

MEDICAL TERMINOLOGY

Building Blocks for Health Careers



MEDICAL TERMINOLOGY

Building Blocks for Health Careers

Mary E. Kinn, CPS, CMA-A

Former Assistant Professor, Health Technologies
Long Beach City College,
Long Beach, California

Past President, American Association of Medical Assistants

Past President, California Association of Medical Assistants

Former Chairman, AAMA Certifying Board



Delmar Publishers Inc.®

NOTICE TO THE READER

Publisher does not warrant or guarantee any of the products described herein or perform any independent analysis in connection with any of the product information contained herein. Publisher does not assume, and expressly disclaims, any obligation to obtain and include information other than that provided to it by the manufacturer.

The reader is expressly warned to consider and adopt all safety precautions that might be indicated by the activities described herein and to avoid all potential hazards. By following the instructions contained herein, the reader willingly assumes all risks in connection with such instructions.

The publisher makes no representations or warranties of any kind, including but not limited to, the warranties of fitness for particular purpose or merchantability, nor are any such representations implied with respect to the material set forth herein, and the publisher takes no responsibility with respect to such material. The publisher shall not be liable for any special, consequential or exemplary damages resulting, in whole or in part, from the readers' use of, or reliance upon, this material.

COVER ILLUSTRATION: Gabriel Molano

Delmar Staff

Executive Editor: Leslie F. Boyer
Associate Editor: Marjorie A. Bruce
Project Editor: Eleanor Isenhardt
Production Supervisor: Karen Seebald
Design Coordinator: Susan C. Mathews

For information, address Delmar Publishers Inc.,
2 Computer Drive West, Box 15-015,
Albany, New York 12212.

COPYRIGHT © 1990
BY DELMAR PUBLISHERS INC.

All rights reserved. No part of this work covered by the copyright hereon may be reproduced or used in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems—without written permission of the publisher.

Printed in the United States of America
Published simultaneously in Canada
by Nelson Canada
A Division of International Thomson Limited

10 9 8 7 6 5 4 3 2 1

Library of Congress Cataloging in Publication Data

Kinn, Mary E.
Medical terminology.

Includes index.

1. Medicine—Terminology. I. Title. [DNLM: 1. Nomenclature. W 15 K55mb]
R123.K52 1990 610'.14 88-33415
ISBN 0-8273-3338-2 (pbk.)
ISBN 0-8273-3339-0 (instructor's guide)

PREFACE

INTRODUCTION

Many of the available texts on medical terminology are too comprehensive to complete in the time allotted for the formal classroom, and too intimidating for self-study. *MEDICAL TERMINOLOGY—Building Blocks for Health Careers* is designed as a simplified approach to building a practical medical vocabulary. The text is appropriate for either self-paced home study or a short-term formal course.

The objectives in this study of medical terminology are to:

- correctly spell medical terms
- use accepted pronunciation for medical terms and
- precisely define medical terms.

To be useful, the medical terms must become a comfortable part of one's vocabulary. By completing the exercises throughout the text, learners can build a usable medical vocabulary. The sample readings in this text are representative of actual reports dictated by physicians in their practices. Working with these readings will give the learner a feel for the use of common terminology in context.

A grasp of medical terminology is a basic requirement for most career opportunities in the allied health occupations. Those who have a workable medical vocabulary will find positions in many settings, including physicians' offices, hospitals, laboratories, emergency care centers, medical and surgical equipment firms, insurance companies, medical associations, and federal, state and local medical administrations.

ORGANIZATION OF THE TEXT

Part I, Introduction to Vocabulary Building, consists of Chapters 1, 2 and 3. Chapter 1 relates medical terms to the learner's everyday vocabulary, illustrating that most medical terminology is based on combining easily learned word components, or *building blocks*. Chapter 2 provides an extensive list of frequently used *building blocks*. Chapter 3 follows with general and structural terms that apply to all parts of the body.

These three chapters are the foundation upon which the learner builds a medical vocabulary. If time is very limited, these introductory chapters can be the basis for a short course in medical terminology, with the learner following up with a self-paced study of the remaining chapters.

Part II, Body Systems, is presented in the generally accepted sequence of studies in anatomy and physiology. Therefore, the learner who is concurrently studying anatomy and physiology will find that one class reinforces learning in the other. However, each chapter is independent of the others and the instructor may use any preferred sequence.

Each chapter in Part II begins with objectives, followed by a brief list of key terms that assists the learner in understanding the synoptic review of the body system. The system review is followed by a listing of the *building blocks* for the chapter vocabulary. The vocabulary is subdivided into:

- general terms
- terms related to anatomy and physiology

- terms related to pathology
- terms associated with diagnostic devices and procedures
- terms related to surgery and treatment

Phonetic pronunciation is included for each term. Definitions are simplified as much as possible.

Every chapter includes review exercises to assist learners in their study, and then to reinforce and test the learning that has taken place. Each chapter in Part II includes actual medical records and reports that introduce the student to the world of health care. These reading comprehension exercises can be read aloud and discussed in the classroom if time permits. Reading aloud is important for gaining confidence in pronouncing medical terms. Learners can use them to test their own reading comprehension skills and add to their medical vocabulary. Some of the readings may be difficult for the learners to understand. They are not intended as testing materials, but they do illustrate how medical terms are used and they may serve as a springboard for further study. Chapter 16, Health Professions, briefly describes each medical specialty, the several levels of nursing, and allied health professions.

Appendix I provides an extensive vocabulary covering additional medical and surgical terms that do not relate specifically to one body system. These are divided into selected terms relating to:

- signs and symptoms
- examination and treatment
- diagnostic procedures
- disease or condition

Appendixes II and III include over 600 commonly used abbreviations and acronyms and a glossary of the *building blocks*. An index to the chapter vocabularies is also provided.

SUPPLEMENT

The text is accompanied by an Instructor's Guide which is designed to help the instructor implement a medical terminology course. The guide consists of the following content:

- General Plan of the Guide
- Organization of Text
- Planning the Course
- Study Methods
- Application of Learning
- Testing
- Reference Materials
- Instructional Objectives
- Answers to Text Reviews

- Chapter Tests
- Answers to Test Questions
- Application—Autopsy Report
- Transparency Masters

ACKNOWLEDGMENTS

The author acknowledges with grateful appreciation the contribution of material for this text from:

Kay Cox, RN
 Hugh M. Firemark, MD
 Sondra Sue Hein, CMT
 James A. Padova, MD
 Arthur D. Silk, MD

Joseph K. Cummings, MD
 Stephen Goldberger, MD
 Edward W. Kim, MD
 W. Allen Schade, MA
 Theodore Van Dam, MD

The following individuals provided extensive reviews of the manuscript and provided valuable guidance to the author. Their contributions are most appreciated.

Ann Frasier, Program Coordinator, Detroit College, Dearborn, MI 48126-3799
 William J. Lorman, Director of Education, National Schools, Inc., Philadelphia, PA 19107

Lois H. Johnson, State Specialist, Health Occupations, State Department of Education, Montgomery, AL 36130

Helen R. Gemeinhardt, Medical Curriculum Specialist, National Education Centers, Inc. Irvine, CA 92714

Bernadette A. Bly, The Bryman School, Salt Lake City, UT 84111-3209

Ann Senisi, Coordinator of Nursing/Health Occupations, Nassau Tech Board of Cooperative Educational Services, Westbury, NY 11590

Janet Dancy, Central Piedmont Community College, Charlotte, NC 28210



PART I

INTRODUCTION TO VOCABULARY BUILDING

CONTENTS

Part I

Introduction to Vocabulary Building

Chapter 1

The Elements of a Medical Vocabulary 1

Introduction	2
Commonly Used Terms	2
Learning and Remembering Medical Terms	3
Combining Vowels	5
Adjective Endings	6
A Guideline for Word Formation	7
Forming Plurals	7
Pronouncing Medical Terms	8
The Importance of Spelling Medical Terms Correctly	10
Reviews	11

Chapter 2

Frequently Used Building Blocks 13

Frequently Used Suffixes	15
Frequently Used Roots	18
Frequently Used Prefixes	21
Reviews	24

Chapter 3

General and Structural Terms 31

Using Your New Vocabulary	32
Points of Reference	33
Structural Units of the Human Body	33
Planes of the Body	34
Body Cavities	35
The Anatomic Position	36
Directional Terms	38
Body Motions	38
Anatomic Regions of the Abdomen	40
Clinical Divisions of the Abdomen	40
Anatomic Regions of the Back	41
Building Blocks	42
Vocabulary	44
Reviews	46

PART II
Body Systems

Chapter 4
Integumentary System 55

Overview	57
Structure of the Skin	57
Skin Appendages	59
Building Blocks	60
Vocabulary	62
Reviews	69

Chapter 5
Skeletal System 77

Structure and Function of the Skeletal System	78
Types of Bones, Structure, and Bone Markings	80
Divisions of the Skeleton	82
Joints	89
Fractures	89
Building Blocks	92
Vocabulary	93
Reviews	99

Chapter 6
Muscular System 109

Overview	110
Types of Muscle Tissue	110
Muscle Attachments	111
Muscle Parts	111
Muscle Functions	111
Building Blocks	115
Vocabulary	117
Reviews	123

Chapter 7
Circulatory, Lymphatic, and Immune Systems 133

Overview	136
The Heart	138
Blood Vessels	140
Blood	141
Lymphatics	142
Spleen	142
Thymus	142
Immune System	145
Building Blocks	147
Vocabulary	148
Reviews	158

Chapter 8 Respiratory System 169

Overview	170
Structure and Function	170
Building Blocks	176
Vocabulary	178
Reviews	185

Chapter 9 Digestive System 195

Overview	197
Primary Digestive Organs	197
Accessory Digestive Organs	201
Building Blocks	205
Vocabulary	206
Reviews	216

Chapter 10 Male Reproductive System 227

Overview	228
Male Gonads	229
Duct System	230
Glands	230
External Genitalia	231
Building Blocks	233
Vocabulary	234
Reviews	240

Chapter 11 Female Reproductive System 249

Overview	251
Female Gonads (Ovaries)	251
Internal Organs	252
External Structures	253
Mammary Glands (Breasts)	256
Hormones	256
Menstruation	257
Menopause	257
Building Blocks	257
Vocabulary	259
Reviews	272

Chapter 12 Urinary System 285

Overview	286
Kidneys	288

Ureters	290
Urinary Bladder	291
Urethra	291
Urine	291
Building Blocks	292
Vocabulary	293
Reviews	300

Chapter 13

Endocrine System

309

Overview	311
Structure and Function	311
Building Blocks	314
Vocabulary	315
Reviews	323

Chapter 14

Nervous System

331

Overview	332
Neurons and Nerves	332
Central Nervous System	335
Peripheral Nervous System	338
Medical Care and the Nervous System	338
Building Blocks	339
Vocabulary	340
Reviews	351

Chapter 15

Special Senses: Sight and Hearing

361

Overview	363
Structure and Function of the Eye	363
Visual Acuity	365
Refractive Disorders	366
Common Ophthalmic Diseases	366
Building Blocks	366
Vocabulary	367
Structure and Function of the Ear	374
Common Disorders of the Ear	377
Building Blocks	377
Vocabulary	378
Reviews	381

Chapter 16	
Health Professions	395
Overview	396
Medicine	396
Nursing	400
Allied Health	401
Reviews	403
 Appendix I	
Additional Medical and Surgical Terms	406
Selected Terms Relating to Signs and Symptoms	406
Selected Terms Relating to Examination and Treatment	410
Selected Terms Relating to Diagnostic Procedures	415
Selected Terms Relating to a Disease or Condition	417
 Appendix II	
Commonly Used Abbreviations	421
 Appendix III	
Glossary of Building Blocks	435
 Index	457

CHAPTER 1

The Elements of a Medical Vocabulary

OBJECTIVES

When you have successfully completed Chapter 1, you should be able to:

- Relate words in your everyday vocabulary to the building of medical terms.
- Understand the basic process of word building.
- Form plurals of most nouns.
- Correctly pronounce the terms you have learned.
- Understand the importance of spelling medical terms carefully.

KEY TERMS

adjective	A word used with a noun to modify its meaning
analyze	To separate into elements or parts
consonant	A letter of the alphabet other than <i>a, e, i, o, u</i>
diphthong	A blend of two vowel sounds in one syllable
interpret	To explain or tell the meaning of
noun	A word that is the name of something, such as a person, place, thing, or idea
plural	The form of a word denoting more than one
pronounce	To say words or syllables aloud
syllable	Several letters taken together to form one sound
vocabulary	A list or collection of words
vowel	One of the letters <i>a, e, i, o, u</i> . The letter <i>y</i> sometimes serves as a vowel.

INTRODUCTION

This text has two main purposes:

1. To help you build a medical vocabulary easily and quickly, and
2. To assist you in interpreting medical terms as they are used in medical practice.

In this first chapter, we will talk about the way that medical terms are built. We will analyze the terms, and you will have practice exercises to help you remember. In later chapters you will learn how to interpret medical terminology as it is used by physicians and other health professionals.

COMMONLY USED TERMS

You may not realize that many medical terms are already a part of your vocabulary. You've seen them in print—in advertisements, for instance; you've heard them in television programs; and you've used them in conversation. Let's analyze a few medical terms that you are likely to have heard. Like the new medical terms you'll be learning later on, they are formed from combinations of parts.

abnormal *ab-* is a word beginning, or prefix, often used in medical terms. It means *away from*.

anemia	<i>an-</i> is a prefix meaning <i>not</i> or <i>without</i> . <i>-emia</i> is a word ending, or suffix, meaning <i>blood condition</i> .
appendectomy	<i>-ectomy</i> is a suffix used in surgical terms; it means <i>taking out</i> (excision) or <i>removing</i> ; <i>append-</i> refers to the appendix.
arthritis	<i>arthr</i> is a word root meaning <i>joint</i> ; <i>-itis</i> is a suffix meaning <i>inflammation</i> .
cardiogram	<i>cardio</i> is a combining form referring to the heart; <i>-gram</i> is a suffix meaning <i>a recording</i> .
diarrhea	<i>dia-</i> is a prefix meaning <i>through</i> ; <i>-thea</i> is a suffix meaning <i>flow</i> .
hydrophobia	<i>hydro-</i> is a root meaning <i>water</i> ; <i>-phobia</i> means <i>fear</i> . It is the medical term for rabies, a disease in which the victim fears water because swallowing it leads to painful spasms.
hypodermic	The prefix <i>hypo-</i> means <i>beneath</i> ; the suffix <i>-dermic</i> means <i>having to do with the skin</i> . A hypodermic syringe (needle) injects fluid beneath the skin.
neuralgia	<i>neur-</i> is the root for <i>nerve</i> ; the word ending <i>-algia</i> means <i>pain</i> in the body part it follows.
tracheotomy	<i>trache</i> is the medical root for <i>trachea</i> (the windpipe); <i>-otomy</i> is a surgical suffix that means <i>a cutting or incision</i> .

These are only a few examples of words that you may already have heard and used. You may feel quite comfortable with them. As you work through this text, you'll find the new terms becoming just as comfortable.

LEARNING AND REMEMBERING MEDICAL TERMS

Let's begin by learning some word parts. Medical terms have three basic elements: (1) roots, (2) prefixes, and (3) suffixes (Figure 1.1).

- The *root* is that part of a word that can stand alone and have meaning.
- A *prefix* is a letter or group of letters placed *before* the root or roots to change (modify) their meaning.
- A *suffix* is a letter or group of letters placed *after* the root or roots to change (modify) their meaning.

Like the plastic blocks that children play with, these basic forms can be linked in hundreds of different ways to create different meanings. By thinking of them as *building blocks*, you can make building a medical vocabulary into a game.

Once you have learned a word and understand its meaning, you should be able to use it forever. Most medical terms do not change their meanings. Sometimes the logic of the way the word was formed no longer makes sense because of new discoveries. For example, the term *artery* comes from the Greek word *arteria*, which means windpipe yet we now know that arteries carry blood, not air. The ancient Greeks believed that the

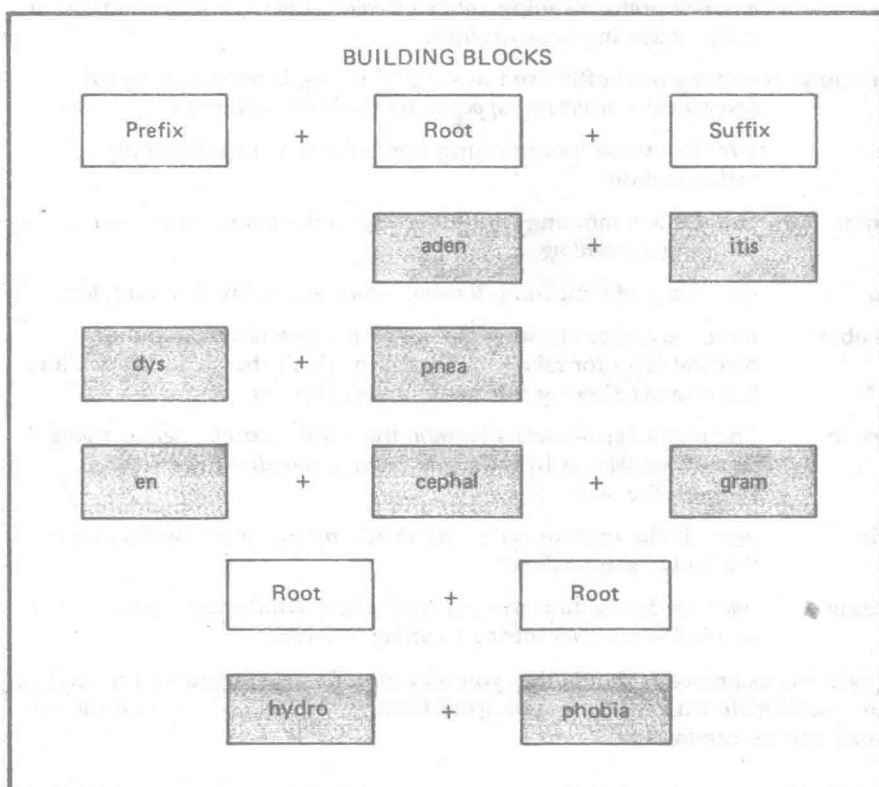


FIGURE 1.1 Constructing medical terms using building blocks

arteries carried only air because their physicians had never found blood in the arteries of a cadaver (a dead body). Even so, the word “artery” remains in the medical vocabulary today, as similar terms do.

This is not to say that a medical vocabulary never changes. As advances in medicine are made, new words are coined. Others are discarded. The new words are often formed from the very building blocks that you will be mastering. These basics will always be with you to help you build and interpret new terms.

Analyzing the Structure of Words

Now, let’s explore some common building blocks (Figure 1.1). In the lists of examples, you will see the building block, then its meaning, then its use in the full word, where the building block is shown in *italics*.

ROOT. The *root* of a word can stand alone and have meaning. For example:

Root	Meaning	Example
aden	gland	adenitis
cardi	heart	cardiology
cephal	head	encephalogram
derm	skin	dermatosis
flex	bending	anteflexion
gastr	stomach	gastroscopy
hydr	water	hydrophobia
my	muscle	myalgia
neur	nerve	neuritis
pnea	breath	dyspnea

PREFIX. Recall that a *prefix* is a letter or group of letters placed before a word to change (modify) its meaning. For example:

Prefix	Meaning	Example
a-	without, not	apnea
ante-	before (in time or place)	anteflexion
dys-	bad, painful, difficult	dysfunction (Note: This is an example in which y serves as a vowel.)
endo-	within	endocrine
retro-	behind, backward	retrograde

SUFFIX. Recall that a *suffix* is a letter or group of letters placed after a word to change (modify) its meaning. For example:

Suffix	Meaning	Example
-algia	pain, painful condition	neuralgia
-cele	herniation or bulging	hydrocele
-itis	inflammation	gastritis
-ology	study or science of	cardiology
-pathy	disease	myopathy

COMBINING VOWELS

Sometimes in our word building we need a vowel to link the parts together. A vowel used this way is called a *combining vowel*. Often it is an *o*. It may link a root to another root or a root to a suffix. When a combining vowel is added to a root, we have what is called a *combining form*. For example, in the word *adenopathy*, the root is *aden*, and the suffix is *-pathy*. We join the root and the suffix with the combining vowel *o* to make a complete word that can be easily pronounced. *Adeno* is the combining form.