test		
h. Loss of muscle strength in the leg and foot on the affected side		
i. Normal muscle strength in the legs and feet		
j. Loss of sensation in the leg and foot on the affected side		
k. No loss of sensation in the legs or feet		

2. Review the signs and symptoms listed below. Check (x) the name of the problem that each sign or symptom is commonly associated

with. Remember, some signs and symptoms can be associated with more than one problem.

	OSTEO- ARTHRITIS	RHEUMATOID ARTHRITIS	SEPTIC ARTHRITIS
a. Chronic pain in a large weight-bearing joint of an older patient who has done heavy work all his life. The pain has been present for years			
b. Pain in the distal joints of the fingers			
c. Pain in the distal joints of the fingers in a patient with a history of fever, fatigue, and loss of appetite and weight			
d. Severe, throbbing pain in the left knee of a male with symptoms of gonorrhea, such as pain and burning on urination and a white discharge from his penis			
e. Weight loss, fever, fatigue, and joint pain. Several painful joints are stiff in the morning, become less stiff during the day, and then become stiff again in the evening			
f. A red and swollen left knee, which is warm and tender when touched and which cannot be moved easily			
g. Fever with swelling and redness of the fingers in both hands. The fingers are warm and tender when touched			
h. A stiff elbow with limited movement. A rough sensation when the elbow is moved, but no signs of joint inflammation such as redness and warmth. The joint is swollen and surrounded with fluid			

REVIEW EXERCISE

Case Study 65

Name of Patient: Wilson, Josh
Sex: Male
[REDACTED]
Date of Visit: 31 October 1979
Vital Signs: Temperature 37°C
Pulse 72
Respirations 20
Blood pressure 132/82
Weight 62 kg

Presenting Complaint and Medical History: The patient has had occasional pain in his lower back for the last five years. He is a woodcutter. He felt a sudden pain in his back when he was lifting a log yesterday. Now, walking and bending make the pain worse. The pain does not go down his legs.
Past medical history: The patient has a good appetite. He has not lost any weight recently. He has no shortness of breath or chest pain. He does not smoke or drink.

Physical Examination: The patient looks worried. He cannot stand upright. His mucous membranes are pink. His chest expands evenly. His breath and heart sounds are normal. His abdomen is normal. He has tenderness and muscle spasms in his lower back. Pressing over the sacroiliac joint produces no pain. The straight leg raising test is negative. His legs and feet show no muscle weakness or loss of sensation.

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 66

Name of Patient:	Bell, Victoria										
Sex:	Female										
Date of Birth:	19 August 1946										
Date of Visit:	2 December 1979										
Vital Signs:	<table border="0" style="margin-left: 20px;"> <tr> <td>Temperature</td> <td>37° C</td> </tr> <tr> <td>Pulse</td> <td>74</td> </tr> <tr> <td>Respirations</td> <td>28</td> </tr> <tr> <td>Blood pressure</td> <td>110/70</td> </tr> <tr> <td>Weight</td> <td>64 kg</td> </tr> </table>	Temperature	37° C	Pulse	74	Respirations	28	Blood pressure	110/70	Weight	64 kg
Temperature	37° C										
Pulse	74										
Respirations	28										
Blood pressure	110/70										
Weight	64 kg										
Presenting Complaint and Medical History:	<p>The patient complains of severe lower back pain. The pain is sharp and shoots down her right leg. She has had lower back pain off and on for the last six years, but the pain has never been this severe. The pain started suddenly. She was not lifting anything heavy or doing any heavy work when it happened. Now she cannot do her normal work. She cannot sleep in her bed. Sleeping on the floor makes her back feel a little better.</p> <p>Past medical history: The patient had an operation for fibroid tumors in 1975. Her last menstrual</p>										

157

period lasted for five days, with some clots and moderate pain. Her three deliveries were normal. Other than her back problem, she has felt fine for the last few months. However, she does worry some about her children. One child is not doing well in school.

Physical Examination:

The patient looks worried and walks as if she is in pain. Her mucous membranes are pink. Her chest and heart sounds are normal. She has a scar from her fibroid tumor surgery on the lower middle part of her abdomen. The examination of the abdomen is normal.

Inspection of the lower spine shows some curvature. No tenderness or muscle spasms are noted during palpation of the lower back. The straight leg raising test is positive, with pain radiating down her right leg to her foot. She has loss of muscle strength and sensation in her lower right leg. The temperature of both legs and feet are the same and the pulses can be felt, suggesting no circulation problems.

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 67

Name of Patient: Edwards, Donald
Sex: Male
Date of Birth: 3 October 1917
Date of Visit: 2 October 1979
Vital Signs: Temperature 37°C
Pulse 88
Respirations 24
Blood pressure 130/84
Weight 61 kg

Presenting Complaint and Medical History: The patient developed pain in his knees and back about ten years ago. The pain has gradually been getting worse. Sometimes his knees become swollen, but they have never been warm or inflamed. He has never had a fever with his swollen knees. Cool, rainy weather makes the symptoms worse. He has no stiffness in his knees or back when he wakes up in the morning. He has done heavy work all of his life. His back and knees bother him when he lifts heavy objects.

Past medical history: The patient has no history of alcoholism, smoking, major diseases, or surgery.

Physical Examination: The patient looks fairly healthy. His mucous membranes are pink. His tonsils are not enlarged. His neck is normal. His breath sounds are clear and his chest expands evenly on both sides. No abnormal heart sounds or signs of swelling are found. His abdomen is soft. He has pain and limited movement of his back and knees. His left knee feels rough when it is bent. No signs of joint inflammation are noted.

Study the information given above, then answer these questions.

195

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 68 —————

Name of Patient: Rajroop, Linda
 Sex: Female
 [REDACTED]: [REDACTED]
 Date of Visit: 5 December 1979

Vital Signs: Temperature 37.6° C
 Pulse 72
 Respirations 22
 Blood pressure 120/80
 Weight 65.5 kg

Presenting Complaint and Medical History: The patient has a slight fever, feels tired, and has had pain in her knees for three weeks. The joint pain started gradually and is getting worse. Her fingers are stiff but not very painful. The pain in her knees and the stiffness in her fingers is worse in the morning, then improves during the day, only to become

156

worse in the evening. She also has some muscle pain in her legs.

Past medical history: Her history reveals no significant problems. Her menstrual cycles are regular.

Physical Examination:

The patient looks healthy. Her mucous membranes are pink. Her tonsils are not enlarged. Her neck is normal. Her breath sounds are clear, and her chest expands evenly on both sides. No abnormal heart sounds or signs of swelling are found. Her abdomen is soft. Her knees are red and swollen. They are warm and tender when touched. Their movement is limited and painful. Her fingers appear normal, with no limitation of movement although the patient says they are stiff. Her finger joints are not inflamed.

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?

157

Unit 3

Assessing the Patient with a Thyroid Problem

STUDENT GUIDE

OBJECTIVES

1. Describe the signs of thyroid problems
 - Enlarged smooth or nodular thyroid gland
 - Puffy face with a dull, uninterested expression
 - Slow, slurred speech with a low pitched voice
 - Slow body movements
 - Thick, dry skin
 - Coarse, brittle hair
 - Bulging, staring eyes
 - Fine tremors of the hands
 - Increased resting pulse rate
 - Moist skin
 - Fine, silky hair
 - Weight loss
 - Hoarseness
2. Recognize the signs of a thyroid problem when you see or feel them in a patient.
3. Interview a patient about his thyroid problem.
4. Examine a patient with a thyroid problem.
5. Record your findings on official forms.

LEARNING ACTIVITIES

1. Join the instructor and class in presentations, demonstrations, and discussions of thyroid problems.
2. Practice taking a medical history of the patient with a thyroid problem using role-plays based on case study 69 in Unit 4.

3. In the classroom, interview and examine patients with thyroid problems.
4. In the clinic, ask patients questions about their thyroid problems. Examine patients with thyroid problems, and write down your findings.

3.1 SIGNS AND SYMPTOMS OF THYROID PROBLEMS

The production of either too much or too little thyroid hormone causes the most common signs and symptoms of thyroid problems. A patient with low thyroid hormone production will have signs and symptoms associated with a decrease in the body's metabolism. A patient with increased thyroid hormone production will have signs and symptoms associated with an increase in the body's metabolism. The table below summarizes the signs and symptoms of thyroid problems.

THYROID GLAND IS PRODUCING TOO LITTLE THYROID HORMONE	THYROID GLAND IS PRODUCING TOO MUCH THYROID HORMONE
<p>Enlarged smooth thyroid gland</p> <p>Puffy face with a dull, uninterested expression</p> <p>Slow, slurred speech with a low pitched voice</p> <p>Slow body movements</p> <p>Thick, dry skin</p> <p>Coarse, brittle hair</p>	<p>Enlarged smooth thyroid gland</p> <p>Bulging staring eyes</p> <p>Fine tremors of the hands</p> <p>Increased resting pulse rate</p> <p>Moist skin</p> <p>Fine, silky hair</p> <p>Weight loss</p>

A simple goiter is a thyroid problem that does not affect the production of thyroid hormone. A patient with a simple goiter will have these signs and symptoms:

- Enlarged nodular thyroid gland
- Hoarseness

160

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

Ask these questions if you suspect a thyroid problem.

“How Old Are You?”

Low thyroid hormone production is more common among older women than among younger women or men of any age.

“Have Your Menstrual Periods Been Unusual in Any Way?”

Hormones control and affect a woman’s menstrual period. Women who are producing too little thyroid hormone will report that their menstrual periods last longer and that bleeding is heavier than usual.

“Have Your Bowel Movements Been Unusual in Any Way?”

Thyroid hormone affects the nerves that control gastrointestinal function. Patients producing too little thyroid hormone commonly complain of severe constipation. Patients producing too much thyroid hormone will have loose stools.

“How Do You Generally Feel?”

Patients with low thyroid hormone production lack energy and feel weak, tired, or sleepy all of the time. They often complain of feeling cold.

Patients with increased thyroid hormone production are nervous, restless, or irritable. They lose weight even though they are hungry all of the time. These patients usually complain of feeling hot.

“Do You Have Any Problems with Your Vision?”

Patients who are producing too much thyroid hormone may have blurred vision.

(5)

3.3 EXAMINING THE PATIENT WITH A THYROID PROBLEM

A patient's general appearance is often the first clue of a thyroid problem. Other signs that you find during the physical examination will help you with your diagnosis.

Check General Appearance

Notice how the patient moves. A patient who is producing too little thyroid hormone often moves very slowly.

Examine the patient's face and eyes. A patient with decreased thyroid hormone production often has a puffy face. He may have a dull expression on his face and look disinterested in his surroundings.

Bulging, staring eyes are a sign of over-production of thyroid hormone.

Listen to the Voice

A patient with an enlarged thyroid gland may sound hoarse. A patient who is producing too little thyroid hormone may have slow, slurred speech with a low pitched voice.

Take and Record Vital Signs

Check the patient's pulse rate. Patients with increased thyroid hormone production often have a resting pulse rate of more than eighty beats per minute.

Check the patient's weight. Patients with increased thyroid hormone production may be losing weight, even though they are always hungry and eat a lot.

Inspect the Hair

If the patient's hair is coarse and brittle, he may not be producing enough thyroid hormone. If his hair is fine and silky, he may be producing too much thyroid hormone.

Palpate the Thyroid Gland

The thyroid gland is located in the front of the neck. A very

enlarged thyroid gland may be the first thing you notice when you see the patient. An enlarged thyroid gland usually feels smooth. You may feel nodules when you palpate the enlarged gland of a patient with a simple goiter.

Inspect the Skin

Thick, dry skin may be a sign of decreased thyroid hormone production. Moist skin may be a sign of over-production of thyroid hormone.

Palpate the Finger Tips for Tremors

Lightly touch the patient's finger tips with the palm of your hand. Fine tremors may be a sign that the patient is producing too much thyroid hormone.

REVIEW QUESTIONS

Assessing the Patient with a Thyroid Problem

1. A patient with a thyroid problem has an enlarged thyroid gland. An enlarged thyroid gland usually feels smooth, but sometimes _____ can be felt.

2. An enlarged thyroid gland can press on the voice box causing _____.

3. Except for a simple goiter, the signs and symptoms of thyroid problems are caused by the production of either too much or too little thyroid hormone. Review the signs listed below. Check (x) the appropriate column to indicate if each is a sign that the thyroid gland is producing too much or too little thyroid hormone.

	THYROID GLAND IS PRODUCING TOO MUCH THYROID HORMONE	THYROID GLAND IS PRODUCING TOO LITTLE THYROID HORMONE
a. Puffy face with a dull, uninterested expression		
b. Slow, slurred speech with a low pitched voice		
c. Slow body movements		
d. Bulging, staring eyes		
e. Coarse, brittle hair		
f. Fine, silky hair		
g. Thick, dry skin		
h. Moist skin		
i. Fine tremors of the hands		
j. Increased resting pulse rate		
k. Weight loss in a patient with a good appetite		

164

4. What two menstrual symptoms may a woman in her mid-forties report if her thyroid gland is producing too little thyroid hormone?

5. During the physical examination it is important to notice the general appearance of a patient with a suspected thyroid problem. What will you notice in a patient who is producing too much or too little thyroid hormone concerning the following?
 - a. The patient's movements:

 - b. The patient's face:

 - c. The patient's eyes:

6. When examining a patient for a thyroid problem:
 - a. Why do you lightly touch the patient's finger tips with the palm of your hand?

 - b. Is this a sign that the patient is producing too much or too little thyroid hormone?

Unit 4

Thyroid Problems

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of
Simple goiter
Hypothyroidism
Hyperthyroidism
2. Interview and examine patients and diagnose thyroid problems.
3. Provide treatment and care for patients with thyroid problems.
4. Tell patients and their families how to care for a simple goiter at home and to prevent it from becoming worse.

LEARNING ACTIVITIES

1. Join the instructor and class in presentations and discussions of the diagnosis of thyroid problems.
2. Practice diagnosing thyroid problems using examples from case studies.
3. Practice using the Diagnostic and Patient Care Guides and the Formulary.
4. During skill development in a clinic, practice identifying thyroid problems, providing treatment and care, and telling patients about home care and prevention.

4.1 SIMPLE GOITER

A simple goiter is an enlargement of the thyroid gland without symptoms of increased or decreased thyroid hormone production. Lack of iodine in a person's diet can cause a simple goiter. The thyroid gland needs iodine to work properly. Goiters are common in areas where iodine is lacking in the food.

CLINICAL PICTURE

a. Presenting complaint

A patient with a simple goiter will usually complain of a *large swelling in the front of his neck*. He may say that the swelling causes difficulty breathing.

b. Medical history

Question the patient carefully for symptoms of increased or decreased thyroid hormone production.

Find out if you are working in an iodine-deficient area. Ask about the patient's diet. Ask about stress in the patient's life. When a person lacks iodine in his diet, he can develop a goiter during periods of stress.

Goiters may develop during the rapid growth periods of infancy and puberty. Pregnant women also have increased demand for iodine and thyroid hormone.

c. Physical examination

Examine the patient's neck. The *thyroid gland* will be *large* and *smooth*. You may feel *nodules* in the gland. Note any *hoarseness* in the patient's voice. An enlarged thyroid gland can press on the voice box and cause hoarseness.

COURSE AND COMPLICATIONS

When a large gland presses on other tissues, the patient may require surgery. Otherwise, a simple goiter has no serious complications.

167

PATIENT CARE

A simple goiter usually requires no treatment. However, patients who live in iodine-deficient areas should supplement their diets with iodine. Encourage patients to add salt with iodine to their food.

PREVENTION

Goiters can be prevented in iodine-deficient areas by using salt which contains iodine.

A pregnant woman must receive enough iodine to meet the needs of the fetus growing inside her. An infant will suffer permanent damage if he lacks thyroid hormone during prenatal development and in the early months of life. In iodine-deficient areas, give pregnant women iodine supplements routinely during pregnancy. See Patient Care Guides.

4.2 HYPOTHYROIDISM

Hypothyroidism is decreased thyroid hormone production. *Hypo* means "under" or "beneath." The gland "under-produces" thyroid hormone.

CLINICAL PICTURE**a. Presenting complaint**

The patient will often not come to see you until his symptoms are severe. A relative may report that the *patient has no energy*. A *swelling in the front of the neck* may also be a complaint.

b. Medical history

Hypothyroidism is more common among older women than among younger women or men of any age. Ask if the patient feels *weak or tired*. Patients with hypothyroidism lack energy. They will be abnormally *sensitive to cold*. They often become *constipated*. Ask women patients about their menstrual periods. ~~W~~omen with hypothyroidism have *long menstrual periods with heavy bleeding*.

c. Physical examination

Examine the patient's skin and hair. A patient with hypothy-

167

roidism has *thick, dry skin*. His *face* has a *dull, puffy*, uninterested look. He may be anemic and pale. His *hair* may be *coarse and brittle*.

Notice how the patient moves and speaks. The patient will *move and speak slowly*. His *speech* will be *slurred*. His *voice* may be *low pitched* and *hoarse*.

Check the patient's *thyroid gland*. It will nearly always be *enlarged*.

COURSE AND COMPLICATIONS

Heart failure is the most serious complication of hypothyroidism.

PATIENT CARE

Refer to the hospital any patient you think has decreased thyroid hormone production. Many other conditions look like hypothyroidism. Only patients with hypothyroidism should be treated with thyroid hormone.

4.3 HYPERTHYROIDISM

Hyperthyroidism is increased thyroid hormone production. *Hyper* means "over" or "excessive." The gland produces too much thyroid hormone.

CLINICAL PICTURE

a. Presenting complaint

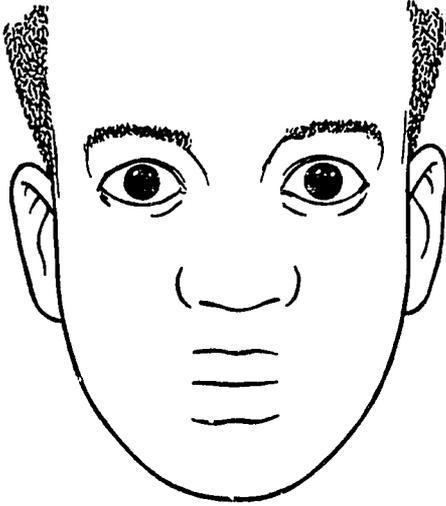
A patient with increased thyroid hormone production is often *nervous, restless, and irritable*. Although he has a *large appetite*, he complains of *losing weight*. He may also complain of a swelling in the front of his throat.

b. Medical history

Hyperthyroidism is more common among women than among men. A patient with increased thyroid hormone production is abnormally *sensitive to heat*. He has *frequent, loose stools*. His eyes may bulge. His vision may be blurry.

c. Physical examination

Check the patient's *thyroid gland*. It is often *enlarged*. Examine the patient's eyes. Many patients with hyperthyroidism have *bulging, staring eyes*.



STARING EXPRESSION OF PATIENT WITH BULGING EYES

Ask the patient to stretch out his hands and fingers. Gently touch his finger tips with the palms of your hands. Note a very *fine tremor*, or rapid shaking. This is a sign of increased thyroid hormone production. The patient's *skin* may be *moist*. His *hair* will be *fine* and *silky*.

Take the patient's pulse. A patient with hyperthyroidism has an *increased pulse rate* even at rest. His resting pulse rate may be more than eighty beats per minute.

COURSE AND COMPLICATIONS

Even with a large appetite, the patient's body becomes wasted. He may develop serious malnutrition.

Heart failure is a serious complication of hyperthyroidism.

PATIENT CARE

Refer the patient to the hospital right away. Treatment requires special drugs or surgery. Hyperthyroidism can become worse quickly.

170

REVIEW QUESTIONS

Thyroid Problems

1. A lack of _____ is a common cause of a simple goiter.
2. Hypothyroidism means that the thyroid gland is producing too _____ thyroid hormone. Hyperthyroidism means that the thyroid gland is producing too _____ thyroid hormone.
3. Review the signs and symptoms listed below. Check (x) the name of the problem that each sign or symptom is commonly associated with. Remember, some signs and symptoms can be associated with more than one problem.

	SIMPLE GOITER	HYPO- THYROIDISM	HYPER- THYROIDISM
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- a. A large swelling in the front of the neck
- b. Lack of energy, weakness, fatigue
- c. Nervousness, restlessness, irritability
- d. Large appetite but weight loss
- e. Constipation
- f. Loose stools
- g. Long menstrual periods with heavy bleeding in an older woman
- h. Blurry vision
- i. A puffy face with a dull, uninterested expression

171

	SIMPLE GOITER	HYPO- THYROIDISM	HYPER- THYROIDISM
j.	Slow, slurred speech with a low-pitched voice		
k.	Hoarseness		
l.	Slow movements		
m.	Bulging, staring eyes		
n.	Coarse, brittle hair		
o.	Fine, silky hair		
p.	Enlarged smooth thyroid gland		
q.	Enlarged thyroid gland with nodules		
r.	Thick, dry skin		
s.	Moist skin		
t.	Fine tremors of the hands		
u.	Increased resting pulse rate		
v.	Weight loss		

4. A forty-four-year-old woman complains of feeling tired and sleepy. She is too weak to do her daily work and wants only to sleep. She has been very constipated. Her menstrual periods are regular, but for the last four months they have lasted longer and bleeding has been heavier than usual. Her last menstrual period was two weeks ago.

The patient's vital signs are normal. Her face is puffy, and she seems disinterested in her surroundings. She moves very slowly. Her speech is slightly slurred. The patient reports that her hair breaks off easily. Her thyroid gland is slightly enlarged and is smooth when palpated. Her skin is dry, but no thickening can be detected. Further examination of her neck, chest, heart, arms, and legs reveals nothing abnormal.

- What is your diagnosis?
- What patient care would you provide for this patient?

177

REVIEW EXERCISE

Case Study 69

Name of Patient: Mayers, Joy
Sex: Female
Date of Visit: 6 December 1979

Vital Signs: Temperature 37° C
 Pulse 80
 Respirations 20
 Blood pressure 100/73
 Weight 51 kg

Presenting Complaint and Medical History: The patient has a swelling in her neck which has grown over the last three months. The swelling is not painful. She has noticed her heart pounding several times within the last two months, but she has not otherwise felt nervous. She has been sleeping well. Her appetite has been normal. She has not lost or gained any weight.

Past medical history: She has two children. Her last menstrual period started November 19. It lasted for five days, with some clots but no menstrual cramps. She has noted no weight loss, cough, shortness of breath, difficulty swallowing, fever, nervousness, or diarrhea.

Physical Examination: The patient looks healthy. A smooth swelling is visible in the lower front part of her neck. No bulging of eyes or fine tremors are noted. Her breath and heart sounds are normal, with no heart murmur. Her abdomen is soft and not tender. No enlarged liver, enlarged spleen, or masses are 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 5

Assessing the Patient with Other Medical Problems

STUDENT GUIDE

OBJECTIVES

1. Describe the signs of other common medical problems:
 - Loss of consciousness
 - Paralysis of one side of the face
 - Paralysis of an arm or leg on one side
 - Difficulty speaking
 - Hard lump or mass anywhere in the body
 - Pale or white conjunctivae
 - Pale or white mucous membranes of the mouth
 - Pale or white nail beds
 - Obesity
2. Recognize the signs of other medical problems when you see or feel them in a patient.
3. Interview a patient about his other medical problem.
4. Examine a patient with other medical problems.
5. Record your findings on official forms.

LEARNING ACTIVITIES

1. Join the instructor and class in presentations, demonstrations, and discussions of other medical problems.
2. Practice taking a medical history of the patient with other medical problems using role-plays based on case studies 70, 71, 72, 73, and 74 in Unit 6.
3. In the classroom, interview and examine patients with other medical problems.
4. In the clinic, ask patients questions about their other medical problems, examine patients with other medical problems, and write down your findings.

5.1 SIGNS AND SYMPTOMS OF OTHER MEDICAL PROBLEMS

The signs and symptoms of other medical problems affect many body systems. Three of the problems affect the nervous system. Others can affect several body systems at once. Learn to recognize these signs and symptoms of other medical problems.

Loss of Consciousness

A patient who has suffered a stroke will breathe very deeply while he is unconscious. A patient with grand mal epilepsy will have a convulsion while he is unconscious. His arms and legs will jerk in a regular rhythm. Then he will sleep deeply. The patient will be confused when he awakes. A patient with petit mal epilepsy will lose consciousness for only a few seconds.

One-Sided Paralysis of the Face, Arm, or Leg

Paralysis on one side of the body is a sign of brain damage. A stroke causes severe brain damage. Paralysis of the face occurs on the same side as the brain damage. Paralysis of an arm or leg occurs on the side opposite the side of the brain which was damaged. Look for one-sided paralysis in a patient who has difficulty speaking after a sudden loss of consciousness.

Difficulty Speaking

Difficulty speaking after a sudden loss of consciousness is another sign of brain damage caused by a stroke. Be sure to examine the patient with possible brain damage for other nervous system problems.

Hard Lump or Mass Anywhere in the Body

Never overlook a hard lump or mass found anywhere in the body. Notice if the lump or mass is growing rapidly. A rapidly growing hard lump or mass may be a sign of cancer. Be particularly alert for a mass when palpating a patient's abdomen and for a hard lump when examining a female patient's breasts.

Pale or White Conjunctivae, Mucous Membranes of the Mouth, and Nail Beds

The red cells in the blood give the conjunctivae of the eyes, the mucous membranes of the mouth, and the nail beds a healthy pink color. Hemoglobin makes the red blood cells red. Pale or white conjunctivae, mucous membranes, and nail beds can be signs of anemia, which is a lack of hemoglobin or of red cells in the blood.

Obesity

The heart of an overweight, or obese, patient must work very hard. The extra work can raise the patient's blood pressure. High blood pressure can cause a stroke. An overweight patient can also develop diabetes. Look for sugar in the urine of an overweight patient.

5.2 TAKING A MEDICAL HISTORY OF THE PATIENT WITH OTHER MEDICAL PROBLEMS

Patients commonly complain of headaches. A headache can be a symptom of many serious illnesses. But anxiety or tension can also cause headaches. Ask these questions about a patient's headache.

"How Long Have You Been Having Headaches?"

The duration of a headache can help you with your diagnosis. Migraine or tension headaches often recur over many months or years. A headache of recent onset may be a sign of infection or trauma.

"Where Does Your Head Hurt?"

Ask the patient to tell and show you where the pain is located. Tension headaches usually affect the neck or the back of the head. A migraine headache usually affects one entire side of the head. Eye emergencies can cause pain behind the eyes. Dental problems can cause pain in the jaw and the side of the head. Sinus infections commonly cause pain over the sinuses.

"What Kind of Pain is It?"

Migraine headaches and dental problems cause severe throbbing

pain. Tension headaches more often cause a dull ache. The pain circles the patient's head like a tight band.

“How Did the Pain Start? How Long Does It Last? Does It Keep You Awake at Night?”

A migraine headache often begins with a visual disturbance. The patient sees flashes of light and may suffer a sudden loss of vision. Nausea and vomiting follow. The headache becomes very severe within an hour. The patient is unable to sleep or to carry on his normal activities. He must lie down in a dark room until the headache passes.

A tension headache usually begins gradually. The headache develops late in the day and often follows a stressful situation. A tension headache rarely keeps a patient awake at night.

A stroke patient will have a sudden, severe headache just before losing consciousness. A headache caused by an infection will commonly last as long as the patient has the infection.

“Do You Have Any Fever or Chills? Have You Had a Recent Upper Respiratory Infection or Other Illness?”

Patients commonly report symptoms of headache and fever. Ask questions about other body systems to search for the cause of a headache with fever.

“Are You Taking Any Drugs or Medications?”

Some drugs can cause headaches. For example, severe headaches can be a side effect of oral contraceptive use.

“Has Anyone Else in Your Family Had Headaches Like the One You Are Having?”

A family history of migraine headaches is common.

The presenting complaint may be that the patient lost consciousness or fainted. Ask the patient, or a family member, these questions about a loss of consciousness or a fainting spell.

“How Did You Feel Before You Lost Consciousness or Fainted?”

A patient with a stroke may suddenly develop a headache, dizziness, and confusion before losing consciousness. A pregnant woman who is anemic, may say that she felt weak, tired, and out of breath before and after her fainting spell.

11/2

A patient with grand mal epilepsy will say that he felt strange before he lost consciousness. His muscles may have twitched. His sight, hearing, or even his sense of taste or smell may have changed.

A patient with petit mal epilepsy will report feeling nothing unusual before a change in his level of consciousness. He will usually tell you that he did not even know that anything was wrong. A family member may report that the patient was saying or doing something and then suddenly stopped and stared blankly for several seconds. Then, just as suddenly, the patient continued his conversation or activity.

“Describe the Patient’s Behavior While He Was Unconscious.”

Question family members or friends who were with the patient while he was unconscious. They may report that his arms and legs jerked in a regular rhythm. They may tell you that the patient soiled himself or bit his tongue.

“How Did You Feel After You Regained Consciousness?”

Some patients feel fine after they regain consciousness. A patient with grand mal epilepsy may notice a sore, bitten tongue. A stroke patient will have difficulty speaking or will notice a one-sided weakness in his face, arm, or leg.

“Have You Had This Problem Before?”

Patients suffering from grand mal epilepsy frequently have a history of similar attacks.

“Do You Have High Blood Pressure?”

High blood pressure can cause a stroke. Ask about a history of high blood pressure if a patient suffers loss of consciousness resulting in speech impairment and one-sided paralysis.

Weight loss or a loss of appetite are symptoms of many problems. Ask these questions when a patient complains of an unexplained loss of weight or appetite.

“Do You Have Any Sores Which Do Not Heal?”

A sore which does not heal may be a sign of cancer.

“Have You Had Any Bleeding?”

Unexplained blood in the urine or stool, or bleeding from the

1019

rectum, from the vagina following intercourse, between menstrual periods, or after menopause can all be signs of cancer.

Ask these questions if a patient has a history of severe or chronic infections.

“Have You Been Unusually Thirsty or Hungry? Have You Been Passing Large Amounts of Urine?”

A patient with a history of severe or chronic infections who reports increased thirst, hunger, or urination may be suffering from diabetes.

5.3 EXAMINING THE PATIENT WITH OTHER MEDICAL PROBLEMS

Follow the standard physical examination procedure, paying particular attention to some important signs.

Check General Appearance

Check the patient's general appearance. Note his level of consciousness, any signs of paralysis, and his speech.

a. Note the patient's level of consciousness

A patient's consciousness can vary from fully alert to unconscious. A person is normally awake and alert. He responds to what is going on around him and can answer questions clearly and quickly. An unconscious patient is not aware of his surroundings at all. A stroke patient may be unconscious. A patient with grand mal epilepsy may be having a convulsion. His arms and legs will jerk in a regular rhythm during a grand mal epilepsy attack. He may soil himself or bite his tongue. The convulsion will be followed by a deep sleep. The patient will awake confused.

b. Note any signs of paralysis

One-sided paralysis is a sign of a stroke. One side of the patient's face may be paralyzed. One corner of his mouth may droop. He may have signs of paralysis of the arm or leg on the opposite side of his body. He may be supporting his paralyzed arm with his good hand. He may be unable to walk without help.

c. Note the patient's speech

The patient with one-sided paralysis of the face will also have slurred speech.

Take and Record Vital Signs

Take and record the patient's blood pressure. Stroke patients often have a history of high blood pressure.

Take and record the patient's weight. An overweight patient often has high blood pressure. He may also be suffering from diabetes. Regularly record the patient's weight. Check for increased appetite with weight loss.

Test for sugar in the urine. Sugar in the urine is a sign of diabetes.

Examine the Conjunctivae of the Eyes and Mucous Membranes of the Mouth

Normally the conjunctivae of the eyes and the mucous membranes of the mouth are pink. Pale or white conjunctivae and mucous membranes are signs of anemia.

Examine the Patient's Skin

Check for skin lesions or lumps. Note any skin lesions which do not heal. A skin lesion which does not heal may be a sign of diabetes or cancer. A lump under the patient's skin or a rapidly growing skin lesion may be a sign of cancer.

Examine the nail beds. Normally the nail beds are pink. Pale or white nail beds are a sign of anemia.

Examine the Female Breast for a Lump or Mass

A lump or mass which you can palpate in the female breast and which is getting larger may be a sign of cancer.

Palpate the Abdomen for Masses

Any unexplained mass in the abdomen may be a sign of cancer.

Complete a Nervous System Examination

Complete a nervous system examination of a patient with one-sided paralysis of the face, arm, or leg.

a. Examine the facial muscles for weakness

Ask the patient to close his eyes tightly. One eye may not close completely. Ask the patient to wrinkle his forehead. One side of his forehead may not wrinkle. Ask the patient to pull the

corners of his mouth back, showing his teeth. He may be unable to do this on one side of his mouth. Ask the patient to balloon out his cheeks. Try to press in his cheeks with your thumb and index finger. This may be easier to do to one cheek than the other. Ask the patient to stick out his tongue. Normally, the tongue is exactly in the middle of the mouth. The patient's tongue may slant to one side or the other. A stroke can cause these signs of facial muscle weakness. The signs will always appear on the same side of the face.

b. Check arm and leg movement

Compare the movement of the patient's arms and legs. A stroke patient may suffer loss of movement, or paralysis, in an arm or leg on one side.

c. Check for muscle weakness of the arms and legs

Ask the patient to resist your attempt to bend or straighten his arms and legs. You may note very little resistance of an arm or leg on one side. One-sided muscle weakness of an arm or leg is a sign of a stroke.

REVIEW QUESTIONS
Assessing the Patient
with Other Medical Problems

1. A patient with grand mal epilepsy will have a convulsion while he is unconscious. Describe the signs of the convulsion. Describe other signs to note in the patient following the convulsion.

2. A patient has difficulty speaking after suddenly losing consciousness.
 - a. What other signs would you look for?

 - b. What caused these signs?

3. A rapidly growing hard lump or mass can be found anywhere in the body. When during the physical examination should you be particularly alert for these signs?
 - a. Lump:

 - b. Mass:

4. What are the signs of a lack of hemoglobin or of red cells in the blood?

5. An overweight, or obese, patient will often have high blood pressure. What other sign would you look for in an overweight patient?

6. A patient comes to you with a headache. List the questions you should ask the patient about his headache.

7. Match these symptoms of a headache with the possible cause of the headache.

SYMPTOMS	POSSIBLE CAUSE OF HEADACHE
_____ Pain behind an eye	a. Sinus infection
_____ Severe pain which has come and gone over the last three months. The pain is located over the entire left side of the head. The pain is so severe that it causes the patient to vomit. His mother has the same problem.	b. Stroke
_____ A sudden, severe headache followed by a loss of consciousness	c. Tension
_____ A headache which usually starts late in the day after an argument with the patient's husband or children. The headache does not keep her from sleeping and is usually gone in the morning. The pain is located in the back of her head and in her neck	d. Dental problem
_____ A throbbing pain which seems to pass from the jaw up into the side of the head	e. Migraine
	f. Eye emergency

_____ A severe pain over the right maxillary sinus

8. A pregnant woman who is anemic tells you that she fainted. You ask her, "How did you feel before you fainted?" What might she answer?

9. A mother tells you that her teenaged daughter suddenly collapsed and lost consciousness. The mother thinks her daughter had a convulsion.
 - a. You ask the daughter how she felt before she lost consciousness. She says, "My muscles started to twitch." What else might she say?

 - b. You ask the mother to describe her daughter's behavior while she was unconscious. What might the mother tell you?

10. Sugar in the urine is a sign of _____.

11. List the signs of facial muscle weakness which you might find in a nervous system examination.

12. TRUE (T) or FALSE (F)
_____ The signs of facial muscle weakness will appear on the same side of the face as any brain damage.

185

Unit 6

Other Medical Problems

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of
 - Headache
 - Stroke
 - Grand mal epilepsy
 - Petit mal epilepsy
 - Anemia
 - Cancer
 - Diabetes mellitus
2. Interview and examine patients and diagnose other medical problems.
3. Provide treatment and care for patients with other medical problems.
4. Tell patients and their families how to care for other medical problems at home and to prevent them from becoming worse.
5. Teach the patient with diabetes how to give himself an insulin injection.

LEARNING ACTIVITIES

1. Join the instructor and class in presentations and discussions of the diagnosis of other medical problems.
2. Practice diagnosing other medical problems using examples from case studies.
3. Practice using the Diagnostic and Patient Care Guides and the Formulary.
4. During skill development in a clinic, practice identifying other medical problems, providing treatment and care, and telling patients about home care and prevention.

6.1 HEADACHE

Patients commonly complain of headaches. A headache can be a symptom of many different conditions. Headaches can be caused by head trauma, sinus infections, fever, dental problems, eye emergencies, or high blood pressure.

More often, anxiety and tension cause headaches. Two common types of headaches caused by anxiety and tension are migraine headaches and tension headaches.

CLINICAL PICTURE

a. Presenting complaint

A migraine headache is an extremely severe headache which starts very quickly, over a period of a few minutes to one-half hour. A migraine headache most often affects one entire side of the head.

A tension headache is a dull, throbbing ache that starts gradually. A tension headache often occurs in the neck or the back of the head. The patient may say that the pain circles his head like a tight band.

b. Medical history

Ask about recent injuries or illnesses. Find out if the patient is taking any drugs or medications, especially oral contraceptives.

Find out how the headache begins and how long it lasts. Ask about the location and quality of the pain. A migraine headache often begins with a visual disturbance. The patient sees flashes of light. He may suffer a sudden loss of vision. Intense, throbbing pain on one side of the head quickly follows. The patient often feels sick to his stomach and vomits. He is unable to carry on his normal activities. He cannot tolerate light. He is forced to lie down in a dark room until the headache passes.

Migraine headaches may occur frequently or only rarely. Ask about a history of similar headaches in other family members. Migraine headaches often occur among members of the same family.

197

A tension headache usually develops gradually during the course of the day, often following a stressful situation. A tension headache may continue over a period of hours or days. The patient feels increasing pressure around his head.

c. Physical examination

Examine the patient to rule out the other conditions which can cause headaches. Check the patient's temperature and blood pressure. Note any chills or unusual fever pattern. Examine his ears, nose, and throat. Tap over his sinuses. Note any tenderness or discharge. Examine his eyes for evidence of inflammation. Examine his teeth. Check for abscesses and tenderness. Examine the patient's neck for muscle spasms and neck stiffness.

Tension headaches and migraine headaches have no physical signs which point to a diagnosis. However, the patient may appear tense, worried, or tired.

COURSE AND COMPLICATIONS

The patient who suffers from migraine headaches often loses time from work. Migraine headaches can recur over many years.

Tension headaches often occur in cycles. The headaches may be more frequent and severe during periods of stress.

PATIENT CARE AND PREVENTION

Migraine headaches are difficult to manage. Reassure the patient that the headaches are not life-threatening. Tell the patient to take aspirin when a headache begins. Recommend ergotamine tablets if aspirin is not effective. See Patient Care Guides.

Help a patient with tension headaches to identify the causes of tension in his life. Help him to explore ways of handling these problems. Encourage him to discuss his problems with you. Support him in any way that you can. Advise him to take aspirin every four hours for pain. See Patient Care Guides.

126

6.2 STROKE

The brain must receive a constant supply of oxygen in order to work properly. Oxygen reaches the brain through the blood. When the blood supply is cut off for any reason, the brain loses its supply of oxygen and the patient suffers a stroke. The sudden loss of oxygen immediately damages or kills brain cells. The signs and symptoms of a stroke depend upon the location of the damage and the amount of brain tissue which is destroyed.

Several processes cause strokes. The lining of the blood vessels of an older patient or of a patient with diabetes can become damaged and rough. This thickening or hardening of the blood vessels is called arteriosclerosis. The narrowed blood vessels of a patient with arteriosclerosis can suddenly become blocked, causing a stroke.

Sometimes a clot forms in a blood vessel elsewhere in the body. A piece of the blood clot can break off and travel to the brain. There the clot can block a smaller blood vessel and cut off the blood supply to a part of the brain. The patient suffers a stroke.

Patients with high blood pressure also suffer strokes. Increased pressure can break a damaged blood vessel, causing blood to flow directly into the brain tissue. Many brain cells are destroyed and the patient suffers a stroke.

CLINICAL PICTURE

a. Presenting complaint

The patient may *suddenly develop a headache with vomiting, dizziness, and confusion*. A patient suffering a severe stroke may fall to the ground and *lose consciousness*. A mild stroke can cause *sudden difficulty in speaking or in moving an arm or leg*.

b. Medical history

A stroke victim is usually more than forty years old and often has a *history of high blood pressure*. A patient suffering a severe stroke may suddenly lose consciousness. A victim of a mild stroke may experience confusion or difficulty seeing, speaking, or moving.

c. Physical examination

If the patient is conscious, perform a nervous system examination. Look for *one-sided weakness* or *paralysis* in the patient's face, arms, and legs. An *unconscious* patient will be *breathing very deeply*.

COURSE AND COMPLICATIONS

Patients suffering severe strokes may never regain consciousness. However, most patients survive. A stroke patient's lasting disability will depend upon which area of his brain is damaged. A patient may suffer weakness in part of his body. He may have difficulty speaking. He may lose his memory.

PATIENT CARE

- a. Make the patient comfortable in bed. Be sure he is able to breathe. Keep his nose and throat clear of mucus.
- b. Help the patient to eat. Prepare soft or liquid foods if he is unable to chew or swallow easily. Start an IV if the patient cannot take fluids by mouth. Give him 1000 cc of five percent glucose, and 1000 cc of Ringer's lactate every twenty-four hours. See Patient Care Guides.
- c. Transfer the patient to the hospital if he is unconscious.
- d. A stroke patient's condition usually stops getting worse after a few hours to a few days. Begin rehabilitation work with the patient and his family at this time. The goals of rehabilitation are to help the patient regain as much of his speech and the use of his arms and legs as possible. Even patients with severe strokes can often be helped to walk again, to care for themselves, and to adjust to their disabilities.

PREVENTION

High blood pressure causes strokes. Detecting and treating patients with high blood pressure can help to prevent strokes.

6.3 GRAND MAL EPILEPSY

Epilepsy is a chronic brain disorder which causes repeated convulsions and loss of consciousness. Epilepsy occurs more often in some families than in others.

Epilepsy has many causes. A brain injury or a prenatal infection can cause epilepsy. A brain disorder caused by lack of oxygen immediately after birth may lead to epilepsy. Bleeding into the brain and severe jaundice can cause a brain disorder that may lead to epilepsy. Patients who recover from meningitis sometimes develop epilepsy. Most of the time, however, the cause of epilepsy is not known.

There are several types of epilepsy. Grand mal epilepsy is the most familiar disorder. Grand mal epilepsy affects the entire brain. Grand mal attacks therefore involve the entire body. The patient may have a *warning that the attack is coming*. This warning is called an *aura*. An aura can be a movement of certain muscles, a certain feeling, or a sensation which involves sight, sound, smell, or taste.

Suddenly the *patient loses consciousness*. His *muscles stiffen*. He may fall down and cry out. His *arms, legs, and head* begin to *jerk in a regular rhythm*. Sometimes the patient will *bite his tongue* or cheek. He may *urinate* and *pass stool*. His eyes may roll back in his head. He may stop breathing and turn blue. The jerking stops in two to five minutes, and the patient begins to breathe deeply.

The patient may have *difficulty waking*. He is often confused and cannot remember the attack. Between attacks, the patient appears normal.

CLINICAL PICTURE

a. Presenting complaint

The patient will likely be brought to you following an attack. He may have injured himself. Most often he is confused and sleepy. He may have a headache.

b. Medical history

It is unlikely that an attack will occur in your presence. Therefore, you must question family members carefully. Note the patient's

age. Find out if the patient has a history of similar attacks. Patients most often develop grand mal epilepsy before the age of thirty.

Find out if anyone else in the family has had similar attacks. Ask if the patient's behavior has changed recently. Has the patient injured his head? Has he had meningitis?

c. **Physical examination**

The examination usually will not reveal any signs of a physical disorder. Look for scars from past injuries. Perform a complete examination of the nervous system.

COURSE AND COMPLICATIONS

A patient with grand mal epilepsy is in danger of serious injury and death. He may fall and cut or burn himself during an attack. He may bite his tongue or choke.

Patients with epilepsy often feel that they have no control over their lives. They become anxious and disturbed. They are often treated with fear in their communities. Community attitudes can create social problems for the patient and his family.

Sometimes a person suffers a series of epilepsy attacks without regaining consciousness between the attacks. This condition is called status epilepticus. Treat status epilepticus as an emergency. The patient can die from a brain injury or exhaustion if the convulsions do not stop.

PATIENT CARE AND PREVENTION

- a. Provide emergency care during a grand mal attack. Protect the patient from injury. Lay the patient on his side so that he will not choke. Teach the patient's family this emergency procedure.
- b. Try to stop a continuous status epilepticus attack. Give diazepam two or three times at twenty minute intervals until the convulsions stop. See Patient Care Guides. Use phenobarbital if diazepam is not available. Inject it very slowly. See Patient Care Guides.
- c. Treat patients suffering from grand mal epilepsy with phenytoin sodium. See Patient Care Guides. Increase the dosage as recommended until the patient stops having convulsions.

Add phenobarbital if the patient is taking a maximum amount of phenytoin sodium and continues to have convulsions. See Patient Care Guides. Maintain the level of drugs which will control the attacks.

192

Never let the patient suddenly stop taking drugs. This will cause convulsions. The patient must take the drugs for at least three to five years. If no attacks occur during this period, you may reduce the dosage slowly over a one-year period. However, the patient must continue to take anti-convulsant drugs if the attacks recur.

- d. Caution the patient against carrying out activities that will be dangerous if he suffers an attack.
- e. People are often frightened of patients with epilepsy. Help teach people in the community that epilepsy is a problem which can be treated and controlled with drugs.

6.4 PETIT MAL EPILEPSY

Petit mal epilepsy attacks are briefer and less severe than grand mal attacks. Petit mal epilepsy occurs mostly in children. It is rare after the age of thirty.

The attack occurs without warning. The patient loses consciousness for a few seconds. His eyes and muscles flutter. The patient will have no memory of the attack. If it occurs while he is speaking, he will suddenly stop speaking and stare blankly for several seconds. Then he will continue his conversation without hesitation or awareness. A patient may have *many* petit mal attacks every day without knowing or remembering.

CLINICAL PICTURE

a. Presenting complaint

A family member will usually complain that the patient *suddenly stops what he is doing and stares blankly for several seconds.*

b. Medical history

Ask family members if the patient has a history of sudden attacks. Find out how often the attacks occur. Find out if the patient has convulsions.

c. Physical examination

The *physical examination* will show that the patient is *normal*. Perform a complete examination of the nervous system.

10/3

PATIENT CARE

- a. Treat petit mal epilepsy patients with ethosuximide. Other drugs can also be used. See Patient Care Guides and Formulary.
- b. Caution the patient against carrying out activities which will be dangerous if he suffers an attack.
- c. People are often frightened of patients with epilepsy. Help teach people in the community that epilepsy is a problem which can be treated and controlled with drugs.

6.5 ANEMIA

Anemia is a lack of a normal number of red blood cells or of hemoglobin in the blood. Hemoglobin carries oxygen from the lungs to the tissues of the body. Hemoglobin is the substance that makes blood red.

One cause of anemia is a lack of iron in the diet. The body needs iron to produce hemoglobin. Foods such as red meat, liver, eggs, green leafy vegetables, and molasses contain iron. A person will become anemic if he does not eat enough of these foods.

Some groups of people require more iron than others in the community. These groups, such as premature infants and pregnant women, are at increased risk of developing anemia. An infant who is born early has not had time to produce enough iron to meet his needs after birth. A pregnant woman provides large quantities of iron to the fetus growing inside her. She must obtain extra iron to meet these needs. A woman can become anemic after two or three pregnancies if the iron which she has lost is not replaced.

Slow, continued blood loss is another cause of anemia. Sometimes a woman bleeds very heavily during her menstrual periods. Or, she bleeds longer or more often than other women do. A loss of blood is a loss of iron. The iron must be replaced or the woman will become anemic.

Patients with certain diseases also lose blood. A patient with a peptic ulcer or with cirrhosis will bleed from his gastrointestinal tract, causing anemia. Hookworms suck blood from the walls of the small intestine. Children with hookworm infections often become very anemic.

A patient can develop anemia when his red blood cells are destroyed.

Malaria parasites attack red blood cells. The parasites destroy millions of red blood cells very quickly. The blood becomes filled with broken cells. Without treatment, the process continues and a malaria patient becomes very anemic.

Sometimes a patient cannot make normal hemoglobin. A patient with sickle cell disease cannot make normal hemoglobin. His red blood cells become shaped like sickles, or crescents. These sickle-shaped cells break down faster than normal cells, causing severe anemia.

CLINICAL PICTURE

a. Presenting complaint

Symptoms usually do not develop until the anemia is very severe. The first symptom is often *weakness*. The patient may *sweat easily* or *faint* because of the lack of oxygen reaching his brain.

b. Medical history

Infants who had a low birth weight, pregnant women, and women with heavy or frequent menstrual periods are likely to become anemic. People with hookworms, peptic ulcers, cirrhosis, malaria, and sickle cell disease are also at risk.

c. Physical examination

The patient's skin is pale. Carefully examine the *nail beds*, the *conjunctivae*, and the *mucous membranes* of the mouth. In patients with severe anemia, they are *pale* or *white*.

COURSE AND COMPLICATIONS

Patients with very severe anemia can suffer heart failure. They are also at increased risk of developing infections.

PATIENT CARE

Look for the cause of the patient's anemia. Treat the cause.

Give the patient iron tablets or liquid. See the Patient Care Guides. Tell the patient to take iron three times a day for at least three months. Iron can irritate the stomach lining. Advise the patient to take the iron medication with his meals.

195

PREVENTION

Encourage pregnant and lactating women to take iron tablets or liquid. Women who have heavy or frequent menstrual periods should also take iron. Premature infants need to take iron during their first year of life.

Encourage patients to improve their diets. Advise them to eat green leafy vegetables, molasses, red meat, liver, and eggs, if possible.

6.6 CANCER

Cancer is an uncontrolled increase in abnormal body cells. Each type of tissue in the body can develop its own form of cancer. Some cancers are very rare. Others are more common. Cancer is more likely to occur as the body gets older. Cancer will occur less frequently in areas with young populations. Still, cancer does occur sometimes in children.

CLINICAL PICTURE**a. Presenting complaint**

The presenting complaint of cancer depends on where the disease develops in the body. Complaints may include:

Skin sores or lesions which do not heal

Suspect skin cancer in patients with sores on their skin, tongue, or cheeks which do not heal after three or four weeks.

Hard lumps or masses anywhere in the body

Cancer cells often form very hard lumps or masses under the skin. A rapidly growing hard lump or mass can be a sign of cancer.

Breast lumps

Breast lumps have many causes. Cancer of the breast can be diagnosed only by examining the breast tissue with a microscope. Refer a woman with a breast lump to the hospital unless you are sure that her problem is an abscess.

Large liver or spleen or other hard mass in the abdomen

Cancer can begin in many organs and then travel to the liver or

spleen. The liver or spleen then becomes large and hard. A large mass in the abdomen can also be a sign of cancer.

Unexplained bleeding

Blood in the urine, without evidence of a kidney stone, may be a sign of kidney cancer. **Bleeding after intercourse, between menstrual periods, or after menopause** may be a sign of cancer of the uterus or cervix. **Blood in the stool** without evidence of hookworms, hemorrhoids, or ulcers may be a sign of cancer of the intestines.

Unexplained weight loss or loss of appetite

Suspect cancer when another disease such as tuberculosis or hyperthyroidism is not the obvious cause of a patient's loss of weight or appetite.

b. Medical history

Ask the patient when he first noticed the symptoms. Sometimes cancer is present in the body for a long time before symptoms develop. Symptoms are often associated with a complication.

A patient with cancer usually loses weight over a period of several months. He may become anemic. He tires easily and becomes weak. His appetite decreases.

c. Physical examination

Record the patient's weight. Check for weight loss. Weigh the patient again in two to four weeks to note any further weight loss.

Examine the patient's lymph glands. The lymph glands become enlarged and hard with most types of cancer. They will not move freely under the skin. Palpate the liver and spleen. They become enlarged with some types of cancer.

Feel the abdomen for any large masses. Perform a rectal examination of the male and a pelvic examination of the female. Search for lumps or masses. Carefully examine the breasts of female patients. Check for lumps and for any dimpling or discharge from the nipples.

Note any skin lesions which do not heal within a few days.

COURSE AND COMPLICATIONS

Some cancers grow very quickly. The patient will die within a few weeks of the appearance of the first signs or symptoms. Other

1974

cancers grow very slowly. The patient may live for years or die from another disease.

Most cancer patients eventually lose weight. The cancer forms a mass which causes pressure. The pressure can cause pain and other symptoms, depending on the location of the mass. The mass requires more nutrients as it grows. Less food is available for the other body tissues. The body becomes weaker and weaker. The patient often develops infections such as pneumonia. He becomes anemic.

PATIENT CARE

- a. Refer any suspected cancer patient to the hospital.
- b. A cancer patient often suffers severe pain and discomfort. Help make him comfortable. Use any pain medicines prescribed by the doctor.
- c. If the cancer cannot be cured or controlled, the patient and his family must face the patient's death. Talk with them. Help them make the necessary plans.

PREVENTION

The use of tobacco over many years causes most cancer of the lungs, throat, and mouth. Tobacco also causes chronic lung diseases, including emphysema and chronic bronchitis. Provide a good example to your patients by not smoking. Explain to your patients the dangers of smoking. Urge patients not to begin a habit that cannot be stopped.

Exposure to sunlight over many years will increase the occurrence of skin cancer. Warn the patient who works outside to protect himself from the sun. Advise him to see you if he develops a sore on his skin which does not heal promptly. This may be skin cancer.

Few other kinds of cancer can be prevented. Still, teach your patients the early signs of cancer. Encourage them to seek help right away for any of these signs. Early treatment may help a patient's chances of cancer control or cure.

100

6.7 DIABETES MELLITUS

Diabetes mellitus, or diabetes, is a chronic disease that develops when the pancreas does not produce enough of an important substance called insulin. The body cells need insulin to take sugar out of the blood. Without insulin the body cells cannot use the sugar from food. The cells need sugar for energy.

When a person has diabetes, the sugar from food does not reach his body cells. Most of the sugar remains in his blood. The sugar passes into the urine. The kidneys must make large amounts of urine to dilute the sugar. The patient with diabetes passes large amounts of urine. He becomes very thirsty and drinks large quantities of water. He also feels weak and hungry because much of the food he eats is lost as sugar in his urine.

Diabetes can occur at any age, but is very severe in children. Diabetes is also very difficult to control in children, so complications develop sooner. Children with diabetes always require insulin treatment.

Diabetes is less severe in older patients. Diabetes in adults can often be controlled with diet and exercise.

CLINICAL PICTURE

a. Presenting complaint

Adult patients often have few symptoms of diabetes until they develop a severe bacterial infection. The most common symptoms of diabetes are *increased thirst*, the *passing of large amounts of urine*, and a *large appetite* which cannot be satisfied. *Children often lose weight.*

b. Medical history

Diabetes develops gradually in adults and more suddenly in children.

People with diabetes are at *increased risk of bacterial infections.*
Suspect diabetes in any patient with a history of severe or chronic

199

abscesses, cellulitis, or skin sores which do not heal or take an unusually long time to heal. A patient with diabetes may have a history of repeated urinary tract infections or pneumonia. A woman may have a history of repeated vaginal infections and itching around her vagina.

Ask about increased thirst, hunger, or urination.

c. **Physical examination**

When you suspect that a patient has diabetes, *check his urine for sugar*. See Patient Care Procedures.

Adult patients with diabetes are usually *overweight* or *obese*. The physical examination is otherwise normal, unless the patient is suffering from a skin, urinary tract, or lung infection, or other complication of diabetes.

COURSE AND COMPLICATIONS

Diabetes is a chronic, incurable disease. Proper treatment can, however, relieve symptoms and prolong a patient's life. Still, some serious complications do occur.

a. **Increased blood sugar and ketoacidosis**

The body cells need insulin to take sugar out of the blood. Without insulin, most of the sugar remains in the blood and not enough reaches the body cells. The cells must break down fat and protein to produce the energy they need. The chemical waste products of this process are called ketones. Ketones are released into the bloodstream. They build up in the blood and make the blood acidic. This abnormally high level of ketones in the blood is called ketoacidosis. Increased blood sugar causes ketoacidosis.

The signs and symptoms of ketoacidosis develop gradually over one to two days. The patient becomes very thirsty and drowsy. Nausea and vomiting follow. His breathing becomes deep and gasping. His breath smells like very ripe fruit, the odor of one of the ketones. The patient becomes very dehydrated. His skin is flushed and dry. He will lose consciousness and die quickly if he is not treated promptly with insulin and large volumes of fluid. This severe complication is called a diabetic coma.

b. **Low blood sugar**

Some diabetic patients take insulin injections or other medicine to lower their blood sugar. If they do not eat properly, the medi-

200

cine lowers the blood sugar level too much. This dangerously low level of sugar in the blood is called hypoglycemia.

A patient with hypoglycemia feels hungry, weak, and shaky. His hands and feet may tingle. As his blood sugar level drops, the patient may develop slurred speech and confusion. He is not dehydrated, and his breathing is normal. His skin is pale and moist. Without treatment, the patient will lose consciousness and die.

c. Infections

A patient with diabetes has a low resistance to infections. Severe abscesses, cellulitis, or skin sores which do not heal are common in patients with diabetes. Patients with diabetes are also at risk of developing pneumonia, tuberculosis, and urinary tract infections. Women patients have problems with vaginal infections.

d. Circulatory problems

Patients with diabetes can develop severe problems of the circulatory system if the major arteries to the brain, heart, arms, or legs are affected. Strokes and heart attacks are major complications. Poor circulation can also cause the legs to become cold and painful. Such circulation problems can eventually lead to tissue death, requiring amputation.

Diabetes can also cause clogging of the smaller arteries. Poor circulation to the kidneys can lead to kidney failure, a common cause of death in patients with diabetes for fifteen to twenty years or longer.

Patients who have had diabetes for a long time can develop serious eye disorders, including blindness.

PATIENT CARE

Refer to the hospital any patient you suspect has diabetes. A doctor, with the help of a laboratory, can make the diagnosis properly.

Because diabetes is a chronic disease that can lead to serious complications, you must follow your patient closely. These are the most important patient care steps:

a. Encourage overweight patients to diet

Help an overweight adult patient to lose weight. Control of diabetes is much more difficult in an overweight person. Symptoms often disappear with weight loss.

Advise the patient to reduce the total amount of food, or calories, which he is eating. Encourage diabetic patients to avoid food which contain processed sugar. Encourage them to eat fresh fruits, vegetables, and foods which are good sources of protein, such as lentils, fish, meat, eggs, and milk.

Find out when the patient usually eats. Help him space his meals throughout the day. Small frequent meals are better than one or two large meals.

b. Encourage patients to exercise

Encourage the patient with diabetes to exercise every day. Regular exercise at the same time every day can help control diabetes.

c. Teach patients about treatment for diabetes

The doctor may prescribe an oral hypoglycemic drug to lower a patient's blood sugar. The patient must eat properly while taking this drug to avoid serious hypoglycemia.

A patient will need to take insulin if his diet or oral hypoglycemic drugs do not control the symptoms of diabetes. Insulin must be injected subcutaneously every day by the patient or a member of his family. Young diabetic patients always require insulin. The hospital staff should teach the patient how to inject and regulate his insulin. You must also know how to give insulin injections. See Patient Care Procedures.

Insulin should be refrigerated. It can be kept at room temperature for about thirty days in areas with cool or mild weather. If the patient lives in a hot climate and has no refrigerator, encourage him to move near a hospital.

d. Treat any complications

If your patient develops the signs and symptoms of ketoacidosis, start an intravenous infusion with Ringer's lactate solution or normal saline. See Patient Care Guides. Transfer the patient to the hospital quickly.

If you suspect hypoglycemia, give the patient a glass of juice or sugar water. Teach the patient the symptoms of low blood sugar. Tell him how to care for himself to avoid more serious complications.

If a diabetic patient is in a coma and you suspect hypoglycemia, give him 20 cc of 50% glucose by intravenous infusion. See Patient

202

Care Guides. He should regain consciousness in two to three minutes if he is suffering from low blood sugar.

Treat any bacterial infection as appropriate. Refer the patient to the hospital if an infection does not clear up quickly or if the patient develops signs of ketoacidosis.

Teach the patient to protect his feet from injury. Encourage him to always wear shoes. Urge him to keep his feet clean and dry. The patient should come to you for care if he injures his foot. Apply a sterile dressing to the wound. Treat the patient with antibiotics. See Patient Care Guides.

e. Provide follow-up care

Advise the diabetic patient to return to the clinic for regular follow-up checks. Chart the patient's weight at each visit. Encourage him to keep his weight down if necessary. Find out when he eats his meals. Ask him about the foods he eats. Ask about his exercise program. Regularly check for increased thirst, hunger, or urination. These are symptoms of poor control of diabetes.

If the patient is taking insulin, keep track of the type and amount that he is taking. The patient should check his own urine regularly for sugar. The insulin dosage needs adjusting if the patient has symptoms of high or low blood sugar, or if sugar regularly shows up in his urine. Refer him to the hospital for adjustment of his insulin dosage.

PREVENTION

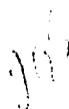
Proper diet and regular exercise may decrease the risk of developing diabetes.

2017

REVIEW QUESTIONS

Other Medical Problems

1. List the common causes and types of headaches.
2. A person who has suffered a stroke often has a history of what problem?
3. How can strokes be prevented?
4. TRUE (T) or FALSE (F)
— A patient with grand mal epilepsy may have to take phenytoin sodium for the rest of his life.
5. You have diagnosed a patient with grand mal epilepsy.
 - a. How would you start the patient on phenytoin sodium treatment? How would you adjust the dosage of this drug?
 - b. You have treated the patient with phenytoin sodium as you described above. The patient still reports having convulsions. How would you treat the patient?
6. What medicine can prevent anemia in pregnant women, lactating women, or women with heavy menstrual periods?

7. List the important signs and symptoms of cancer.
8. Adult patients often have few symptoms of diabetes until they develop a severe bacterial infection. What symptoms of diabetes are then seen?
9. Name two common signs of diabetes.
10. Check (x) each problem which could be a complication of diabetes.
- Asthma
 - Pneumonia
 - Urinary tract infection
 - Vaginal infection
 - Loss of hearing
 - Loss of vision
 - Stroke
 - Heart attack
 - Frequent and severe skin abscesses
 - Eczema
 - Frequent cellulitis
 - Skin sores which do not heal
 - Poor circulation causing a leg to become cold and painful
 - Kidney failure
11. You must learn to recognize the major differences in the signs and symptoms of two of the complications of diabetes. On the following chart, write in your answers to the questions or statements about increased blood sugar and low blood sugar.
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**INCREASED BLOOD SUGAR
AND KETOACIDOSIS**

- a. Has the patient been taking insulin injections?
- b. Describe the patient's breathing.
- c. Does the patient's breath smell like very ripe fruit?
- d. Does the patient show signs of dehydration?

LOW BLOOD SUGAR

- a. Has the patient been taking insulin injections?
- b. Describe the patient's breathing.
- c. Does the patient's breath smell like very ripe fruit?
- d. Does the patient show signs of dehydration?

206

REVIEW EXERCISE

Case Study 70

Name of Patient: Layne, Lucille
Sex: Female
[REDACTED]
Date of Visit: 12 October 1979
Vital Signs: Temperature 37°C
Pulse 70
Respirations 22
Blood pressure 110/80
Weight 74 kg

Presenting Complaint and Medical History: The patient tires easily and is short of breath when she does hard work. This problem has been getting worse gradually over the last two years. She feels better when she lies down, but she becomes dizzy when she stands quickly. She has not noticed any swelling of her eyes, wheezing, or cough. She has no fever or chest pain.

Past medical history: Her last menstrual period was two weeks ago. It lasted for seven days. The flow was heavy, with clots. Her menstrual periods have always been heavy. The patient has not had any black stools or pain in her abdomen.

Physical Examination: The patient is overweight but is in no distress. Her mucous membranes, tongue, and nail beds are pale. The patient is not short of breath. Her neck veins are not distended. Her breath and heart sounds are normal, with no murmur. Her abdomen is soft, with no palpable organs and no 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 71

Name of Patient: Williams, Naomi

Sex: Female

Date of Birth: 19 May 1956

Date of Visit: 5 December 1979

Vital Signs: Temperature 36.4°C
 Pulse 82
 Respirations 20
 Blood pressure 110/80
 Weight 56 kg

Presenting Complaint and Medical History: The patient has had occasional headaches for the last six months. Rest helps. Noise makes the headaches worse. The headaches usually occur in the front of her head. The pain is throbbing and circles her head like a band. No other symptoms are associated with the headaches.

Past medical history: The patient has had no serious illnesses. She has two living children. Her last menstrual period was November 19. It lasted seven days,

708

with severe pain and heavy bleeding. The patient has no visual disturbance, history of nausea or vomiting, hearing difficulties, or problems with balance. She reports no unusual problems with her husband or children.

**Physical
Examination:**

The patient looks healthy. Her mucous membranes are pink and moist. Her tonsils are not enlarged. Her breath and heart sounds are normal, with no murmur. Her thyroid is not enlarged. Her abdomen is soft, without tenderness or palpable 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 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?

200

REVIEW EXERCISE

Case Study 72

Name of Patient: Dobson, Patsy
Sex: Female
Date of Birth: 5 November 1969
Date of Visit: 5 December 1979
Vital Signs: Temperature 36.4° C
Pulse 96
Respirations 20
Blood pressure 100/60
Weight 34 kg

Presenting Complaint and Medical History: The child's mother reports that the little girl suddenly had a convulsion today. The child felt sick to her stomach before suddenly losing consciousness. Her arms and legs became stiff, and her body began to jerk. After a few minutes the jerking stopped, and she slept for about one-half hour. When she regained consciousness, she felt very weak and could not remember the attack.

Past medical history: The child has had one similar attack in the past. Her appetite has been normal. She has had no neck pain or fever. She does not complain of headaches.

Physical Examination: The patient is a healthy looking child who is accompanied by her very anxious mother. The child is alert and aware of her surroundings. No evidence of anemia or jaundice is noted. She does not have inflamed tonsils or a respiratory infection. Her breath and heart sounds are clear, with no heart murmur. Her abdomen is soft, with no palpable organs or tenderness. She walks normally, with no apparent muscle weakness.

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 73

Name of Patient:	Robbins, Margaret
Sex:	Female
Date of Birth:	19 April 1935
Date of Visit:	12 August 1979
Vital Signs:	Temperature 37°C
	Pulse 72
	Respirations 22
	Blood pressure 110/80
	Weight 93 kg

Presenting Complaint and Medical History: The patient has had headaches off and on for the last three months. The headaches are not worse, but she wanted her blood pressure checked. She is often tired but has trouble sleeping. Her father died of high blood pressure.

Past medical history: The patient had fibroid tumors removed earlier in the year. She has a big appetite but thinks she may have lost some weight over the last three months. She urinates frequently. She has no complaints of shortness of breath or chest pain.

Physical Examination: The patient looks healthy but obese. Her mucous membranes are pink and moist. Her thyroid gland is not enlarged. Her breath sounds are clear. She has a scar in the middle of her lower abdomen. No organs can be felt. A urine examination reveals sugar present.

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 74

Name of Patient:	Ling, Susan	
Sex:	Female	
[REDACTED]	[REDACTED]	
Date of Visit:	15 August 1981	
Vital Signs:	Temperature	37°C
	Pulse	84
	Respirations	20
	Blood Pressure	132/80
	Weight	49 kg

211

Presenting Complaint and Medical History:	<p>The woman complains of a lump in her left breast. She first noticed the lump four weeks ago. She thinks the lump is getting larger. It is not painful. The woman's appetite is poor. She says she tires easily and has lost weight.</p> <p>Past medical history: She has five children. All the children were delivered normally. She had one other pregnancy but miscarried. Her menstrual periods stopped four years ago. She cannot remember ever having a serious illness.</p>
Physical Examination:	<p>The woman looks anxious. She is pale and thin. Her mucous membranes and tongue are pale. No enlarged glands can be felt in her neck. Her neck is very thin. Her chest and heart sounds are normal. Her lower legs and ankles are not swollen. Her abdomen is soft, with no palpable organs. Her genitals are normal. She has no skin rashes.</p> <p>A breast examination reveals that the left nipple does not point downward like the right, but tilts slightly up. A hard mass can be felt near the nipple. The mass is about 3 cm in diameter and is attached to the skin. The mass does not appear to be attached to deeper tissue. The lymph glands in her left underarm are swollen.</p>

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?

2/2

SKILL CHECKLIST

Teaching a Patient How to Give Himself an Insulin Injection

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 teach a patient with diabetes how to give himself an insulin injection.

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 teaching a patient how to give himself an insulin injection:

	YES	NO	RATING		COMMENTS
1. Collect equipment and materials					
2. Demonstrate to the patient how to sterilize and prepare the syringe:					
a. Place the plunger, the barrel of the syringe, and the needle on a folded clean cloth. Place the cloth and the syringe parts in a clean pan. Fill the pan with clean water. Boil for ten minutes					
b. Wash your hands					
c. Put the plunger into the syringe. Flush the water out of the syringe					
d. Fasten the needle to the syringe					
e. Move the plunger back and forth to unplug the needle					

	YES	NO	RATING	COMMENTS
3. Demonstrate to the patient how to prepare the insulin dose: a. Mix the insulin in the vial. Clean the rubber stopper of the vial with an alcohol sponge b. Draw air into the syringe to equal the amount of insulin to be drawn c. Inject the air from the syringe into the vial. Draw dose of insulin required				
4. Ask the patient to sterilize and prepare the syringe and to prepare the insulin dose by repeating the above steps				
5. Demonstrate to the patient how to give himself an insulin injection: a. Clean the injection site with an alcohol sponge b. Pinch up the skin at the injection site c. Place the syringe at an angle to the skin d. Quickly inject the needle all of the way e. Pull back on the plunger of the syringe. If you see any blood in the syringe, remove the needle, throw away the insulin, and start again f. Inject the dose of insulin g. Press firmly on the injection site with an alcohol sponge. Withdraw the needle, remembering to keep it at the same angle. Rub the injection site with an alcohol sponge				

214

	YES	NO	RATING	COMMENTS
6. Ask the patient to practice the injection technique, using an apple or an orange				
7. Have the patient give himself an insulin injection when he feels confident in his ability to carry out the procedure				
8. Teach the patient how to rotate injection sites				

215

Unit 7

Assessing the Patient with a Mental Health or Alcohol Abuse Problem

STUDENT GUIDE

OBJECTIVES

1. Describe the signs of mental health and alcohol abuse problems:
 - Unusual behavior
 - Abnormal emotional state
 - Abnormal mental state
 - Sudden loss of speech
 - Sudden loss of vision
 - Sudden loss of hearing
 - Sudden paralysis or loss of sensation
in an arm or leg
 - Loss of consciousness
 - Enlarged and tender liver
 - Fluid in the abdomen
 - Jaundice
 - Weight loss
 - Malnutrition
2. Recognize the signs of a mental health or alcohol abuse problem when you see or feel them in a patient.
3. Interview a patient about his mental health or alcohol abuse problem.
4. Examine a patient with a mental health or alcohol abuse problem.
5. Record your findings on official forms.

LEARNING ACTIVITIES

1. Join the instructor and class in presentations, demonstra-

tions, and discussions of mental health and alcohol abuse problems.

2. Practice taking a medical history of the patient with a mental health or alcohol abuse problem using role-plays based on case studies.
3. In the classroom, interview and examine patients with mental health or alcohol abuse problems.
4. In the clinic, ask patients questions about their mental health or alcohol abuse problems. Examine patients with mental health or alcohol abuse problems, and write down your findings.

7.1 SIGNS AND SYMPTOMS OF MENTAL HEALTH AND ALCOHOL ABUSE PROBLEMS

Recognizing patients with mental health and alcohol abuse problems is part of providing good health care. Mental health problems can be difficult to understand and recognize. Causes of mental illness are rarely clear. A patient with a mental health problem usually has no signs of brain disease. Also, the definition of normal behavior differs from culture to culture. Even within one culture, the range of acceptable behaviors is wide.

Alcohol abuse problems can also be difficult to understand. But problems of alcohol abuse often cause some particular signs and symptoms that you will learn to recognize.

Learn about these signs and symptoms of mental health and alcohol abuse problems.

Unusual Behavior

A patient with a mental health problem may make strange, shaking movements. His posture may be unusual. He may be restless or easily distracted.

Abnormal Emotional State

An unusually sad, angry, or fearful patient may have a mental health problem. A patient with a mental health problem may also be unusually aggressive, loud, or violent.

Abnormal Mental State

A patient who does not know who he is, where he is, or what day or time it is may have a mental health problem. A patient with a mental health problem may seem lost. He may be unable to report simple facts or to talk about his problem in a sensible way. He will likely respond to questions very slowly.

Sudden Loss of Speech, Vision, or Hearing

A sudden, unexplained loss of speech, vision, or hearing can be a sign of a mental health problem.

2/5

Sudden Paralysis or Loss of Sensation in an Arm or Leg

A mental health problem can also cause sudden, unexplained paralysis or loss of sensation in an arm or leg.

Loss of Consciousness

Patients suffering acute alcohol intoxication may lose consciousness and be difficult to arouse. The smell of alcohol on a patient's breath may be the key to why he is unconscious and difficult to arouse. But a person with alcohol on his breath may also have fallen and struck his head. He may have diabetes or have suffered a stroke. Always consider other causes of unconsciousness.

Signs of Liver Disease

Liver disease is a complication of chronic alcoholism. A patient's liver may be enlarged and tender upon palpation. You may note free fluid in his abdomen during percussion and palpation. Jaundice of the eyes and skin is also common. These are all signs of serious liver damage caused by chronic alcoholism.

Weight Loss and Malnutrition

Chronic weight loss and signs of malnutrition are unusual in adults, but may occur in patients with chronic alcoholism. You will note muscle wasting and loss of body fat.

7.2 TAKING A MEDICAL HISTORY OF THE PATIENT WITH A MENTAL HEALTH OR ALCOHOL ABUSE PROBLEM

An accurate and complete medical history is often the key to the diagnosis of a mental health or alcohol abuse problem. But interviewing the patient with a suspected mental health or alcohol abuse problem will take extra time and special skills. You will be discussing troubling and painful emotional issues. The patient may be embarrassed to admit that he has a mental health or alcohol abuse problem or that he cannot cope with his daily life. He may come to you with a physical complaint and be hesitant to talk about what is really bothering him.

You must practice your best skills of listening, observing, and questioning to make the patient and his family comfortable and willing to talk.

2019

Remember some important interviewing guidelines. See the patient in a quiet, private place. Avoid interruptions that could further confuse a patient. Encourage the patient to talk. Show your interest. Listen for key words and phrases that may be clues to the patient's problem. Later, repeat the phrases or ask other questions about an important clue.

Be sure to ask these questions.

"Do You Have Any Symptoms of a Physical Illness?"

Severe physical illness can make a patient anxious or depressed. The symptoms of some physical illnesses can also be confused with the symptoms of a mental health problem. Find out if the patient has had a recent fever or loss of weight. Ask questions about the symptoms of thyroid problems, stroke, and diabetes.

"Are You Having Any Problems in Your Daily Life?"

A patient's family, work, or financial situation may affect his mental health. Question the patient about his family. Is anyone ill? Has a family member died recently? Have there been any serious fights or arguments? Is the patient worried about a child, spouse, or parent? Find out about the patient's work. Is he having any problems at work? How does he feel about his job?

Question the patient about financial problems. Is he worried about money or debts?

Find out if the patient has been taking alcohol or drugs. If so, find out how long he has been taking them.

"Are You Having Any Symptoms which Upset Your Daily Life?"

A sudden, unexplained fear of death is a symptom of severe anxiety. A pounding of the heart, a sudden inability to breathe, or unusual fatigue and irritability may also be symptoms of a mental health problem.

A patient may report a fear of certain places, everyday situations, or things. A very strong fear that disrupts a person's daily activities is a symptom of another mental health problem. A patient may be so upset about something that he loses the ability to move an arm or leg. Or he may suddenly lose his vision, hearing, or speech.

A severely confused patient will not know where he is, who he is, or what day or time it is. A depressed patient will report that he cannot sleep at night and cannot concentrate on work. A poor

270

appetite, a loss of interest in life, and frequent headaches are also symptoms of a mental health problem.

Sometimes a patient does not or cannot provide information about his mental health or alcohol abuse problem. If possible, ask the patient's permission to talk to his family members or friends. Remember, though, that discussions about a patient are confidential. Also, be objective about what other people tell you about a patient. They may exaggerate about the patient's problem in an effort to help. Or they may think that they are doing the patient a favor by not giving you information.

7.3 EXAMINING THE PATIENT WITH A MENTAL HEALTH OR ALCOHOL ABUSE PROBLEM

A patient's general appearance and behavior are often the first clues of a mental health or alcohol abuse problem. A complete physical examination will rule out any physical illness that may be causing the patient's symptoms.

Check General Appearance

Check the patient's general appearance. Note his level of consciousness, his grooming, his movements, and the color of his eyes and skin.

- a. Note the patient's level of consciousness

An intoxicated patient may be unconscious or difficult to arouse.

- b. Note the neatness of the patient

Compare the patient's general cleanliness, grooming, and dress to that of other people you see. A patient with a mental health or alcohol abuse problem often does not keep himself neat and clean.

- c. Note how the patient moves

Observe how the patient walks. An intoxicated patient may stagger or be unsteady on his feet.

Check for signs of paralysis of an arm or leg. A person suffering from hysteria may suddenly develop paralysis or lose sensation in an arm or leg.

2.21

d. Note the color of the patient's eyes and skin

Check for yellow eyes and skin, indicating jaundice. Jaundice is a sign of liver disease. Liver disease is a complication of chronic alcoholism.

Note Behavior, Emotional and Mental State, and Speech

Be alert for abnormalities in the patient's behavior, emotional and mental state, and speech.

a. Note the patient's behavior

Observe the patient's behavior carefully during your interview and examination. Normally a person carries out his daily activities in ways that are acceptable to those around him. A patient with a mental health or alcohol abuse problem may make strange movements. He may shake. His posture may be abnormal. He may be restless and easily distracted.

b. Note the patient's emotional state

A person normally expresses many emotions in appropriate ways. A patient with a mental health or alcohol abuse problem may be unusually sad or fearful. He may be unusually loud or aggressive. He may show extreme anger or violence.

c. Note the patient's mental state

Normally a person is alert and is aware of his surroundings. A patient with a mental health problem may not know who or where he is. He may not be sure of the date, the day of the week, or the time. He may look lost and disturbed. He may be unable to tell you simple facts or to talk about his problem in a sensible way. His responses to your questions may be slow and unclear.

d. Note the patient's speech and the odor of his breath

Normally a person communicates well. He understands what people tell him and responds clearly. An intoxicated patient has slurred speech that is difficult to understand. Your questions may confuse him. You will smell alcohol on his breath.

Take and Record Vital Signs

Take and record the patient's pulse rate and blood pressure. A person who is anxious will have an increased pulse rate and blood pressure. The normal anxiety associated with seeking help for an

illness may be causing the increase. Or the increase may be caused by a more severe form of anxiety which is a mental health problem.

Take and record the patient's respiration. A patient's respiration may also be increased if he is anxious. Note any history of a sudden inability to breathe in a patient with normal respiration.

Take and record the patient's weight. Compare the patient's weight to his weight on previous visits. Note any weight loss. Check for signs of malnutrition, such as muscle wasting or loss of body fat. Unusual weight loss and malnutrition in an adult may be signs of chronic alcoholism.

Check the Patient's Vision and Hearing

A patient with a sudden, unexplained loss of vision or hearing may have a mental health problem.

Palpate the Abdomen

Check for liver enlargement, tenderness over the liver, and free fluid in the abdomen. These are all signs of liver disease. Chronic alcoholism can severely damage the liver and cause the signs of liver disease.

222

REVIEW QUESTIONS

Assessing the Patient with a Mental Health or Alcohol Abuse Problem

1. Chronic alcoholism can cause liver damage. What are the signs of serious liver disease?

2. You may smell alcohol on the breath of a patient who is unconscious or difficult to arouse. Check (x) one of the two possible steps you would take when assessing this patient.
 - ___ Assume the patient lost consciousness because of alcohol intoxication.

 - ___ Rule out other causes of unconsciousness such as stroke, head injury, or diabetes before assuming the patient lost consciousness because of alcohol intoxication.

3. TRUE (T) or FALSE (F)
 - ___ A patient with a mental health problem can suddenly lose the ability to speak, see, or hear.

 - ___ A patient with a mental health problem can develop paralysis of an arm or leg. He can also lose sensation in an arm or leg.

 - ___ A patient with an alcohol abuse problem may suffer from chronic weight loss and malnutrition.

4. When interviewing a patient with a suspected mental health or alcohol abuse problem, you must practice your best skills of _____, _____, and _____ to make the patient and his family _____ and willing to _____.

5. List some important interviewing guidelines to follow with a patient suspected of having a mental health or alcohol abuse problem.
6. What daily life situations may affect a person's mental health?
7. A patient has some vague complaints. You are having difficulty identifying any clues to the patient's problem. You suspect that the patient may be suffering from a mental health problem, but you are not sure. You do not find anything unusual when you examine the patient. What can you do to find out more about the patient's problem?
8. You check a patient's general appearance early in the physical examination. During this part of the physical examination you may note some signs which might make you suspect a mental health or alcohol abuse problem. For each of the following, write a brief statement about what you should look for.

General Appearance:

- a. The patient's level of consciousness
 - b. The neatness of the patient
 - c. The patient's movements
 - d. The color of the patient's eyes and skin
9. You should also observe a patient's behavior, emotional and mental state, and speech. During this part of the physical examination you

225

may note some signs which might make you suspect a mental health or alcohol abuse problem. For each of the following, write a brief statement about what you should look for.

Behavior, Emotional and Mental State, and Speech:

- a. The patient's behavior
- b. The patient's emotional state
- c. The patient's mental state
- d. The patient's speech and odor of his breath

10. TRUE (T) or FALSE (F)

- An increase in a patient's pulse, blood pressure, and respiration can be caused by normal anxiety or be a severe form of anxiety which is a mental health problem.

Unit 8

Mental Health and Alcohol Abuse Problems

STUDENT GUIDE

OBJECTIVES

1. Describe the signs and symptoms of:
 - Acute confusion
 - Anxiety
 - Depression
 - Acute alcohol intoxication
 - Chronic alcoholism
2. Interview and examine patients and diagnose mental health and alcohol abuse problems.
3. Provide treatment and care for patients with mental health and alcohol abuse problems.
4. Tell patients and their families how to care for mental health and alcohol abuse problems at home and to prevent them from becoming worse.

LEARNING ACTIVITIES

1. Join the instructor and class in presentations and discussions of the diagnosis of mental health and alcohol abuse problems.
2. Practice diagnosing mental health and alcohol abuse problems using examples from case studies.
3. Practice using the Diagnostic and Patient Care Guides and the Formulary.
4. During skill development in a clinic, practice identifying mental health and alcohol abuse problems, providing treatment and care, and telling patients about home care and prevention.

8.1 ACUTE CONFUSION

Acute confusion is a state of sudden uncertainty and disorder. The patient suddenly loses contact with the world around him. He becomes anxious and afraid. Physical illness often causes acute confusion. Acute confusion can follow a high fever caused by typhoid fever, pneumonia, meningitis, malaria, or any other bacterial infection. Convulsions, certain drugs, and severe emotional shock can also cause acute confusion.

CLINICAL PICTURE

a. Presenting complaint

The patient *suddenly does not know who he is, where he is, or what day or time of day it is.*

b. Medical history

Ask family members or friends if the patient has been ill recently. Find out if the patient drinks alcohol or uses any mind-altering drugs. Ask about any recent troubling events in the patient's life.

c. Physical examination

The patient will *look lost and disturbed.* He often appears anxious and afraid. Check for signs of liver disease. Examine the patient for signs of a severe bacterial infection such as pneumonia or meningitis.

COURSE AND COMPLICATIONS

Acute confusion often clears up with proper treatment of the underlying cause.

PATIENT CARE

- a. Search carefully for the cause of the confusion. Refer the patient to the hospital if you cannot find a cause.
- b. Seat the patient in a quiet room. Ask one or two relatives to care for the patient. Strange faces and noises will make his confusion more severe.

229

- c. Be sure that the patient receives adequate food and water.
- d. Chlorpromazine may help calm the patient. See Patient Care Guides.

8.2 ANXIETY

Anxiety is a feeling of fear, worry, and tension. Anxiety is a normal reaction to threatening situations. But sometimes a person suffers severe anxiety. He does not know why he is afraid or what is disturbing him. His anxiety interferes with his daily activities. Severe anxiety is a mental health problem that can be expressed in many ways.

CLINICAL PICTURE

a. Presenting complaint

The patient may complain of a *sudden loss of breath*. He may feel his *heart pounding* inside his chest. He may have a *sudden fear of death*.

b. Medical history

The patient may feel *tired* and *irritable* after an anxiety attack. Find out if the patient has had previous attacks. Anxiety levels increase and decrease over time.

c. Physical examination

The patient will appear *restless*, *fearful*, or *distracted*. His *pulse* may be *rapid*. His *blood pressure* may be *elevated*. The rest of the physical examination is nearly always normal. Examine the patient carefully to reassure him that his body is healthy.

COURSE AND COMPLICATIONS

Symptoms will eventually improve if a recent event in the patient's life is causing anxiety. Otherwise, it is difficult to reduce the level and symptoms of anxiety.

A person's own mind has many ways to reduce the level of anxiety. Two very severe examples of this are phobias and hysteria.

Sometimes a patient focuses all of his anxiety on one thing. A *very strong, abnormal fear of one thing, place, or situation* is a phobia. Com-

mon phobias are a fear of heights, a fear of open spaces, and a fear of being locked in. A phobia for one thing or situation commonly leads to avoidance of that thing. The fear may then extend to other things or situations. A phobia commonly disrupts a patient's daily activities. He often does not understand his fear.

A patient may be so anxious about something that he *suddenly loses the use of an arm or leg*. He may even *lose his ability to speak, see, or hear*. Such an extreme form of anxiety is called hysteria. A patient suffering from hysteria will have sudden, unexplained emotional outbursts. The patient's history will usually suggest no physical illness. Events in the patient's life may or may not explain his hysteria.

PATIENT CARE AND PREVENTION

- a. Be sure to rule out any physical illness which may explain the patient's signs and symptoms. Reassuring the patient that he does not have a serious physical illness may reduce his anxiety.
- b. Describe anxiety to the patient and his family as a fear which lasts for months or years. Talk with the patient and his family about possible causes of anxiety. Try to reduce anxiety by working directly with any causes you can identify.
- c. Phobias and hysteria are symptoms of anxiety. The patient is using a phobia or hysteria to decrease his suffering. Do not try to treat a phobia or hysteria directly. You may make the patient's symptoms more severe.
- d. See the patient regularly to give him emotional support.

8.3 DEPRESSION

Depression is a feeling of severe, long-lasting sadness and helplessness. Depression is often brought about by an event in a person's life, such as the death of a relative or close friend. Women sometimes become depressed after the birth of a baby or during menopause. Some drugs, such as reserpine, can cause depression. Some diseases, such as rheumatoid arthritis, are associated with depression. Like anxiety, depression can take many forms. It can be mild or very severe.

230

CLINICAL PICTURE**a. Presenting complaint**

A depressed patient may have many complaints, including an *inability to sleep, a poor appetite, and a loss of interest in life.*

b. Medical history

Question the patient about *headaches and feelings of irritability.*

Find out if the patient has difficulty sleeping at night. Ask about a loss of appetite or weight. Find out if the patient can concentrate on his work or if his *mind wanders.* Find out if the patient has thought about killing himself or if he is *afraid that he will kill himself.*

Always ask about possible causes for the depression. Find out if anyone else in the family has suffered from the same problem. Severe depression sometimes occurs among members of the same family.

c. Physical examination

The patient will look unhappy. He will respond slowly to questions.

A patient with severe depression will not answer questions intelligently.

COURSE AND COMPLICATIONS

Patients with mild depression will often improve after a short time. A severely depressed patient may get worse. He may lose weight, stop communicating, or even try to kill himself.

PATIENT CARE**a. Explain to family members that the patient needs a great deal of support and comfort.****b. If the patient has thought about killing himself, ask a member of his family to stay with him. If the patient speaks seriously about killing himself or has tried to kill himself, transfer him to the hospital right away. Ask a member of his family to stay with him at all times.****c. Drugs can sometimes help a severely depressed patient. Refer the patient to your supervisor or to the hospital for prescription of an anti-depressant drug.**

231

8.4 ACUTE ALCOHOL INTOXICATION

Few societies are free of problems associated with the drinking of alcohol. As a health care provider, you must deal with the problems that alcohol creates.

Some people drink very heavily now and then. The effect of a brief episode of heavy drinking is acute alcohol intoxication.

CLINICAL PICTURE

a. Presenting complaint

The patient is often *unconscious* or *difficult to arouse*.

b. Medical history

Family members or friends may report that the patient has been drinking very heavily.

c. Physical examination

If no information about the patient is available, consider other causes of unconsciousness. Check for head injury. You will *smell alcohol on the breath* of an intoxicated patient.

If the patient is conscious, his *speech* will be *slurred* and difficult to understand. His *walk* will be *unsteady*. He may *stagger*. He will be unable to perform fine hand movements such as lighting a match.

A person who drinks too much alcohol may have a *changed personality*. He may become unusually violent, aggressive, or loud. Or he may be drowsy. Intoxicated patients often lose their judgment. They do things which are dangerous and often fatal. Road accidents are often related to heavy drinking.

COURSE AND COMPLICATIONS

The patient's body will break down the alcohol over a period of eight to twelve hours. The patient will gradually regain control without specific treatment.

232

PATIENT CARE AND PREVENTION

Allow the patient to sleep. Prevent him from drinking more alcohol.

Prevent the patient from harming himself or others while he is under the influence of alcohol.

8.5 CHRONIC ALCOHOLISM

A person who drinks large amounts of alcohol over a long period of time can become a chronic alcoholic. A person suffering from chronic alcoholism has often been drinking heavily for months or years. His mind and body develop a need for alcohol.

CLINICAL PICTURE**a. Presenting complaint**

Most often, the *patient denies that alcoholism is a problem.*

b. Medical history

Find out if the patient becomes intoxicated often. Find out if his drinking has caused violence in his family. Is the patient having problems with his job? Has he lost a job because of his drinking?

Try to learn about the patient's attitude toward alcohol. Is he concerned about his drinking, or does he deny that alcoholism is a problem? A chronic alcoholic will often *insist that he can stop drinking whenever he wants to.*

c. Physical examination

A patient with chronic alcoholism usually has a *very poor appetite.* Look for signs of *weight loss* and *malnutrition.* Look for signs and symptoms of gastritis, such as nausea, vomiting, and upper abdominal pain and tenderness.

Chronic alcoholism often causes cirrhosis of the liver. Palpate the patient's abdomen. His liver may be enlarged and tender. You may note jaundice, fluid in the abdomen, and other signs of liver disease.

COURSE AND COMPLICATIONS

The patient will continue to drink heavily if he denies that he has a

233

problem. Frequent intoxication will prevent the patient from functioning normally in society. The alcohol, together with poor food intake, can lead to liver disease and eventual death.

PATIENT CARE AND PREVENTION

The patient must first admit that he has a problem. You cannot help a patient unless he is willing to be helped.

Group support is very effective when patients with alcoholism want help. Encourage a group of patients with this problem to meet and help each other.

REVIEW QUESTIONS
Mental Health and
Alcohol Abuse Problems

1. TRUE (T) or FALSE (F)

___ You cannot help a patient with chronic alcoholism unless he admits he has a problem and is willing to be helped.

___ Acute confusion can follow a high fever caused by typhoid fever, pneumonia, meningitis, or malaria.

2. A young man brings his wife to see you. She suddenly lost her ability to speak after her three-year-old child was killed in an accident two days ago. You note nothing during your interview of the husband to indicate that the woman has any medical reason for her problem. You cannot find anything physically wrong with the woman. What do you suspect her problem is?

3. A patient who reports that he has been thinking about killing himself is suffering from a severe form of _____ .

REVIEW EXERCISE

Case Study 75

Name of Patient: Huntley, Martin

Sex: Male

Date of Visit: 6 December 1979

Vital Signs: Temperature 37°C
 Pulse 78
 Respirations 18
 Blood pressure 120/85
 Weight 70 kg

Presenting Complaint and Medical History: The patient has felt weak for the last three weeks. The weakness started gradually and has been getting worse. His appetite is poor and he has trouble sleeping. His legs get weak very easily. He has a strange, drifting feeling when he walks. He has had no cough, shortness of breath, or pain in his upper abdomen. He thinks that he has lost about 1.5 kg over the last month.

Past medical history: The patient becomes upset very easily. He worries about his wife's heavy drinking. He has many debts.

Physical Examination: The patient looks depressed and very tired. His mucous membranes are pink and moist. His tonsils are not enlarged. His breath and heart sounds are normal. His abdomen is soft, and no organs can be felt. His movements 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?

236

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 76

Name of Patient:	Bornes, Delta	
Sex:	Female	
Date of Visit	6 June 1979	
Vital Signs:	Temperature	36.8° C
	Pulse	88
	Respirations	18
	Blood pressure	114/72
	Weight	44 kg

Presenting Complaint and Medical History: The patient was working at her desk this afternoon when she suddenly felt her heart begin to pound. She could not catch her breath. The attack lasted about fifteen minutes. She became very frightened and thought that she was having a heart attack. Her father died of a heart attack last year.

Past medical history: She has never had an attack like this before. However, she gets frequent headaches. She had an abortion three months ago.

Her appetite has been good, with no weight loss. She has no history of rheumatic fever or joint pains.

Physical Examination: The patient looks tense and frightened. Her mucous membranes are pink and moist. Her neck and chest are normal. Her abdomen is soft, and no organs can be felt. Her skin is not pale or jaundiced.

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 9

Supporting the Person with a Chronic Illness

STUDENT GUIDE

OBJECTIVES

1. Explain why it is important that the person with a chronic illness gets support from the health worker, his family, and community members.
2. List ways that the health worker, the family, and community may help support the person with a chronic illness.
3. Outline the information that you would share with a chronically ill person, his family, and other community members. Outline how you would share this information.
4. Demonstrate how to support chronically ill persons.

LEARNING ACTIVITIES

1. Participate in a class discussion on the importance of supporting a person with a chronic illness.
2. Listen to an instructor's presentation on supporting a person with a chronic illness.
3. Work in a small group to outline how you would support a person with a particular chronic illness. Include the information about the illness that you would share with the ill person, his family, and community members, as well as how you would share this information.
4. Present your outline to the rest of the class.
5. Participate in a class discussion of the session's activities.
6. Practice supporting persons with chronic illnesses during your clinical experiences.

9.1 SUPPORTING THE PERSON WITH A CHRONIC ILLNESS

A chronic illness is an illness that lasts a long time. Arthritis, diabetes, epilepsy, cancer, and alcoholism are chronic illnesses. Hypertension, tuberculosis, and leprosy are also chronic illnesses. A person with a chronic illness needs long-term treatment and care. Without long-term treatment and care, he may continue to suffer. His condition may get progressively worse.

You can provide some treatment and care to the chronically ill person. But the person with a chronic illness can and must do many things for himself. For example, most chronic illnesses require regular medications. The person with a chronic illness can learn to give himself these medications. Many chronically ill persons must also change their diet or exercise habits. The ill person himself must be responsible for these changes.

A chronically ill person must cope with his illness for a long time. You can help the person with a chronic illness by providing him with regular support. This means giving information and using methods that will help the ill person to understand his illness and to begin and continue to take good care of himself. The information and methods will vary from person to person and situation to situation, but these general guidelines apply to all chronically ill patients.

Provide Information to the Ill Person and His Family

Begin by teaching the ill person and his family about the illness. Explain the illness and its effect on the body. Discuss the role of medications in the control or cure of the illness. Discuss any necessary changes in diet and exercise habits. Be sure to explain why these changes are important. Explain how to recognize signs that the ill person is getting better, staying the same, or getting worse.

Help the ill person understand that he has to cope with his illness for a long time. Teach him how he can live as comfortably as possible despite his illness.

Stay in Contact

Stay in contact with the ill person and his family. Keep a record of the medications he is taking. Make sure he is staying on a regular schedule. Find out if the ill person has been successful in changing his diet and exercise habits. Encourage and reinforce his good health habits.

Show Your Concern

Regularly find out how the person is feeling about his illness. Try to visit the ill person at home or at work. Take the time to sit and talk with the person about his illness. He will be more likely to do the necessary things to take good care of himself if he feels that there is hope for the care and control of his illness. Find out if he is having any problems or is troubled about his condition. Show him that you are concerned about his health and his well-being.

Ask a Community Member to Help

Ask a community member with a chronic illness to talk to a person with a similar problem. Together they can discuss how they feel and how they can best cope with their illnesses.

Encourage the Support of the Family and the Community

The support a chronically ill person gets from his family and other community members will affect the person's attitude about himself and his illness. Meet with the ill person's family and other community members. Make them aware of the importance of support for the ill person. Suggest ways to support the chronically ill person.

Tell family members how the illness may be controlled or cured. Teach them how to care for the ill person to make him comfortable at home.

Help community members get rid of false or misleading ideas about chronic illnesses. For example, alcoholics are often looked upon as "good for nothing" members of the community. Explain to community members that alcoholism is an illness that can be controlled over time if the patient makes a commitment to group support with other alcoholics.

In summary, a person with a chronic illness needs:

Medications and other treatment

298

Information about how he can care for himself in order to control or cure his illness

Regular support and care from the health worker, his family, and his community

To support a chronically ill person, you should:

Provide information to the ill person, his family, and other community members about the illness and its care

Make sure the ill person takes the necessary medications and practices good health habits.

By doing these things, you will be helping the chronically ill person live comfortably as a productive member of his family and community.

REVIEW QUESTIONS

Supporting the Person with a Chronic Illness

1. Describe some things that the person with a chronic illness can and must do for himself during his illness.
2. One way of supporting a person with a chronic illness is to share information with him and his family. What should this information include?
3. Describe some of the other ways that you can help the person with a chronic illness to learn about his illness and about ways to take care of himself.
4. TRUE (T) or FALSE (F)
____ One of your main objectives in supporting the chronically ill person should be to make sure the ill person sees you every other day for medications, education, and treatment.
5. Summarize what a person with a chronic illness needs.

SKILL CHECKLIST

Supporting the Person with a Chronic Illness

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 support the person with a chronic illness.

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 supporting the person
with a chronic illness:

	YES	NO	RATING	COMMENTS
1. Discuss with the ill person his feelings about his illness. Explain that long-term treatment and care will be necessary to control or cure his illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Explain to the ill person the effects his illness is having on his body and how medications and treatment will help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Describe the medications and treatment required to control or cure his illness. Emphasize the importance of the ill person learning to take care of himself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Explain to the ill person what changes he may have to make in his eating, exercise, or other habits. Be sure to explain why	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	YES	NO	RATING	COMMENTS
these changes may be necessary. Talk with the person about how he feels about making such changes				
5. Ask the person to explain to you what he is going to do to take care of himself. Ask him to be specific				
6. If family members are present, explain to them what you explained to the ill person. Discuss the kind of support they can give the ill person				
7. Make a follow-up visit to the ill person at his home or work. Ask him what he is doing to take care of himself. Find out if he is having problems or is troubled about his condition. Talk with him to find out the source of his feelings				
8. Make sure the ill person is taking his medications regularly				
9. Conduct community education sessions about chronic illnesses and the importance of community support for the ill person				

245

Unit 10

Assessing and Caring for Patients with Other Common Problems; Skill Development

STUDENT GUIDE

OBJECTIVES

1. Interview and examine patients with other common problems.
2. Recognize and record the signs and symptoms of other common problems.
3. Advise patients and family members about the prevention and home care of other common problems.
4. Present health messages about supporting the person with a chronic illness.

LEARNING ACTIVITIES

1. Participate in one and one-half days of clinical practice in a hospital ward or outpatient clinic. During that time you will interview and examine patients and advise patients and family members about the prevention and home care of other common problems. You will also present health messages about supporting the person with a chronic illness.
2. Participate in two weeks of general skill development practice in a hospital ward or outpatient clinic.

Unit 11

Caring for Patients with Other Common Problems; Clinical Rotation

STUDENT GUIDE

ENTRY LEVEL

Before starting your clinical experience, you must:

1. Pass a test of your knowledge about other common problems with a score of 80% or higher.
2. Receive at least two Satisfactory ratings on how you:

Take and record a medical history of the patient with other common problems

Give a physical examination to the patient with other common problems

Recognize and identify the signs of other common problems

Counsel patients about other common problems

Present health messages about supporting the person with a chronic illness

OBJECTIVES

1. Diagnose the other common problems described in this module with the help of the 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 and in the Patient Care Guides.
4. Advise patients and their families about the home care and prevention of other common 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 other common problems. You will be expected to use the Diagnostic and Patient Care Guides to correctly identify problems and care for patients. You will have a chance to practice the patient care procedures 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 other common 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, but no patient advice given
- 4 = Diagnosis, treatment, and patient advice correct

You will be expected to get a 4 rating for each problem.

During the clinical experience described in this unit, you will be expected to earn the prescribed number of Satisfactory ratings on your skill in teaching a patient with diabetes how to give himself an insulin injection and in supporting the person with a chronic illness.

243

Unit 12

Helping a Community to Prevent and Care for Other Common 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 other common 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 counseling for each of the other common problems.
4. Earn at least two Satisfactory ratings on your skill in teaching a patient with diabetes how to give himself an insulin injection.
5. Earn at least two Satisfactory ratings for presenting a health message on supporting the person with a chronic illness.

OBJECTIVES

1. Provide clinical services to patients with other common problems.
2. Identify people in the community with other common problems and plan a program to prevent the problems from occurring again and spreading.
3. Advise the community about its role in preventing other common problems.
4. Discuss with community members how they can support the person with a chronic illness.
5. Identify other members of the health team who can help in the prevention of other common problems and in the support of the person with a chronic illness.

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 of the other common problems.
2. Identify any local customs which do or do not provide assistance to community members with chronic illnesses.
3. Hold meetings with community members and obtain their help in assisting members in the community with their chronic illnesses.

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.

250