

Course

Health Science
Technology II

Unit X

Occupationally
Specific
Knowledge and
Skills

Essential Question

What are the
ramifications
from an
inaccurately
performed
health care skill?

TEKS

121.4 1E, 3C,
6D, 12A, 12C,
13A, 14C, 16A,
17B

TAKS

ELA 1, 4
Mathematics 1,
2, 3, 8
Science 2, 3

Prior Student Learning

Students should
be able to
accurately take a
pulse and
temperature. They
should
understand safety
procedures
related to patient
contact.

Rationale

Healthcare workers are on the front line of fighting the spread of infectious disease. One of the most important aspects of their job is accurately diagnosing a disease by collecting the right types of information from the patient. In order to provide adequate client health care, it is necessary to obtain an accurate patient history and physical examination.

Objectives

Upon completion of this lesson, the student will be able to:

- Record a simple patient history;
- Perform a patient exam, focusing on pulse, temperature, throat, and respiration;
- Diagnose illness by matching observed symptoms with diseases using a checklist and suggest the appropriate course of treatment; and
- Describe the symptoms and risk factors of various infectious diseases.

Engage

The teacher will role play a history and physical while identifying the stages. Urge the students to take notes during the process. Use one of the disease cards from the lesson for the role play.

Key Points

- I. Information gathered while performing a history and physical on a patient helps the physician determine:
 - A. Patient level of health
 - B. Need for additional testing or examinations
 - C. Tentative diagnosis
 - D. Preventive measures needed
 - E. Type of treatment
- II. Length and detail:

At times, the patient's history may need to be in great detail. For example, when a patient goes to see a specialist, the patient may be asked to fill out a very lengthy form about any problems in the past that indicate a pattern. But, many times a simple history is all that is needed to give the physician a good idea about what is going on with the patient. This is the best way to treat it such as a patient seeing a doctor for a sore throat or broken arm, for example.
- III. Common components of the patient's history
 - A. Chief Complaint (CC) - a brief statement made by the patient describing the nature of the illness (signs and symptoms) and

Estimated time

4 ½ - 6 hours

the duration of the symptoms, i.e., why the patient came to see the physician.

- B. History of present illness (HPI) – detail each symptom and looks at the order of the symptoms to occur and the length of each.
- C. Past History (PH) – all prior illness the patient has had and date of occurrence.
 - 1. Childhood diseases
 - 2. Operations
 - 3. Admission to the hospital
 - 4. Serious injuries and disabilities
 - 5. Shot record (immunizations)
 - 6. Allergies (all kinds including drug reaction)
 - 7. For women only – number of pregnancies, number of live births, and date of last menstrual cycle.
- D. Family History (FH) – the summary of the health status and age of immediate relatives (parents, siblings, grand parents and in some cases children); if deceased, the date, age at death, and the cause are noted. Diseases among relatives that are thought to have hereditary tendency are also recorded. Examples are cancer, diabetes, heart problems, kidney problems, mental conditions and any infectious diseases.
- E. Social and occupational history (SH) – includes information related to the type of job, where the patient lives, recent travels to the patient’s personal habits and lifestyle.
 - 1. Use of tobacco, alcohol, drugs, coffee, etc.
 - 2. Diet, sleep, exercise, and hobbies
 - 3. Marital history, children, home life, occupation, religious convictions
 - 4. Resources and support

IV. Physical Exam

Most of the time, the physical portion of the exam is performed by the physician. Part or all of the exam may be performed by a nurse, therapist, PA or other trained person working under the doctor.

Example: a nurse or paramedic may check victim’s eyes to see if they are dilated or note that the patient has multiple cuts and bruises.

A. Types

- 1. Inspection – visual observation of the body. Note any signs of rashes, scars, trauma (such as cuts and bruises), deformities or swelling. Many times instruments are used to assist in getting a better look such as an otoscope or a tongue blade.
- 2. Palpation – by applying the tips of the fingers, the whole hand, placing both hands to a body part to feel for abnormalities and noting any pain or tenderness.
- 3. Percussion – done by tapping the body lightly but sharply with the fingers when looking for the presence of pus or

fluid in a cavity, or done by the percussion hammer when checking the reflexes of a patient.

4. Auscultation – the process of listening to sounds produced internally. Generally a stethoscope is used.
5. Mensuration – the process of measuring. Clinical measurements include TPR, BP, Ht and Wt.
6. Diagnostic Testing – testing to give the physician a better look at what is going on inside, most likely done after the other parts of the exam. Examples include lab work, x-rays or more invasive type procedures such as a heart cath.

B. Preparing the patient for the exam

Patients are usually asked to undress and put on a gown when preparing for a physical examination. Always drape patients so they are covered except for the area to be examined. It is your responsibility to maneuver draping to maintain maximum cover for the patient as the doctor examines various areas of the body. The more common positions used for examinations are:

1. Horizontal recumbent (supine) – the patient lies flat on back, with or without a head pillow, legs, extended, arms across chest or at side.
2. Prone – the patient lies facedown, legs extended, face turned to one side and arms above head or along side.
3. Dorsal recumbent – the patient lies on back, knees flexed, with soles of feet flat on bed.
4. Knee-chest – the patient is on the knees with chest resting on the bed. The thighs are straight up and down; the lower legs are flat on the bed. The face is turned to one side.
5. Sim's (lateral) – the patient lies on the left side with the left arm and shoulder front-side down on the bed. The right arm is flexed comfortably. The right leg is flexed against the abdomen; the left knee is slightly flexed.
6. Fowler's – the back rests against the bed, which is adjusted to a sitting position. The bed section is raised under the knees. A pillow is placed between the patient's feet and the foot of the bed.
7. Lithotomy – the patient lies on the back. The knees are well separated and flexed. Sometimes the feet are placed in stirrups.
8. Anatomic position (vertical) – the patient stands upright with feet together and palms forward.
9. Dangling (sitting) – the patient sits upright on the side of the bed, facing the doctor. The feet are resting on a stool or dangling. (This is the most common position and depending on the patient's chief complaint, they may not

be required to remove clothing.)

C. Equipment

The equipment needed for examination will depend upon the type of exam. Some commonly used instruments:

1. Tongue depressor
2. Otoscope
3. Nasal speculum
4. Percussion hammer
5. Ophthalmoscope
6. Stethoscope
7. Sphygmomanometer (blood pressure cuff)
8. Tape measure
9. Gloves
10. Emesis basin
11. Thermometer
12. Cotton balls in antiseptic solution
13. Knife handle
14. Knife blade
15. Hemostat
16. Curved scissors (Metzenbaum)
17. Sponge forceps
18. Tissue forceps
19. Suture scissors
20. Needle holder
21. Hypodermic needle
22. Syringe
23. Mosquito forceps
24. Towel clips
25. Towels
26. Gauze strips
27. Drape or sheet

Activity

- I. Complete **Positioning and Equipment Worksheet**.
- II. Conduct a history and physical on a partner. **Clinical Epidemiology Lab**.

Assessment

Completion of **Positioning and Equipment Worksheet**
Successful completion of Clinical Epidemiology Lab

Materials

History and Physical Form

Clinical Procedures for Medical Assistant 3rd edition by Shannon M. Zakus
Mosby.

Positioning and Equipment Worksheet

- Latex gloves
- Face masks
- Thermometers
- Sanitary covers for the thermometers
- Rubbing alcohol and cotton balls
- Tongue depressors

Accommodations for Learning Differences

For reinforcement, the student will outline the components of the history and physical exam.

For enrichment, the student will compare and contrast health histories of two or more patients with the same disease/disorder.

National and State Education Standards

National Health Science Cluster Standards

HLC 10.01 Health Care Workers will apply technical skills required for all career specialties. They will demonstrate skills and knowledge as appropriate.

TEKS

121.4 (c) 1E Interpret complex technical material related to health care;

121.4 (c) 3C Review and summarize technical reports.

121.4 (c) 6D Utilize medical vocabulary specific to the health care setting;

121.4 (c) 12A Observe client during care and procedures;

121.4 (c) 12C Record client health status according to facility protocol;

121.4 (c) 13A Identify and collect appropriate supplies and equipment necessary for a procedure;

121.4 (c) 14C Accurately complete a variety of informational forms;

121.4 (c) 16A Know information specific to occupational areas; and

121.4 (c) 17B Use appropriate equipment in the delivery of health care services.

Texas College Readiness Standards

English Language Arts

I. A. 2. Generate ideas and gather information relevant to the topic and purpose, keeping careful records of outside sources.

II. A. 4. Draw and support complex inferences from text to summarize, draw conclusions, and distinguish facts from simple assertions and opinions.

V. A. 2. Explore a research topic.

V. B. 1. Gather relevant sources.

V. B. 2. Evaluate the validity and reliability of sources.

V. B. 3. Synthesize and organize information effectively.

V. B. 4. Use source material ethically.

Science

I. A. 1. Utilize skepticism, logic and professional ethics in science.

Social Studies

I. E. 4. Identify and evaluate the sources and consequences and social conflict.

Cross Disciplinary

I. B. 3. Gather evidence to support arguments, findings or line of reasoning.

Positioning and Equipment Worksheet

1. Complete the following statements:

- A. A tongue depressor is used to hold down the _____.
- B. An instrument used to examine the eye is called a _____.
- C. An instrument used to examine the nasal cavity is called a _____.
- D. _____ is a fluid used to lubricate.
- E. Gloves are used to protect the _____.
- F. The _____ is an instrument used to wrap around the arm to aid in detecting the blood pressure.
- G. _____ is an instrument used to hear the heart beat.
- H. The oroscope is an instrument used to examine the _____.
- I. Cotton balls are soaked in _____.

2. Answer each statement by placing a (T) for **true** or an (F) for **false** in front of each.

- _____ A. Assemble instruments needed for the examination.
- _____ B. Be present in the room unless otherwise instructed.
- _____ C. Assist the patient only if necessary.
- _____ D. Follow the general examination rules of the medical facility.
- _____ E. Stand by to help position or hold the patient as the doctor requests.
- _____ F. All used or soiled equipment must be placed in the proper place according to the policies of the medical facility.
- _____ G. Report time, date, and the extent of the examination for charting.

3. Match the patient positioning term on the right with its definition on the left.

- | | |
|---|-------------------------|
| _____ A. The patient lies flat on the abdomen with head turned right or left | 1. Horizontal Recumbent |
| _____ B. This position is also called the knee-chest position | 2. Prone |
| _____ C. Standing upright with good posture and arms at ease by the sides. | 3. Sim's |
| _____ D. Lying flat on the back without a pillow and the knees slightly apart. | 4. Supine |
| _____ E. Outstretched on the back. | 5. Dorsal Recumbent |
| _____ F. Lying on the back with one pillow under the head and with the knees flexed (bent) and separated. | 6. Jackknife |
| _____ G. Lying on the left side with left arm behind the back and right leg drawn up and apart from the left. | 7. Fowler's |
| _____ H. With the head and back elevated to quite a high angle on the bed and the knees flexed. | 8. Dangling |
| _____ I. With the head and back somewhat elevated and the knees flexed slightly. | 9. Vertical |
| _____ J. Sitting in the side of the bed with the feet hanging. | 10. Semi-Fowler's |

KEY
Positioning and Draping the Patient
For the Medical Examination

1. A. Tongue
 B. Ophthalmoscope
 C. Nasal speculum
 D. Lubricant
 E. Hands
 F. Blood pressure cuff
 G. Stethoscope
 H. Ear
 I. Antiseptic solution

2. A. True
 B. True
 C. False
 D. True
 E. True
 F. True
 G. True

3. 2 A.
 6 B.
 9 C.
 1 D.
 4 E.
 5 F.
 3 G.
 7 H.
 10 I.
 8 J.

Clinical Epidemiology Lab

Objectives

1. To learn about symptoms and risk factors for various infectious diseases.
2. To record patient data based on exams and patient history.
3. To diagnose an illness based on clinical findings.
4. To record diagnostic testing and treatments for your diagnosed disease.

Materials

- Patient Record Form
- Disease Description Card
- Gloves and face masks
- Thermometer and sanitary covers
- Tongue depressors
- Rubbing alcohol and cotton balls

Directions

1. Choose a partner and decide who will be the “Health Care Worker” and “Patient”.
2. Get a Disease Description Card from your instructor.
3. As a patient, follow the “role” of your disease carrier. As a health care worker, record the data your patient gives you on the Patient Record Form.
4. Collect materials for the patient exam. Record the data under Patient Exam and Observations. Be sure to record two sets of data where indicated on the form (student and patient roles).
5. Wearing your gloves and face mask, complete the following:
 - Pulse Recording. Record your patient’s *radial pulse* by taking their pulse on their wrist. Count the “beats” for 1 minute (or for 30 seconds and multiply by 2).
 - Temperature Recording. Use the digital thermometer. Be sure to use a sanitary cover. Record the temperature. Wipe off the thermometer with rubbing alcohol before giving it to the next group.
 - Throat Description. Using a tongue depressor, (gently) look inside your patient’s mouth at the color of the throat. Record descriptions like pink, red, blotchy, white patches, etc.
 - Lymph nodes (neck). Swollen? Tender? Record findings.
 - Respiration. Count how many times the patient “breathes” in 1 minute.
6. Once you have recorded all of the exam and history data, get a Symptoms and History Checklist from your instructor. Examine the checklist and search for your patient’s disease. Try to find the disease that matches all of the descriptions you recorded about symptoms and patient history (risk factors).
7. Turn in your patient’s information with diagnosis. Keep the Symptoms and History Checklist in your notes. Return the Disease Description Cards to your instructor.

Disease Information

Now that you have arrived at a preliminary diagnosis for your patient, there is additional information about the disease that you will want to have. Research your disease in order to answer the following questions:

What diagnostic testing is available for this disease?

What is the pathogen associated with this disease? How is the disease transmitted?

What are the major treatments for this disease?

How can individuals avoid contracting this disease?

Patient Record Form

Healthcare Worker (your name)_____

Patient (partner's name)_____

PART I–Patient Information

Disease (A–N)_____ Age_____

Complaints/Symptoms_____

Questionnaire (history):

1. Have you eaten anything differently in the last 48 hours? _____ no _____ yes _____ unknown

if yes, what?_____

2. Have you traveled anywhere recently? _____ no _____ yes _____ unknown

where?_____

3. Do you own a pet? _____ no _____ yes

what kind?_____

4. Have you gone hiking or camping recently? _____ no _____ yes _____ unknown

5. Are you up to date on your vaccinations? _____ no _____ yes _____ unknown

6. Have you shared a soda or drinking glass with anyone recently? _____ no _____ yes _____ unknown

7. Do you live in the countryside or near wildlife? _____ no _____ yes _____ unknown

8. Do you have any recent cuts or bites on your skin? _____ no _____ yes

9. Do you work in a healthcare setting? _____ no _____ yes _____ unknown

10. Have you had any injuries or accidents recently? _____ no _____ yes _____ unknown

what type of injury?_____

11. Other important information?_____

PART II–Patient Exam and Observations

Pulse of student_____ Pulse of patient_____

Temperature of student_____ Temperature of patient_____

Description of throat (student)_____

Lymph nodes (student)_____

Respiration of student_____ (optional)

PART III–Diagnosis and Treatment

1. Your diagnosis_____

2. Pathogen (infectious agent)_____

3. Diagnostic tests_____

4. Types of treatment or cures_____

5. Public health preventions_____

Symptoms and History Checklist

Symptoms																						
DISEASE	headaches	fever	rash	skin irritation	nausea	vomiting	abdominal pain	muscle aches	chest tightness	fatigue	sore throat	joints hurt	uncoordination	mental confusion	anxiety	low blood count	diarrhea	cough	skin change or jaundice	thirst	dizzy	
Lyme	X	X	X	X						X		X										
Pneumonia		X							X	X								X				
Influenza	X	X						X		X	X							X				
Malaria	X	X			X							X				X						X
Salmonella	X	X			X	X	X										X					
Giardia		X			X	X	X			X	X						X					
Tetanus				X				X								X						
Mononucleosis	X	X	X					X		X	X											
Rabies	X	X		X				X			X	X	X	X	X						X	
Hantavirus	X	X						X					X		X			X				
Hepatitis A					X		X			X										X		
Bovine spongiform	X								X		X		X	X	X							X
Meningitis	X	X	X			X		X		X				X	X							X
Pertussis	X	X							X									X	X	X		
Toxoplasmosis	X	X					X				X		X	X								X

History																						
DISEASE	hiking or camping	food—eggs & chicken	mouse exposure	mammal bite	insect bite	crowds or airborne	food—beef	contaminated fruit or water	soil infection, rusty objects	saliva transmission	high risk age group	brain infection	vaccination available	possible pet exposure	respiratory system affected	digestive system affected	stress adds to illness	travel	Health Care Worker			
Lyme	X				X														X			
Pneumonia						X					X				X		X					
Influenza						X					X		X		X		X					
Malaria	X				X							X							X			
Salmonella		X						X			X											
Giardia	X							X	X													
Tetanus	X								X				X		X							
Mononucleosis						X				X	X				X		X					
Rabies	X		X	X								X	X	X								
Hantavirus	X		X																			
Hepatitis A		X						X					X			X			X	X		
Bovine spongiform							X					X							X			
Meningitis						X				X		X	X									
Pertussis						X					X		X		X							
Toxoplasmosis	X								X					X								X

Disease Description Cards

<p>Disease Description Card #1</p> <p>You are seeking medical attention because your stomach hurts and you feel a lot of nausea. You've been very tired lately, and your skin is looking a little bit yellowish. Your temperature has been normal though. You were recently on vacation in Thailand, where you sampled a variety of foods sold on the street. You are unsure whether you are up-to-date on your vaccinations.</p>	<p>Disease Description Card #2</p> <p>You are 72 years old and live in a crowded nursing home. You are seeking medical attention because you have a persistent fever (101 degrees) and a cough that hurts and makes your chest feel tight. The illness makes you very tired and worried. You are unsure whether or not your vaccinations are current.</p>
<p>Disease Description Card #3</p> <p>You are urgently seeking medical attention because of extreme discomfort. You have a fever (102 degrees) and some new red-purple spots on your arms and back. In the last 24 hours you have vomited twice, and you have a bad headache. When the HCW asks you questions, you get confused and anxious, which is not normal for you. You have just started work at an elementary school and have not had a chance to get up-to-date on your vaccinations.</p>	<p>Disease Description Card #4</p> <p>You have just come back from a visit to your uncle's farm in Ireland and are not feeling very well. Your throat is sore, your head aches, and you have dizzy spells. When the HCW asks you questions, you are confused and anxious, which is not normal for you. Also, you have become uncoordinated and your balance is poor. Your temperature is normal, and you are up-to-date on all of your vaccinations.</p>
<p>Disease Description Card #5</p> <p>You are seeking medical attention because your left leg muscles ache badly and your jaw is very stiff. You have a hard time chewing and swallowing. Your temperature and pulse are normal. You think the leg muscle ache has something to do with an injury you had a week ago while camping. You accidentally got stabbed in the leg by a large metal skewer when making s'mores over the campfire. You have had all your childhood vaccinations, but haven't had any shots for the last 10–15 years.</p>	<p>Disease Description Card #6</p> <p>You are cancer patient who is currently undergoing chemotherapy, which weakens your immune system. You are seeking medical attention today because you have a fever (101.7 degrees), a bad headache, and your throat hurts. Your stomach hurts more than normal. When the HCW performs the balance test, you get somewhat dizzy, and overall you have been less coordinated and mentally aware than usual. When you come home from chemotherapy, you like to seek comfort from your two cats that spend a lot of time outside. You do not remember whether your vaccinations are current.</p>

<p>Disease Description Card #7</p> <p>You have recently returned from a camping trip in the Appalachian Mountains, where you did a lot of hiking through the woods. You are seeking medical attention because you are having a hard time recovering from the trip. Your joints are sore, and you feel tired all the time as though you have the flu. You are running a fever (100.6 degrees) and have a headache. When the HCW checks your lymph nodes, they are swollen, and there is a red bump on your leg where you think an insect bit you. You are up-to-date on all of your vaccinations.</p>	<p>Disease Description Card #8</p> <p>You are seeking medical attention because you have been suffering from nausea for several days, and last night you vomited. You've been having stomach cramps and diarrhea as well, and have generally been feeling run down and tired. You live near a lake that you like to swim in each morning, but have been too tired to do it for the past week. It often has a lot of kids and pets playing in it. You updated your vaccinations about 6 months ago.</p>
<p>Disease Description Card #9</p> <p>You are seeking medical attention because for the past 3 days you have been feeling very under the weather. You have a sore throat, cough, headache, and your muscles ache. Your body temperature is 101.4 degrees. You work in an office where a lot of employees have been calling in sick lately. The shortage in staff has made your job pretty stressful for the past couple of weeks. The last time you got your vaccinations up-to-date was 2 years ago.</p>	<p>Disease Description Card #10</p> <p>You are seeking medical attention for a combination of symptoms you've never had before. Your hand and arm itches, and sometimes there is a shooting pain there. You have a fever (101.8), headache, and muscle soreness. When the HCW asks you questions, you show signs of some confusion and you complain that you can't think straight because you feel anxious a lot. Sometimes your throat is sore and you feel like you are thirsty more than usual. When asked if anything unusual has happened to the hand and arm that is irritated, the only thing you can think of is that you adopted a dog 6 months ago and he used to nip that hand a lot. You don't remember whether or not your vaccinations are current.</p>
<p>Disease Description Card #11</p> <p>Last week you started to suffer from what you thought was the common chest cold, but this week the coughing has become a lot worse, especially at night. You start to cough very violently and then have to struggle to get enough air after the coughing bout is over. It makes your chest feel tight and gives you a headache. You still have a fever (101.2 degrees) and are usually thirsty. You are a recent immigrant from a country that doesn't require childhood vaccinations, and so you did not have many of them.</p>	<p>Disease Description Card #12</p> <p>You think you have a bad case of the flu, but are seeking medical attention because it doesn't seem to be getting any better. For the past 2 days you've had a fever, and today your temperature is 102.3 degrees. Your muscles ache, you get chills, and have a headache. Sometimes you have a dry cough. The balance test reveals that you are somewhat less coordinated than you usually are, and the entire experience with the HCW makes you a lot more anxious than you normally would be. You are an engineer and have been spending your weekends for the past month helping your grandmother clean her attic, which had a mouse infestation. You are current on all of your vaccinations.</p>

<p>Disease Description Card #13</p> <p>You are seeking medical attention because last night you started having a fever, and today your temperature is 103.4 degrees. Your head and muscles ache, you feel very tired, and you get dizzy easily. Two weeks ago you returned from the rainforest in Brazil, where you spent a month conducting research on orchid species. You camped half of the time, and despite all your efforts, were bitten many times by mosquitoes and spiders. You were updated on all of your vaccines before you left on your research trip.</p>	<p>Disease Description Card #14</p> <p>Last night your mother-in-law had you over for a chicken dinner and now you feel very sick. You vomited soon after you came home, and today you are suffering from stomach cramps and severe diarrhea. You have a temperature of 101.6 and a slight headache. You are a teacher and haven't traveled in the past 6 months. Your vaccinations are all up-to-date. You have two pets, a dog, and a parrot.</p>
<p>Disease Description Card #15</p> <p>You are seeking medical attention because for the past week you have been extremely tired and do not seem able to feel completely rested. Whenever you try to work, you feel worse and have to lie down. Your throat is sore, and the HCW discovers that your lymph nodes are swollen. You have a temperature of 100.8 degrees, head and muscle aches, and are developing small, red, raised bumps on your chest and neck. You have very recently started to date a new person and often share food and drinks.</p>	<p>Disease Description Cards: Key</p> <p>Card # Disease</p> <ul style="list-style-type: none"> 1 Hepatitis A 2 Pneumonia 3 Meningitis 4 Bovine spongiform 5 Tetanus 6 Toxoplasmosis 7 Lyme disease 8 Giardia 9 Influenza 10 Rabies 11 Pertussis 12 Hantavirus 13 Malaria 14 Salmonella 15 Mononucleosis

Activity adapted from materials developed through a collaboration between [ConnectEd: The California Center for College and Career](#) and the [National Consortium on Health Science and Technology Education](#).