

# Medical Terminology

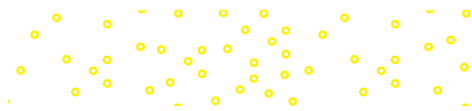
SECOND EDITION

Learning Through Practice

PAULA BOSTWICK

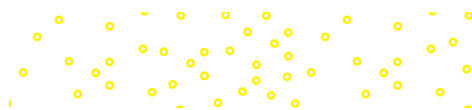


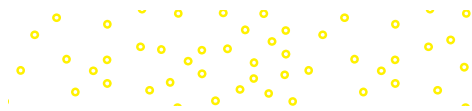
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# Medical Terminology

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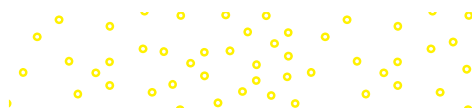
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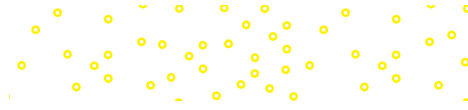
Second Edition

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Paula Bostwick, RN, MSN, CENP

Parkview Behavioral Health





## MEDICAL TERMINOLOGY

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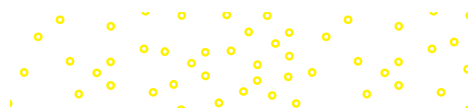
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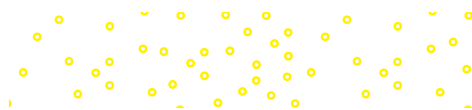
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# About the Author

**PAULA MANUEL BOSTWICK, RN, MSN, CENP**, is an author, educator, and clinician. She is currently the vice president of hospital services for Parkview Behavioral Health Institute. Paula has been involved with nursing education for more than 20 years and enjoys preparing nursing students for the NCLEX. She has previously served as a nursing department chair, nurse manager/director, and critical care nurse. She earned her BSN from Indiana State University and MSN from Ball State University. Paula and her husband Charles have two children, CJ and Bailey Rae.





# Dedication

This book is dedicated to my husband and best friend, Charles, for his love, patience, and understanding. Thank you to my children, CJ and Bailey for your encouragement and love. I am blessed to have such a wonderful family. I love you.

—Paula Bostwick



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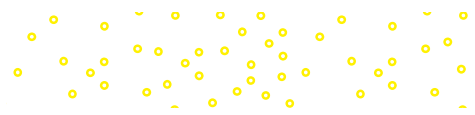
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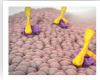
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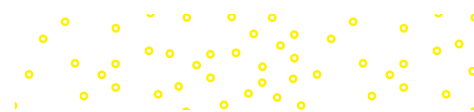
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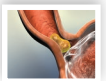
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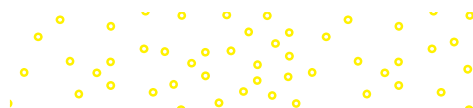
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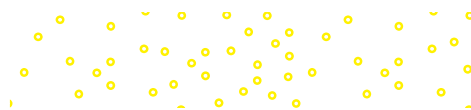
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# Preface

*Medical Terminology: Learning Through Practice* is designed to direct your study of medical terminology by guiding you through an organized approach to step-by-step learning. Author Paula Bostwick has invested her time, research, and talents to help you succeed in learning medical terminology.

The format of each chapter is designed to guide you through steps that lead to a full understanding of medical terminology. The chapters are divided into seven sections:

1. Major Structure and Function Terms
2. Word Building
3. Diagnostic, Procedural, and Laboratory Terms
4. Pathological Terms
5. Surgical Terms
6. Pharmacological Terms
7. Abbreviations

Furthermore, within each section, there is a four-part exercise progression. This progression offers self-study questions that lead to an in-depth understanding of the material:

1. Pronounce and Define
2. Spell and Define
3. Understand
4. Apply

## Using the Practice Sections and Exercise Progression

Each time you come to a Practice section, cover the left-hand column with a blank sheet of paper. As you proceed through the review, attempt to fill in each blank before revealing the answers. Move the paper down just far enough to see the answer. If you are correct, move on to the next blank. If you are not correct, review the material and make a flash card for the word you missed. Studying the flash cards at the end of each section will help you learn all the key terms in the chapter.

Once you have progressed through the Practice section, quiz yourself using the exercise progression. The exercise progression includes pronunciation exercises, spelling exercises, multiple choice questions, labeling exercises, matching exercises, and case studies to test your comprehension of the material.

## Highlights of the Book

Engaging four-color design will draw the students' attention to key concepts.

- More than 400 enhanced photos and line art images bring medical terminology to life.
- Prefixes and suffixes are each covered in their own chapters.
- Each learning outcome is correlated to a section number to direct focus on key content.
- Progressed exercises appear throughout the text, correlated to each major section, in the format of Structure and Function terms, Word Building terms, Diagnostic terms, Pathological terms, Surgical terms, Pharmacological terms, and Abbreviations. Using pronunciation, spelling, labeling, multiple choice, matching, and case study questions, these exercises enhance student learning.
- Summary table in every chapter restates the learning outcomes and provides corresponding summary points for each.
- End-of-chapter exercises are built using the exercise progression introduced throughout the text.



### Application-Based Activities in Connect

Application-Based Activities in Connect are highly interactive, assignable exercises that provide students a safe space to apply the concepts they have learned to real-world, course-specific problems. Each Application-Based Activity involves the application of multiple concepts, allowing students to synthesize information and use critical thinking skills to solve realistic scenarios.



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## Instructors' Resources

You can rely on the following materials to help you and your students work with the material in the book; all are available in the Instructor's Resources under the Library tab in *Connect* (available only to instructors who are logged in to *Connect*.)

Supplement	Features
<b>Instructor's Manual</b>	<ul style="list-style-type: none"><li>• Lecture Outlines</li><li>• Lesson Plans</li><li>• Answer Keys</li></ul>
<b>PowerPoint Presentations</b>	<ul style="list-style-type: none"><li>• Key Concepts</li><li>• Accessible</li></ul>
<b>Electronic Testbank</b>	<ul style="list-style-type: none"><li>• Computerized and <i>Connect</i></li><li>• Word version</li><li>• Questions are tagged with Learning Objectives, level of difficulty, and level of Bloom's Taxonomy</li></ul>
<b>Tools to Plan Course</b>	<ul style="list-style-type: none"><li>• Sample Syllabi</li><li>• Asset Map—recap of the key instructor resources as well as information on the content available through <i>Connect</i></li></ul>

## Test Builder in Connect

Available within *Connect*, Test Builder is a cloud-based tool that enables instructors to format tests that can be printed, administered within a Learning Management System, or exported as a Word document. Test Builder offers a modern, streamlined interface for easy content configuration that matches course needs, without requiring a download.

Test Builder allows you to:

- access all test bank content from a particular title.
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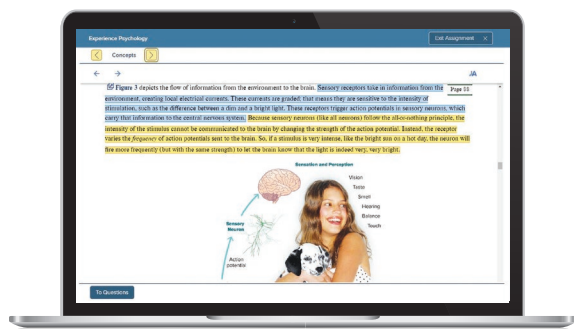
# Instructors

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## Students

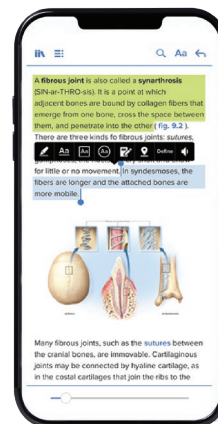
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—Paula Bostwick

# Getting to Know Your Text

## Learning Outcomes

Each chapter opens with learning outcomes that prepare students for the information presented.

### Learning Outcomes

After studying this chapter, you will be able to:

- 2.1 Describe the role of the prefix in medical terminology.
- 2.2 Identify common medical prefixes related to size and quantity.
- 2.3 Describe common medical prefixes related to position or location.
- 2.4 Identify common medical prefixes related to time.
- 2.5 Identify common medical prefixes related to presence or quality.
- 2.6 Describe common miscellaneous medical prefixes.

## Combining Forms

The combining forms section introduces the important word parts used to build terms.

### Body Parts or Elements

Some combining forms that relate to **body parts** or **elements** include:

Combining Form	Meaning
aer/o	air, gas
ather/o	plaque, fatty substance (inside of a blood vessel)
blast/o	immature cells
calc/o, calci/o	calcium
chondrio, chondro	cartilage, grainy, gritty
chyl/o	chyle, a digestive juice
chym/o	chyme, semifluid production of chyme in the stomach
cyst/o, cysti	bladder, cyst, cystic duct
cyt/o	cell
ethm/o	ethmoid bone
gli/o	glue
gluc/o	glucose
glyc/o	sugars
hydr/o	hydrogen, water
ket/o, keton/o	ketone, acetone
lip/o	fat (outside of a blood vessel)
nucle/o	nucleus
plasma, plasmo	formative, plasma
salping/o	tube
sider/o	iron
somat/o	body
squam/o	scale, squamous (meaning scaly)
syring/o	tube

## Practice

A section of terms is introduced in each chapter. The terms are combined with fill-in-the-blank exercises to aid in comprehension.

Word Building	PRACTICE
	Provide the correct prefix for each of the following terms using the bolded hints.
<b>bi-lateral</b> [bi-LAT-er-äl]	Referring to <b>both</b> sides of the body is _____ lateral.
<b>hemi-plegia</b> [hém-i-PLĒ-jē-ä] <b>quadri-plegia</b> [kwäh-dri-PLĒ-jē-ä]	_____ plegia is paralysis of <b>half</b> of the body or on one side of the body; paralysis of all <b>four</b> limbs is _____ plegia.
<b>brachy-esophagus</b> [BRÄK-ē-ē-SÖF-ä-gūs]	_____ esophagus: abnormally <b>short</b> esophagus.
<b>uni-glandular</b> [yü-ni-GLÄN-dü-lär]	_____ glandular involves only <b>one</b> gland.
<b>pluri-glandular</b> [plü-ri-GLÄN-dü-lär]	Involvement of <b>several</b> glands is _____ glandular.
<b>micro-scopic</b> [mi-krö-SKOP-ik]	_____ scopic means too <b>small</b> to see without a scope device.
<b>iso-metric</b> [i-sö-MÉT-rik]	_____ metric: of the <b>same</b> measurement.
<b>mono-mania</b> [mön-ö-MÄ-nē-ä]	Obsession with a <b>single</b> thought or idea is _____ mania.
<b>multi-articular</b> [MÜL-tē-är-TĪK-yü-lär]	_____ articular involves <b>many</b> joints.
<b>poly-arteritis</b> [pöl-ē-är-tēr-Ī-tis]	_____ arteritis is inflammation of <b>multiple</b> arteries.
<b>pan-demic</b> [pan-DEM-ik]	A disease that affects an <b>entire</b> population is a _____ demic.
<b>micro-plasia</b> [mi-krö-PLÄ-zē-ä]	<b>Small</b> or stunted growth, as in dwarfism, is called _____ plasia.
<b>mega-cephaly</b> [még-ä-SĒF-ä-lē]	_____ cephalgy is an abnormal <b>enlargement</b> of the head.
<b>uni-lateral</b> [yü-ni-LÄT-er-äl]	Condition that affects only <b>one</b> side of the body is called _____ lateral.

## Exercise Progression: Pronounce and Define

List of terms is accompanied by pronunciation guides. This exercise offers students a chance to practice pronouncing medical terms.

PRONOUNCE and DEFINE	Pronounce the following words aloud and write their meaning in the space provided.
integument	[in-TĒG-yü-měnt]
epidermis	[ēp-i-DĒR-mis]
squamous epithelium	[SKWÄ-mūs ēp-i-THĒ-lē-üm]
melanocyte	[MĒL-ä-nō-sit]
collagen	[KÖL-lä-jēn]

## Exercise Progression: Spell and Define

Self-test exercises focus on the proper spelling of medical terms.

SPELL	Write the correct spelling of the related term.
	High quantities exist in the urine in diabetes
	Indicates liver disease
	May indicate starvation
	Range of urine
	Produced from a presence of serum protein

## Exercise Progression: Understand

This feature is geared toward the ability to understand and apply medical terms.

**UNDERSTAND** Match each term on the left to its description on the right.

1. _____ anorexia nervosa	a. Eating disorder that causes a pathological condition
2. _____ anorexia	b. Eating disorder by bingeing and purging
3. _____ bulimia	c. Eating disorder by limiting food
4. _____ obesity	d. Simple term for not eating/not hungry
5. _____ morbid obesity	e. Abnormal accumulation of fat

## Exercise Progression: Apply

Using short case study scenarios, this feature directs students to apply knowledge learned throughout the chapter.

**APPLY** Read the following scenario and answer the questions.

A group of surgical technology students is studying for a test on the various procedures that a GI surgeon would perform. They need to know them to assist appropriately and provide the correct instruments: colostomy, colectomy, hepatic lobectomy, esophagectomy, ileostomy, small intestinal anastomosis, and hemorrhoidectomy.

1. What is the difference between a colostomy and a colectomy?  
\_\_\_\_\_  
\_\_\_\_\_
2. What organ is a hepatic lobectomy performed on and what is it?  
\_\_\_\_\_  
\_\_\_\_\_
3. How would an ileostomy and small intestinal anastomosis relate to each other?  
\_\_\_\_\_  
\_\_\_\_\_
4. Where is a hemorrhoidectomy performed and what is it?  
\_\_\_\_\_

## From the Perspective Of

This feature describes health care professionals who benefit from in-depth medical terminology knowledge.


**From the Perspective Of . . .**

**Who:** Registered Nurse

**Other Aliases:** Office Nurse, Clinical Care Coordinator, Lead Nurse, RN, Charge Nurse, Hospice Nurse, Clinical Administrator

**Job Duties:** Obtaining vital signs; assessing patient status; gathering health histories, allergies, and medications. The registered nurse assists the physician with procedures and provides care for the patient after treatment and educates the patient on side effects and disease/conditions. Often, the RN is a lead administrator in many cases and is able to provide other services available to the patient, including specialty care.


**That is why medical terminology is important to me.**



Sheer Photo, Inc./Getty Images

## Study Tips

Tips are geared toward enhancing knowledge of medical terminology.

**STUDY TIP** 

Association Tip: When learning new terms, think about someone you know or a family member who may have the condition or disease that you are learning. It will help you remember that "Aunt Lilly has atherosclerosis because she has had hardening of the arteries for years."

## Did You Know?

This feature emphasizes interesting facts surrounding medical terminology topics.

Did you know
?

### Calcium

Calcium is important for the formation of bones. It is recommended that you pay attention to your daily calcium intake throughout your life because lack of calcium is a factor in certain diseases, such as osteoporosis.



C Squared Studios/Getty Images

## Chapter Summary

Easy-to-use tables summarize the Learning Outcomes included in each chapter.

CHAPTER SUMMARY		
	Learning Outcome	Summary
9.1	Recall the parts of the endocrine system and discuss the function of each part.	<p>The function of the endocrine system is to secrete hormones. The endocrine glands include the following:</p> <ul style="list-style-type: none"> <li>• hypothalamus</li> <li>• neurohypophysis (pituitary gland—posterior)</li> <li>• adenohypophysis (pituitary gland—anterior)</li> <li>• thyroid</li> <li>• parathyroid</li> <li>• adrenal medulla</li> <li>• adrenal cortex</li> <li>• pancreas (in islets of Langerhans)</li> <li>• pineal gland</li> <li>• ovaries</li> <li>• testes</li> <li>• thymus gland</li> </ul>
9.2	Define combining forms used in building words that relate to the endocrine system.	Word building requires knowledge of the combining form and meaning.
9.3	Recall the common diagnostic tests, laboratory tests, and clinical procedures used to test and treat disorders of the endocrine	Diagnostic, procedural, and laboratory findings assist the health care provider to diagnose medical conditions. Often used in combination, these tests lead to a final diagnosis and assist in treatment planning.

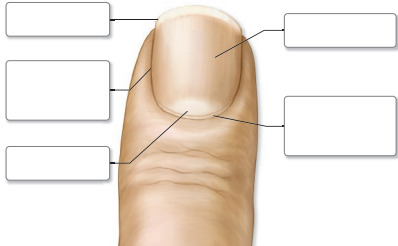
## Chapter Review

Multiple choice, matching, labeling, fill-in-the-blank, and case study questions offer students reinforcement of medical terminology concepts.

RECALL

Label the following on the accompanying figure.

- Free edge of nail
- Nail groove
- Lunula
- Nail body
- Cuticle



## CHAPTER 1

# Learning Terminology, Word Roots, and Combining Forms



OJO Images/Getty Images

### Learning Outcomes

After studying this chapter, you will be able to:

- 1.1** Discuss the history of medical terminology and how terms are developed.
- 1.2** Describe the importance of pronunciation and spelling in medical terminology.
- 1.3** Illustrate the four word parts used to build medical terms.
- 1.4** Identify how word roots and combining forms build medical terms.
- 1.5** Describe the process of pluralizing terms.
- 1.6** Recognize and use medical terminology and its different forms.

## LO 1.1 The Language of Medicine

Many everyday terms that we use to describe our health and our medical care go back to the early history of civilization. People who followed after them gave names to parts of the body, to illnesses, and to the treatments they used (Figure 1-1).

Some of these names survive in the roots and words still used today in medical terminology. For example, the ancient Greeks thought about the disease we call “cancer” as something eating at a person on the inside, and so named the condition *karkinos*, meaning both crab and cancer. Medical terminology began its standardization when Hippocrates (460–377 BC), a Greek physician sometimes referred to as “the father of medicine,” sets about to organize an approach to medicine and wrote the Hippocratic Oath (Figure 1-2).

### Derivation of Medical Terminology

Many medical terms originate directly from ancient Greek or Latin terms. Word building became and remains the primary way to describe even new medical discoveries.

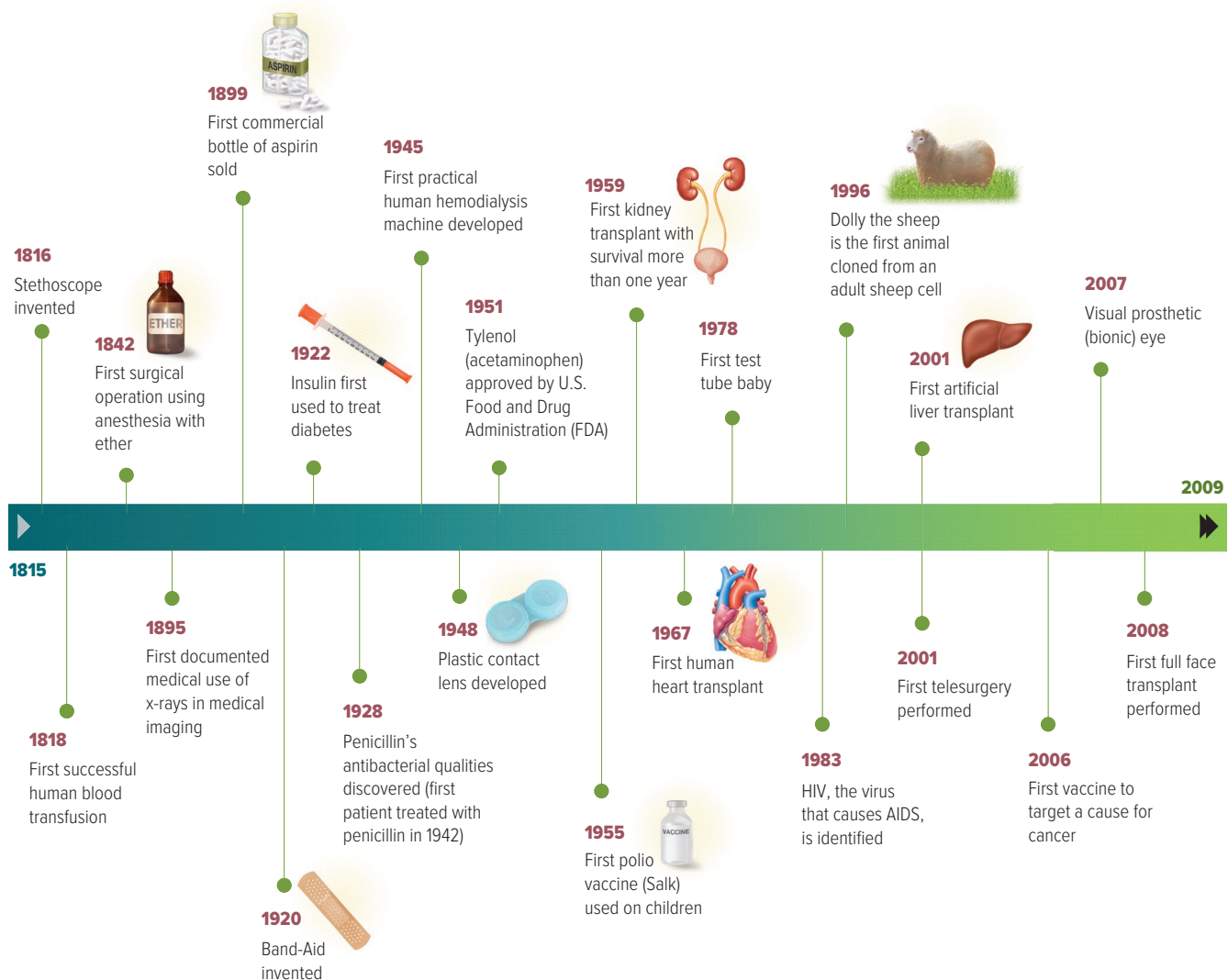


Figure 1-1 Timeline of major medical events/discoveries in medicine



**STUDY TIP** 

For any questions you miss as you are going through the practice, search the material and make a flash card for each word (or word part) you found difficult. At the end of each chapter, use your flash cards for study and review.

So, a suffix, *-tomy*, which means “cutting,” may be used in modern procedures where we do not think of “cutting”; for instance, *phlebotomy* is defined as incision into a vein, but the basic meaning is still the original one, “cutting.” Throughout this text, you will learn the parts of words and the ways of combining them that will enable you to understand medical terminology.

Languages other than English form words in the same way. For example, the word *nerve* is derived from the Latin *nervus*. In Spanish, the word *nervio* is also derived from the same Latin word.

**Practice**

As you begin each “Practice” section in this chapter, cover the left-hand column and answer all the questions below without removing the cover. Then, uncover and check your answers. Remember to also create flash cards to practice learning the medical terms.

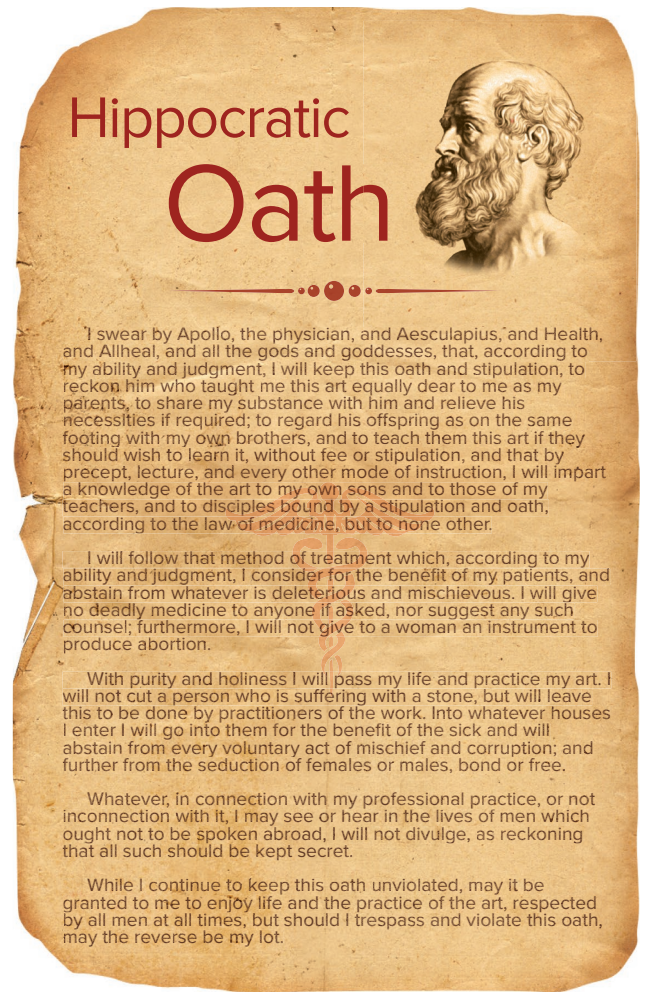


Figure 1-2 The Hippocratic Oath

Rijksmuseum, Amsterdam

Word Building	PRACTICE
	Provide the correct word in the following sentences.
<b>ligament</b>	The modern term for the Latin <i>ligamentum</i> is _____.
<b>kardia</b>	The historical derivation of the modern <i>cardi/o</i> is _____.
<b>tendo</b>	The historical derivation of the modern tendon is _____.
<b>gene</b>	The modern term for the Greek <i>genos</i> is _____.
<b>nerve</b>	The modern term for the Latin <i>nervus</i> is _____.
<b>arteria</b>	The historical derivation of the modern artery is _____.
<b>vein</b>	The modern term for the Latin <i>vena</i> is _____.
<b>cella</b>	The historical derivation of the modern cell is _____.
<b>sinus</b>	The historical derivation of the modern sinus is _____.
<b>hernia</b>	The modern term for <i>hernia</i> is _____.

## Modern-Day Compound Words in English

Although the basis of medical terminology comes from many Greek or Latin terms, there is also an association with modern-day concepts of compound words. Young students learn compound words in elementary school, so we are no doubt familiar with them and use them every day. The concept is simple: combining two words to create one that also combines or forms a new meaning related to the two words. For instance, the bold words in the following sentences are compound words:

The art group gathered **downtown**.

The medical assistant escorted the patient **into** the exam room.

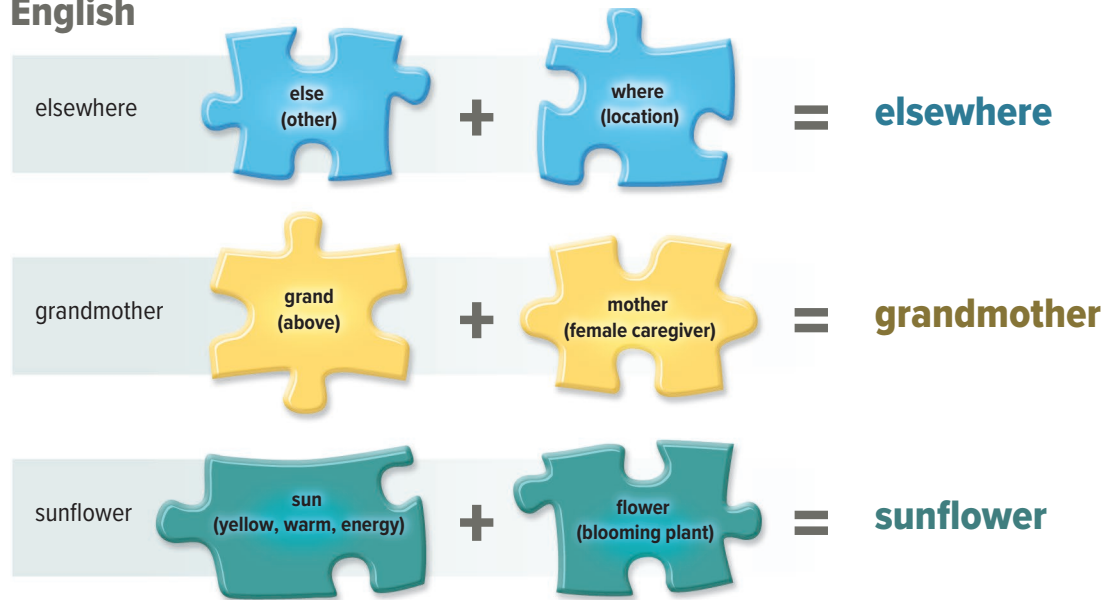
downtown = down + town

into = in + to

Separately, each of the words has its own meaning, but when combined, a new meaning is created that explains two concepts with just one word, or defines a process or direction in more detail.

Medical terminology works the same way. Once the word parts themselves are learned, it becomes a process of combining them together to convey multiple concepts into one word.

### English

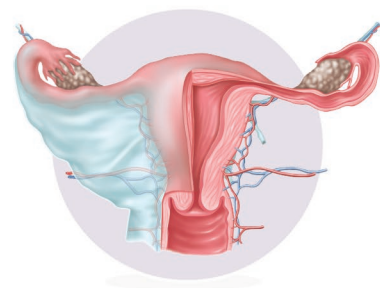


### Medical Terminology

gynec/o = (women)

-logy = (study of)

Gynecology = (the study of women)



(left): Digital Vision/Getty Images; (center): Thinkstock Images/Getty Images

## Did you know



### How War Shaped a Language

When the Romans conquered Greece, around 400 BC, the knowledge and language of both merged, resulting in new medical thoughts and ideas about how the body works, how disease is treated, and how some diseases are spread. Medical records began to be written by hand, which resulted in medical terms, illustrations, and books.



SuperStock

PRONOUNCE	Pronounce the following terms aloud.
<b>gynecology</b>	[gī-nĕ-KOL-ō-jĕ, ji-]
<b>hepatitis</b>	[hep-ă-TĪ-tis]
<b>pulmonary</b>	[PŪL-mō-nār-ē]
<b>bilateral</b>	[bī-LAT-er-ăl]

SPELL	Write the correct modern term of the historical term given.
<b>genos</b>	_____
<b>kardia</b>	_____
<b>hernia</b>	_____
<b>nervus</b>	_____
<b>vena</b>	_____

### UNDERSTAND Match the function of the following terms.

- |                                      |                             |
|--------------------------------------|-----------------------------|
| 1. _____ first languages of medicine | a. <i>karkinos</i>          |
| 2. _____ compound words              | b. Latin and Greek          |
| 3. _____ Hippocrates                 | c. “the father of medicine” |
| 4. _____ ancient word for cancer     | d. grandfather, inside      |

### APPLY Answer the following question.

Explain how medical terms are similar to compound words.

---

---

Accurate				Inaccurate			
Summary of Treatment				Summary of Treatment			
Date	Source	Physician	Description	Date	Source	Physician	Description
Date of injury				Date of injury			
5/20/17	1-17	M.Howard	ER – complained of left wrist, arm pain. Fell from a ladder at work. No head injury. Severe wrist pain, probable fracture. Send for x-rays.	5/03/17	4-20	Smith	Phone- pt call for <b>autopsy</b> results. Negative for cancer per Dr. Smith.
5/20/17	1-25	Fine	X-ray, left forearm – Colles type fracture with comminution and intraarticular extension of the distal radius. There is deformation. X-ray, left shoulder – normal.	6/31/17	4-00	Goldberg	Surgery- <b>open/closed</b> reduction of Right forearm fx. Pt states no loss of feeling in <b>left finders</b> . Reports pain in <b>medial lateral</b> thumb.
5/23/17	1-102	J.Howard	Admission – broken left wrist, Medications Celebrex, Synthroid, Coumadin, Diazepam. Previous Surgeries: rotator cuff repair.	7/01/17	3-??	Fine	ER- complained of left wrist neuralgia, describing “pins and needles” and <b>cephalga</b> with <b>dyskinesha</b>

**Figure 1-3** Medical record: (left) correct documentation and (right) misspellings and incorrect grammar (terms for which corrections are needed are in red)

## LO 1.2 Spelling and Pronunciation of Medical Terms

Misspellings and mispronunciations in a medical setting can result in life-threatening situations. A misspelled or a misunderstood abbreviation for a medicine dosage can have very serious consequences (Figure 1-3). Aside from the possibility of written mistakes, people in health care must check and recheck verbal instructions.

Learning how to spell and pronounce medical terms is a matter of practice. Familiarizing yourself with correct spellings of terms is a matter of seeing the terms over and over again and writing them out, over, and over again. Pronouncing a word aloud each time you see the pronunciation will help you become familiar with the sound of the word. (*Note:* Not everyone agrees on every pronunciation, and there may be regional variations. If your instructor has a particular preference, follow that preference.) Also, use your own medical dictionary as a reference when you have a question. It is a good idea to know some basic terms in other languages such as Spanish when you work in an area where many people mainly speak that language.

**Eponyms** are terms formed from names, such as Parkinson disease. In normal English style, such terms use an apostrophe followed by an *s*. However, some medical associations have decided to drop the apostrophe and/or leave out the *s* in eponyms so that Parkinson disease is now the preferred spelling in certain situations.

In this text, there are two ways to help you learn to pronounce words. First, we capitalize one syllable of all words with two or more syllables so that you can tell where the heaviest accent falls. For example, the word *femoral* is pronounced “FEM-or-al,” with the accent on the first syllable. (Sometimes when there are more than three syllables, two syllables are stressed.) Next, we add marks, called **diacritical marks**. A diacritical mark is used by placing a special mark above the vowel to indicate a special pronunciation and to guide you in pronouncing the word. Vowels are either long or short, as shown in Table 1-1.

**STUDY TIP** 

As you work your way through the book, always practice pronouncing each term as you read it, either aloud or silently. It will help you build confidence when you actually have to pronounce the word aloud.

TABLE 1-1 Pronunciation Guide		
Vowels	Long ( ¯ ) or Short ( ˘ )	Pronunciation Examples
a	long ā	pace, plate
a	short ă	rap, cat, bar
e	long ē	easy, beat
e	short ě	ever, pet
i	long ī	I, line, bite
i	short ĭ	kitten, pit
o	long ō	boat, rose, wrote
o	short ǒ	pot, hot
u	long ū	cute, cube
u	short ŭ	cut, put

Word Building	PRACTICE
	Provide an example for each of the following vowel sounds.
I, line, bite	long ī _____.
pot, hot	short ǒ _____.
ever, pet	short ě _____.
pace, plate	long ā _____.
cut, put	short ŭ _____.
cute, cube	long ū _____.
easy, beat	long ē _____.
kitten, pit	short ĭ _____.
boat, rose, wrote	long ō _____.
rap, cat, bar	short ă _____.

PRONOUNCE	Pronounce the following terms aloud.
hyperthermia	[hī-per-THER-mē-ā]
osteoarthritis	[ŌS-tē-ō-ār-THRĪ-tīs]
metastasis	[mē-TĀS-tā-sīs]
splenomegaly	[splēn-ō-MĚG-ā-lē]

SPELL	Write which syllable of the given word is emphasized.
femoral	_____
dermatitis	_____
osteoma	_____
anesthesia	_____
polyuria	_____

**UNDERSTAND** Match the following vowel sounds to their respective terms.

- |                  |          |
|------------------|----------|
| 1. _____ long ū  | a. pet   |
| 2. _____ long ō  | b. crime |
| 3. _____ short օ | c. tot   |
| 4. _____ long ī  | d. cute  |
| 5. _____ short ě | e. coat  |

**APPLY** Answer the following questions.

1. Create four word examples that have a short ī. Look up your word in a dictionary and write the pronunciation for each word after.

Example: *mortify* [MŌR-ti-fi]

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2. Construct four word examples that have a long ō. Look up your words in a dictionary and write the pronunciation for each word.

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### LO 1.3 Forming Medical Terms

Many medical terms are formed from two or more of the following four basic word parts that are the foundation for medical terminology:

1. A **word root** is the portion of the word that contains its basic meaning. Roots usually indicate a body part or system. For example, the word root *cardi* means “heart.”

Some other examples of common medical word roots are:

<i>dent</i> , tooth	<i>laryng</i> , larynx
<i>gastr</i> , stomach	<i>rhin</i> , nose

2. **Combining forms** are the word root and a combining vowel that connects or *links* two parts whenever two consonants come together to aid pronunciation (as in *laryngoplasty*, which is made up of the combining form *laryng-*, the combining vowel *o*, and the suffix *-plasty*). For example, the word root *cardi* and the combining vowel *o* can form words that relate to the basic meaning “heart,” such as *cardiology*, the medical practice involved with studying, diagnosing, and treating disorders of the heart.

**STUDY TIP** 

Begin making flash cards of word roots, prefixes, and suffixes so that you can mix and match to learn new words as you progress through the text. Try matching different prefixes/suffixes with new word roots and then pronounce the “new term.”

Some other examples of words formed from combining forms are:

*laryng/o laryngoscope*  
*gastr/o gastrology*  
*rhin/o rhinoplasty*

- Prefixes** are word parts attached to the *beginning* of a word or word root that modify its meaning. Prefixes usually indicate a location, direction, quality, or quantity. For example, the prefix *peri-*, meaning “around, near, surrounding,” helps to form the word *pericardium*, meaning “around or surrounding the heart.” (Common medical prefixes are discussed in Chapter 2 as well as in the body system chapters.)

Some other examples of words formed from prefixes are:

*disinfection: dis-*, apart + *infection*, infection = removal of infection or sterilization  
*retroperitoneum: retro-*, behind + *peritoneum*, peritoneum = the space behind the peritoneum

- Suffixes** are word parts attached to the *end* of a word or word root that modify its meaning. Suffixes may indicate a test, procedure, specialty, function, or disorder. For example, the suffix *-oid*, meaning “like or resembling,” helps to form the word *fibroid*, meaning “made of fibrous tissue.”

Some other examples of words formed from suffixes are:

*acrophobia: acro-*, height, tip + *-phobia*, fear = fear of heights  
*electrolysis: electro-*, electricity, electric + *-lysis*, destruction of = the destruction of using electric current



Word Building	PRACTICE
	Fill in the correct word elements in each of the following statements.
<b>peri-colic</b> [PER-i-KOL-ik]	_____ colic is around the colon. (prefix)
<b>dent-algia</b> [den-TAL-jē-a]	dent _____ is the term for tooth pain. (suffix)
<b>dys-menorrhoea</b> [dīs-mēn-ōr-Ē-ā]	_____ menorrhoea is painful menses. (prefix)
<b>hepato-megaly</b> [HĒP-ā-tō-MĒG-ā-lē]	hepato _____ means enlarged liver. (suffix)
<b>hypo-tension</b> [HĪ-pō-TĒN-shŭn]	_____ tension means abnormally low blood pressure. (prefix)
<b>epi-gastric</b> [ĕp-i-GĀS-trĭk]	_____ gastric is the area above the stomach. (prefix)
<b>phlebo-tomy</b> [flē-BŌT-ō-mē]	phleb _____ is incision (or going into) the vein. (suffix)