

Medical Terminology for Interpreters

4th edition

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Section 1.1: Content

Greek and Latin roots and affixes

The most basic fact to know about medical terminology is this: About 75 percent of medical vocabulary comes from Greek and Latin. Often, the terms based on Greek and Latin are the hardest to understand—even for native English speakers.

Most medical terms include a root and one or more affixes. What are roots and affixes?

Root: The root is the primary unit of a word. It holds the word's main meaning, such as *cardi*, which refers to heart.

Affix(es): An affix is a morpheme (a small linguistic unit with meaning) such as a prefix or suffix. Affixes are attached to roots. Affixes do not change the meaning of the roots; they add another *layer* of meaning.

For example, the suffix *-logy* means “study” or “science of.” As a result, *cardiology* means “the study of the heart” and, by extension, the study of heart disease. (You will notice that an extra vowel “o” was added—that extra letter is discussed later in this section.)

Affixes subdivide into three sub-categories.

Prefixes: Prefixes are attached to the *beginning* of each word or root. They are common in medical terms.

Suffixes: Suffixes are attached to the *end* of each word or root. They are also common.

Infixes: Infixes are inserted *inside* each word. They are rare.

Because infixes are rare, this section focuses on roots, prefixes and suffixes.

When a root is written down, a slash is often added followed by the letter “o” (for reasons to be discussed shortly). For example, the root *cardi* is often written as *cardi/o*.

A prefix, on the other hand, is typically followed by a hyphen, e.g., *contra-*, which means “against” (as in *contraindication*). A suffix usually has a hyphen at the beginning, for example, *-opsy*, which means “view of” (as in *biopsy*).

Most affixes are short; some have only one or two letters. For example, the prefix *ab-* means “out of, away from.” Yet adding this tiny prefix to the word *normal* can create a new word, *abnormal*.

A word with two or more roots is referred to as a compound word. For example, the word *gastrointestinal* contains the root *gastr/o* (for stomach) and *intestin/o* (for intestine). It also has the suffix *-al*, which means “about, pertaining to.”

Activity 1.1: Analyzing Greek and Latin roots and affixes

Instructions for groups or training programs

1. Your instructor will divide the group into pairs. Working with your partner, deduce the meaning of the words below from the roots and affixes listed in Appendix 1. (Appendix 1 combines the three lists on the previous pages with additional terms into one alphabetical list. That alphabetical list is easier to consult for purposes of this exercise.)
2. For each term that you and your partner analyze, *remember the steps below* and carry them out *in the order given*:
 - First identify the meaning of the suffix (if any).
 - Then identify the meaning of the prefix (if any).
 - Identify the root(s).
 - Examine the combined meanings to deduce the meaning of the whole term. *Please follow the order of operation above.*
3. When you have finished analyzing each term, write down what you think is the meaning of each word *based on the meaning of the parts*. (In other words, do *not* use your general knowledge about that medical term.)
4. *Fill in every blank space* (unless that term has no suffix and/or prefix) to complete this activity. If there is no prefix, suffix or root for a given term, write “X” in the appropriate column or leave blank. When you have finished, or when your instructor gives the signal, consult the answer key for this activity in Appendix 2 to see how close your guess was to the actual meaning.

Instructions for working in pairs (“study buddies”)

1. If you are studying with another interpreter, follow the instructions above for groups. However, set a time for yourselves (e.g., 30 minutes). Now compete against each other to see who can find the most answers in that time.
2. When the time is up, or when you have both completed the activity, see if you agree with each other’s answers.
3. Then consult the answer key for Activity 1.1 in Appendix 2 to see who is right! The winner could be the person with the most correct answers.

Instructions for self-study

Simply follow the instructions given above for working in pairs, but work alone.

4. Respiratory system

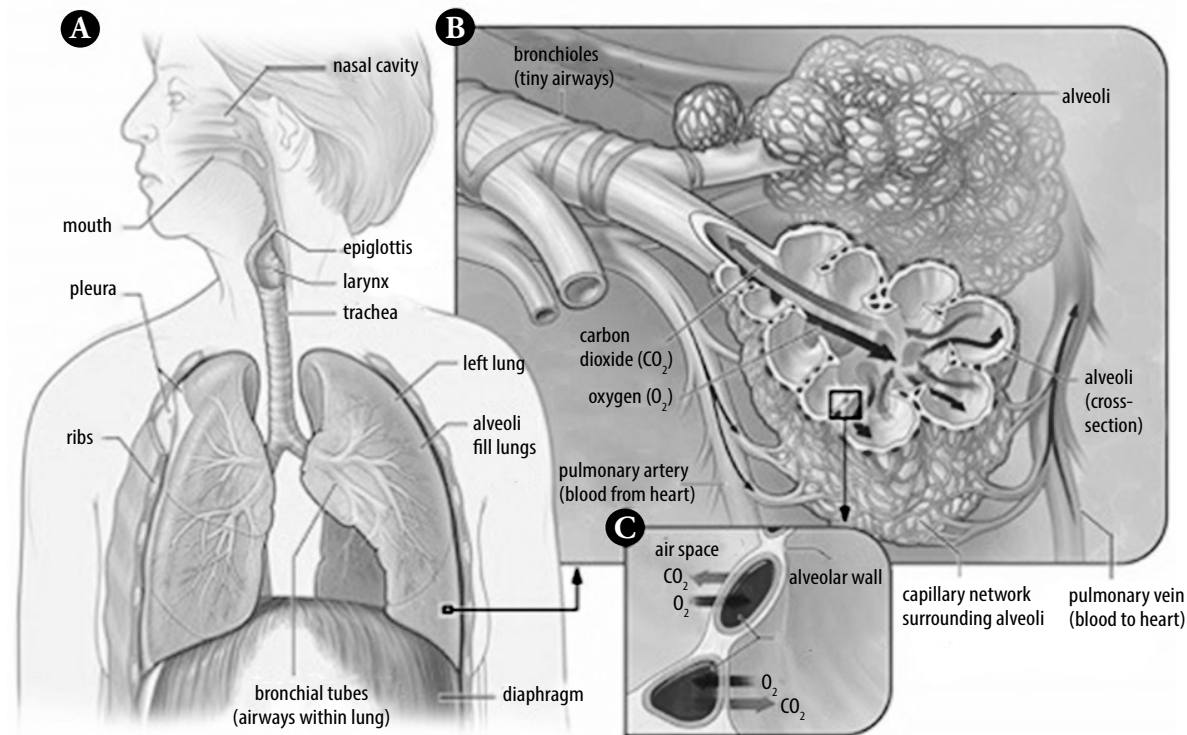


Figure 4: Respiratory system

Figure 4-A shows the location of the respiratory structures in the body.

Figure 4-B is an enlarged image of airways, alveoli and the capillaries.

Figure 4-C shows the location of gas exchange between the capillaries and alveoli.

Function

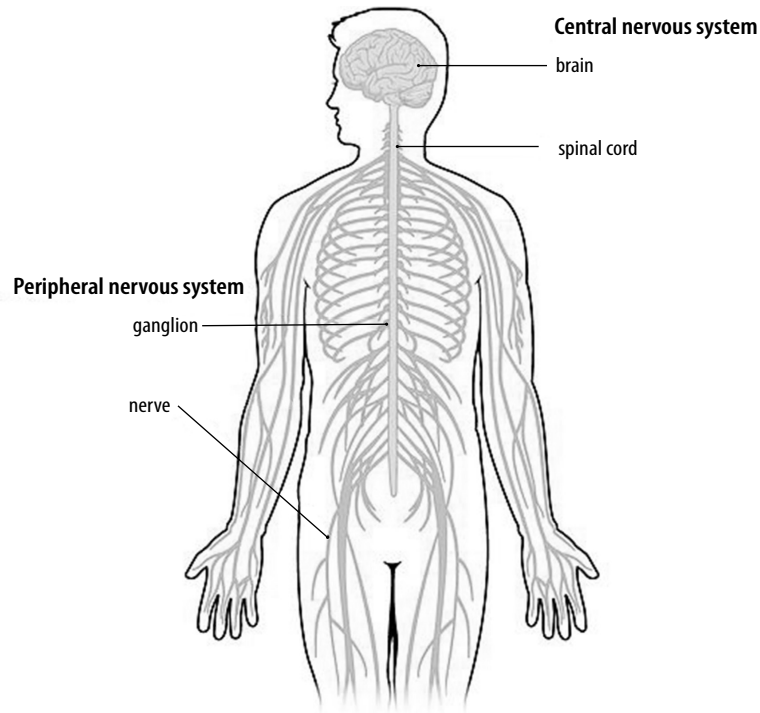
The respiratory system makes it possible to breathe. Its main function is to support breathing; respiration. We breathe in oxygen to help cells do the work that keep us alive. When that work is done, carbon dioxide leaves the body as a waste product.

In other words, the main job of the respiratory system is to breathe in oxygen and breathe out carbon dioxide.

Other key functions of this system include:

- Giving us a voice, by vibrating our vocal cords to make human sounds that let us speak.
- Helping us to smell and taste.
- Exchanging gases (oxygen and carbon dioxide) between the lungs and the bloodstream, and between the bloodstream and our body tissues.

5. Nervous system



*Figure 5: Nervous system*¹⁵

Function

The nervous system coordinates all the activities of the body—normal activities and emergencies. This is a big job.

That job divides into three functions: information gathering, interpreting and acting.

1. **Information gathering:** The first function of the nervous system is to feed information to the brain. That information can come from *inside* us, including information about conditions inside the body, and *outside* us: information from the five senses about what is going on outside the body.
2. **Interpreting:** The brain assesses the information and connects it to details that it already knows in order to respond. In this way, the brain serves as the control center.
3. **Acting:** Then we take action: The nervous system sends information through the nerves to our muscles and glands.

The human brain may be the most extraordinary organ in the world.

¹⁵ Courtesy of Open Stax Anatomy and Physiology, 2016; retrieved from https://commons.wikimedia.org/wiki/File:1201_Overview_of_Nervous_System.jpg

Activity 2.2: Ten human body systems

Tables for group study

Station 1: Musculoskeletal system

Term on card	Answer to question on card	Translation (<i>optional</i>)
oste/o		
joint		
tendon		
musculoskeletal		
spinal stenosis		
sprain		
ortho-		
cartilage		
marrow		

Activity 2.2: Questions for working in pairs and self-study

Notes

1. Feel free to write the answers down either on a separate sheet of paper or, if you prefer, in the tables on the previous pages, which were created for the group version of this activity.
2. In the third column, under **Translation (optional)**, if you have time write down the translation of the *term (not the question)* in your other working language(s). Spanish translations for these terms can be found in the answer key in Appendix 2 for Activity 2.2.
3. Whether you are following the instructions for working in pairs or working on your own, try not to consult the answer key to check your answers until you have answered *all* the questions for a particular body system. As soon as you have checked your answers, go on to the next body system.

Station 1: Musculoskeletal system questions		
Term	Questions to answer	Translation (optional)
oste/o joint tendon	What does this root mean? What does a joint connect? Describe the difference between ligaments and tendons.	
musculoskeletal spinal stenosis sprain ortho- cartilage marrow	What does this body system do? Where does this condition usually occur? What is damaged in a sprain? Give the meaning of this prefix. What does cartilage do? What is formed in marrow?	
Station 2: Integumentary system questions		
Term	Questions to answer	Translation (optional)
stratum corneum skin dermis epidermis integumentary system keratin melanocytes Langerhans cells sweat glands subcutaneous layer apocrine glands alopecia dermat/o hidr/o hypodermis	Where is this body part located? What are the three layers of the skin? What is the dermis made of? Which layer of skin is the epidermis? Name a key function of this system. In which layer of skin is keratin found? What do melanocytes do? Describe the function of these cells. What do the sweat glands do? Which layer of skin is subcutaneous? Describe what these glands secrete. Give a lower-register term. Give the meaning of this root. Identify what this root refers to. Define this term.	

Section 3.1: Common tests and procedures

Objective 3.1

After completing this objective, the learner will be able to:

Study and learn the terms for common medical tests and procedures.

Introduction to Section 3.1

Although there are thousands of medical tests and procedures, some are more common than others. A number of them are common in hospital settings but less frequent in other healthcare services. Some tests are rare. At a minimum, you will need to master the more common terms for test and procedures. In general, such tests and procedures are done for many reasons, most commonly for:

- Screening
- Diagnosis
- Evaluating the severity of a condition or disorder to determine appropriate treatment
- Therapy
- Monitoring a treatment plan

Five important types of testing include:

1. Analysis of body fluids (blood, urine, fluid surrounding the spine and brain or fluid within a joint)
2. Imaging
3. Measurement of body functions
4. Biopsy
5. Analysis of genetic material (genetic testing)

Section 3.1: Content

An overview of medical tests and procedures

The following information is taken from the *Merck Manual* consumer version¹⁹ One of the most precious resources for any medical interpreter, and now available in ten languages, the *Merck Manual* is discussed in the final section of this book, which addresses resources for professional development.

Here is an excellent overview of medical tests and procedures from the *Merck Manual*.²⁰

Common medical tests

A large number of tests are widely available. Many tests are specialized for a particular disorder or group of related disorders (which are usually described with the appropriate disorders in this book). Other tests are commonly used for a wide range of disorders.

¹⁹ The *Merck Manual of Diagnosis and Therapy* is commonly referred to as the *Merck Manual*. It is the best-selling medical textbook in the world and a valuable resource for interpreters. In 2014, Merck shifted this publication to an online digital format only, available in English and Spanish in both [professional](http://www.merckmanuals.com/home) and [consumer](http://www.merckmanuals.com/home) versions at <http://www.merckmanuals.com/home>. However, in 2017 Merck announced it would publish a 20th edition in print format in 2018.

²⁰ Retrieved from <http://www.merckmanuals.com/home/appendixes/common-medical-tests/common-medical-tests>

Activity 3.1: Medical tests and procedures match-up

In the middle column, write the letter that corresponds to the correct test/procedure number.

Definition

1. electrocardiography (EKG/ECG)		A. Simple physical tests of nervous system function
2. measurement of the fundal height		B. A record of the pressure exerted by circulating blood volume on the walls of the arteries, veins and the heart
3. hemoglobin A1c		C. The act of listening for sounds inside the body to evaluate the condition of the heart, blood vessels, lungs, intestines or other internal organs, and also fetal heart sounds
4. physical exam		D. A test that uses a magnetic field and pulses of radio wave energy to make pictures of structures and organs inside the body
5. spirometry		E. A test, involving sound waves that move at a high frequency, with many medical applications such as fetal monitoring or imaging internal organs
6. reflex tests		F. A simple blood test to determine the concentration of lead in the blood
7. Papanicolaou (Pap) test (also called a Pap smear)		G. A test which looks for HIV antibodies (not the HIV virus itself) and uses blood, oral fluid or urine to detect them
8. blood pressure measurements		H. An evaluation of the patient's nervous system during a regular doctor's visit that takes into consideration motor and sensory skills, balance and coordination, mental status and reflexes; it may include lights and reflex hammers
9. colonoscopy		I. A laboratory test in which certain types of microorganisms or cells are allowed to grow
10. percussion		J. A laboratory test used to evaluate the air capacity of the lungs with a spirometer, a machine that measures and records the volume of inhaled and exhaled air
11. auscultation		K. A blood test that will show the average level of sugar, or glucose, over the previous three months
12. complete blood count (CBC)		L. An examination of the mucus lining of the colon using a colonoscope
13. magnetic resonance imaging (MRI)		M. A thorough investigation of the body's condition using any or all methods of assessment, such as palpation, percussion, auscultation and smell; this evaluation, along with the patient's history and initial laboratory tests, is the basis for a diagnosis and treatment plan
14. ultrasound		N. A measurement of the height of the fundus of the uterus in centimeters taken at every prenatal visit; an abnormal result could mean that the fetus is large or small for the length of gestation, the dates of the pregnancy are wrong or that the woman is carrying a multiple pregnancy
15. HIV test		O. A digital rectal exam performed to check the prostate; otherwise a blood test is used to check the PSA (prostate specific antigen)

Section 4.1: Signs and symptoms



Objective 4.1

After completing this objective, the learner will be able to:
Practice interpreting basic terms for medical signs and symptoms.

Introduction to Section 4.1

This section addresses definitions and examples for signs and symptoms. A humorous role play offers a chance to practice interpreting signs and symptoms. It will help to make sure that the interpreter is both familiar and comfortable with the most common terms for symptoms.

Section 4.1: Content

The difference between signs and symptoms is simple. *Signs* are what we can see and measure in a patient—e.g., a fever or a rash. *Symptoms* are what the patient reports but are subjective: often they can't be seen or measured objectively, for example, headache, chest pain or sore muscle.

If you feel dizzy, tired or numb, you are experiencing *symptoms*. If you sweat, grow pale or shake when you walk, you have *signs*.

Signs are rather like symptoms that medical professionals can observe and often measure.

Of course, many signs and symptoms go together. For example, if you experience pain in your chest and arm, perhaps it is the beginning of a heart attack, an event that medical equipment can assess. If you are feeling lightheaded, perhaps you have low blood pressure, which can also be measured.

The trick is that the words for symptoms can seem, on the surface, to be simple, uncomplicated words compared to Latin- or Greek-based terminology. Yet often the words for symptoms are tricky to interpret. Regional words will come up, and sometimes terms used only in a particular family. Many patients will describe their symptoms using similes: "It was like an elephant was sitting on my chest." "It was like a cold wind blowing through my ears."

Medical diagnoses depend on accurate details from the patient. Symptoms (which by definition can't be measured but rather are reported) are often crucial for a health professional to understand in order to provide a correct diagnosis and an effective treatment plan.

So make sure to interpret exactly what the patient says. When in doubt, *do not interpret the symptom but instead ask the patient to explain it*. Or, if appropriate, interpret the symptom as best you can and then request a clarification.

Signs and symptoms: Role play terminology

English term	Translation (List all the terms that may apply; there are often many regional differences in the way patients describe their symptoms.)
bump	
chills	
chilly/feeling chilly	
choking	
confused	
constipation	
coughing spell	
cramp	
diaper rash	
diarrhea	
difficulty swallowing	
discomfort	
dizzy spell/dizziness	
drowsiness	
fatigue	
fever	
groggy	
hot flashes	
itch	
lump (mass)	
migraine	
nausea	
nosebleed	
rash	
seizure	
shortness of breath	
sore	
spasm	
stiff	
sweating	
swelling	
swollen lymph nodes	
vomiting	
weak	
wobbling/staggering	

Section 4.2: Medical abbreviations

Objective 4.2

After completing this objective, the learner will be able to:

List and discuss strategies for managing and interpreting common medical abbreviations.

Introduction to Section 4.2

To state that abbreviations and acronyms are common in U.S. healthcare is to state the obvious. The question is not only how to learn them but how to *manage* medical abbreviations when you interpret.

This section offers you some practical guidance to consider when you interpret medical abbreviations. It also introduces a number of the most common ones.

Section 4.2: Content

What do you do if, while you interpret, a doctor or patient uses a medical abbreviation such as MRI?

There are, to date, no universally accepted rules, requirements or even nationally disseminated best practices for interpreters about how to handle medical abbreviations. Sometimes, the abbreviations are so common and well known that they have simple equivalents in the target language, e.g., HIV or AIDS in English and VIH or SIDA in Spanish.

In other cases, the English word for terms have been adopted into the non-English language with non-English pronunciation, either by the language group in general, or by the local community of language speakers. Yet even the common abbreviations might have no well-known equivalents in the target language. For less-common languages (languages of limited diffusion), this challenge may be even greater.

Furthermore, even if you know exactly how to render HIV in, say, Gujarati or Uyghur, will the patient understand what you interpret? If not, will the patient ask the doctor? Many interpreters say that in their experience, the answer to both these questions is often “no.”

Abbreviations are a domain where you will need to exercise your good judgment. Here are a few best practices to consider when a healthcare provider uses a medical abbreviation without explaining it:

1. Interpret the abbreviation's equivalent in the target language, if it exists, and if you believe that it is widely understood by patients who speak that language.
2. If you want additional clarity, interpret the abbreviation's equivalent in the target language and immediately add the spelled-out version of that abbreviation in the target language.
3. If there is no equivalent, keep the abbreviation in the source language, which in the United States is usually English, then render the spelled-out full version in the target language.
4. If the spelled-out version is still not clear, ask the provider to clarify it.

Instructions for working in pairs (“study buddies”)

1. Let each of you try to guess what each abbreviation means and write it down. For example, for CBC: write “complete blood count.”
2. Make it a contest: the first person to finish wins—unless the other person has more *correct* answers. In that case, that other person wins!
3. Check the answer key in Appendix 2 for Activity 4.2 (a) to find out who wins the contest.
4. Then help each other translate the terms if your other working language is not Spanish.

Instructions for self-study

1. Try to find a partner to compete with and follow the instructions above for working in pairs.
2. If that is not possible, do your best to spell out all the abbreviations below. For example, for CBC: write “complete blood count.”
3. Check the answer key in Appendix 2 for Activity 4.2 (a) to find out which answers are correct, and to see Spanish translations (if Spanish is one of your working languages).
4. If your other working language is not Spanish, translate the abbreviations.

Medical abbreviations contest

Abbreviation	Meaning	Translation
NG (<i>tube</i>)		
PSA <i>Hint: a test</i>		
ICU		
STIs/STDs		
fev <i>Hint: a symptom</i>		
HCT <i>Hint: a test—think of “red”</i>		
IUD		
CNS		
TMJ		
COPD		
DSM <i>Hint: usually has numbers after it; used in mental health</i>		
AMA <i>Hint: “not recommended”</i>		
DNR		
MMR		

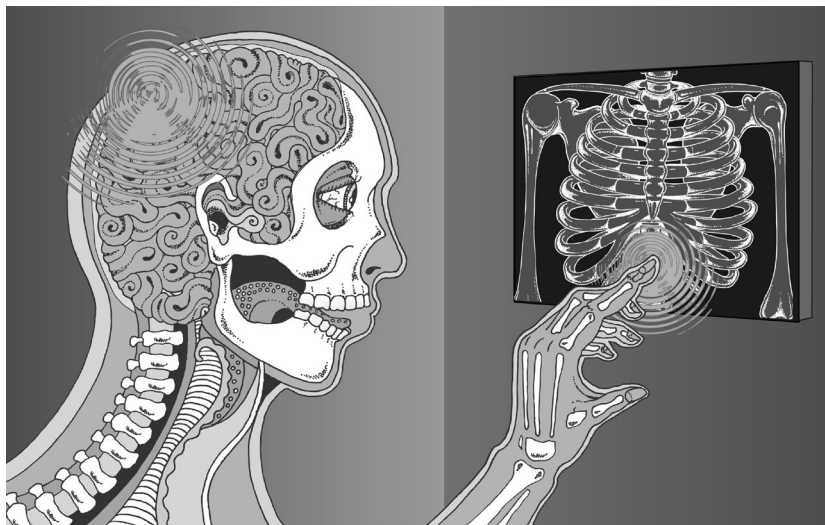
Section 5

A Self-test Review of General Medical Terminology

Introduction to Section 5

Assessing your own knowledge of medical terminology will be important. One way to assess yourself is simply to review the activities in this book and use them as self-tests, using the answer keys to verify your answers, where appropriate. The first activity in this section will show you something different. It will expose you to *general* medical terminology selected by practicing interpreters who felt the terms used in this activity are ones that you could encounter in most healthcare settings, especially hospitals and large medical centers.

Another way to test yourself is through acting out healthcare interpreting role plays. Role plays provide context. They plunge you into a more realistic sense of how different kinds of medical terms arise in daily usage and how to handle the unfamiliar terms. The second exercise in this section offers you three healthcare interpreting role plays that you can use to assess how comfortable you are with medical terms in the context of a realistic medical appointment.



Source language term (SL)	Target language term (TL)
Screening and diagnostic procedures	
temperature/pulse	
blood pressure	
blood test	
urine test	
throat culture	
blood/urine culture	
nose swab (RSV or flu)	
Pap smear	
vaginal culture	
culture to test for an STD/STI	
lumbar puncture	
TB test	
sputum test	
hemocult stool test (hemocult fecal blood test)	
X-ray	
MRI	
CT scan	
CT scan with oral or IV contrast	
ultrasound/sonogram	
transvaginal ultrasound	
bone density scan	
fetal Doppler ultrasound	
mammogram	
electrocardiogram (EKG/ECG)	
Holter monitor	
cardiac stress test	
electroencephalogram (EEG)	
voiding cystourethrogram (VCUG)	
videofluoroscopic swallow study	
Invasive procedures	
biopsy	
endoscopy	
bronchoscopy	

Role play #1: A patient with TB

Family medicine resident	Mr. Bautista, you went to the ED because you were coughing up blood. Is that right?		
Patient		Sí. Tres veces tosí sangre. La verdad es que no sabía si tosía sangre o vomitaba sangre. De todos modos, me asusté mucho y de hecho mi esposa se preocupó mucho y me llevó a la sala de emergencias.	Yes, I coughed up blood three times. To be honest, I don't know if I coughed up blood or I threw up blood. Either way, it scared me a lot and actually my wife got very worried and took me to the ER.
Family medicine resident	What happened before that, I mean, before you started to cough up blood? The note from the ED says you had nosebleeds the day before. Is that true?		
Patient		Sí. Lo que pasa es que fui a la sala de emergencias el día jueves en la noche, entonces el martes en el día, empecé a botarme. Empezó a salir sangre por la nariz. Lo mismo me pasó el miércoles y el jueves. Esto fue en el trabajo.	Yes. What happened is I went to the ER Thursday night, so Tuesday, during the day, is when I got a nosebleed. Then the same thing happened on Wednesday and Thursday. All this during work.
Family medicine resident	What did you do when your nose started to bleed?		
Patient		Pues, como le dije estaba en el trabajo. Trabajo afuera en el campo, entonces lo único que pude hacer fue cerrar mi nariz así con estos dos dedos, de esta forma así. <i>(Patient pinches his nose with the thumb and forefinger).</i>	Well, like I said, I was at work—I work outside in landscaping, so the only thing I could do was pinching my nose closed like this with these two fingers, like this. <i>(Patient pinches his nose with the thumb and forefinger.)</i>

Section 6.1: Strategies for expanding medical terminology



Objective 6.1

After completing this objective, the learner will be able to:

Explore strategies for expanding the interpreter's knowledge of medical terminology.

Introduction to Section 6.1

No interpreter can learn all the medical terms he or she needs to interpret in healthcare. While this book has many practical suggestions for

exploring specific areas of terminology, each interpreter needs to develop his or her own ways to study. Here is the challenge: how to *memorize* useful medical terminology.

Section 6.1: Content

Here are suggestions gathered from medical interpreters in the field. The seven strategies explored here are:

1. Study and sight translate relevant medical documents.
2. Practice effective memorization techniques.
3. Engage in oral practice.
4. Develop specialized glossaries.
5. Connect with professional associations and networks.
6. Pursue continuing education in medical terminology or in specific areas of medical practice.
7. Practice techniques used by medical translators to explore linguistic equivalents for medical terms.

Strategy 1: Study and sight translate relevant medical documents.

Read, listen and explore widely in your field. Find written documents in the medical specialties you will interpret for. Then practice sight translating them.

Written documents will also give you some idea of medical terms as they are used in *context*. Sight translating them will help you *understand and remember* the medical terms.

Here are a few practical suggestions about which documents to use:

- Gather brochures, patient education material, pamphlets and other materials in both (or all) your working languages. Select the documents that include vocabulary that is new to you.
- Request, in advance of each assignment, any texts that you might be asked to sight translate.
- Download online bilingual materials on specific diseases or conditions (available in many languages).
- Consult reliable encyclopedic medical resources such as the highly regarded *Merck Manuals* (www.merckmanuals.com) available in two editions, consumer and professional, and 10 languages.

Appendix 1

Greek and Latin Roots and Affixes

Explanatory note

This table represents a detailed sampling of common roots and affixes used in medical settings. The roots and affixes are historically derived from Greek and Latin. The list is in no way intended to be exhaustive. However, because the roots and affixes listed here are fairly common, they should be known, and in most cases learned and memorized, by medical interpreters who practice in most English-speaking regions.

Root/affix	Meaning	Examples
a-, an-	without, absence of, not	<i>apnea, arrhythmia, abasia</i>
ab-	away from	<i>abnormality, ablation</i>
acro-	extremity, tip, end, peak, topmost, extreme	<i>acromegaly, acrophobia, acronym</i>
ad-	toward, near, adjacent to or in the direction of the body part referred to by the root	<i>adrenal, adhesion</i>
aden/o	gland	<i>adenectomy, adenitis, adenectopia</i>
ana-	up, upward; apart; back, backward	<i>anatomy</i>
adip/o	fat	<i>adipocellular, adipogenesis, adipodermal (graft), adipose</i>
adren/o	adrenal gland	<i>adrenaline, adrenalitis, adrenalopathy</i>
-agogue	stimulant, producer, leader	<i>galactagogue, hemagogue, hypnagogue</i>
-agra	attack of acute pain	<i>podagra, cardiagra, trachelagra</i>
-al	about, related to, pertaining to	<i>rectal, streptococcal, nasalbuccal</i>